

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	5,855.5	2,260.8	231

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	17	11	Increase	14	19	Very Good	4	6	Likely	0	0
Hickory	0			Medium	18	26	No Change	7	3	Good	9	10	Infill	3	4
Maple	4	Abundant	7	Low	14	13	Decrease	9	8	Fair	7	7	Migrate	3	15
Oak	1	Common	11	FIA	1		New	16	16	Poor	5	4		6	19
Pine	2	Rare	13				Unknown	4	4	Very Poor	4	1			
Other	21	Absent	19							FIA Only	1	1			
	31		50		50	50		50	50	Unknown	3	3			
											33	32			

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	43.5	46.9	
	GFDL45	38.3	41.4	45.0	46.6	
	GFDL85	38.3	41.9	46.5	51.9	
	HAD45	38.3	41.5	44.5	46.3	
	HAD85	38.3	41.7	45.8	51.6	
Growing Season May—Sep	CCSM45	57.2	59.3	61.2	61.5	
	CCSM85	57.2	59.6	62.0	65.9	
	GFDL45	57.2	60.9	64.4	66.3	
	GFDL85	57.2	61.2	65.9	71.5	
	HAD45	57.2	60.2	62.8	65.0	
	HAD85	57.2	59.9	64.4	70.5	
Coldest Month Average	CCSM45	8.5	10.2	12.2	12.6	
	CCSM85	8.5	11.4	12.9	15.5	
	GFDL45	8.5	11.3	14.2	15.4	
	GFDL85	8.5	12.4	15.3	18.4	
	HAD45	8.5	11.5	14.3	14.9	
	HAD85	8.5	13.1	15.7	19.5	
Warmest Month Average	CCSM45	63.5	65.6	66.9	66.9	
	CCSM85	63.5	66.1	67.9	69.8	
	GFDL45	63.5	66.7	68.8	70.1	
	GFDL85	63.5	67.0	70.1	73.0	
	HAD45	63.5	66.6	67.9	69.3	
	HAD85	63.5	66.3	68.8	73.1	

Precipitation (in)

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	46.9	45.7	45.6	49.8	
	CCSM85	46.9	48.1	47.9	49.7	
	GFDL45	46.9	51.5	54.4	53.2	
	GFDL85	46.9	50.3	52.9	54.1	
	HAD45	46.9	50.7	53.6	53.3	
	HAD85	46.9	52.0	52.0	56.2	
Growing Season May—Sep	CCSM45	22.7	22.6	21.4	23.0	
	CCSM85	22.7	23.2	22.8	21.8	
	GFDL45	22.7	22.5	22.3	22.2	
	GFDL85	22.7	23.0	22.4	21.0	
	HAD45	22.7	24.5	24.5	25.9	
	HAD85	22.7	23.9	24.1	26.3	

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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Current and Potential Future Habitat, Capability, and Migration

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	99.1	2712.0	17.4	Lg. dec.	Lg. dec.	Low	Abundant	Poor	Poor			0	1
red spruce	Picea rubens	NDH	High	99.7	1795.3	12.0	Sm. dec.	Sm. dec.	Low	Abundant	Fair	Fair			0	2
sugar maple	Acer saccharum	WDH	High	84.2	1393.1	11.0	No change	No change	High	Abundant	Very Good	Very Good			1	3
yellow birch	Betula alleghaniensis	NDL	High	97.4	1337.3	8.8	Sm. dec.	Sm. dec.	Medium	Abundant	Fair	Fair			0	4
red maple	Acer rubrum	WDH	High	94.9	1246.7	8.7	Sm. inc.	Sm. inc.	High	Abundant	Very Good	Very Good			1	5
paper birch	Betula papyrifera	WDH	High	95.6	966.4	6.7	Sm. dec.	Sm. dec.	Medium	Abundant	Fair	Fair			0	6
northern white-cedar	Thuja occidentalis	WSH	High	55.4	500.8	6.1	No change	Sm. inc.	Medium	Abundant	Good	Very Good			1	7
American beech	Fagus grandifolia	WDH	High	54.3	493.5	6.0	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	8
quaking aspen	Populus tremuloides	WDH	High	48.1	266.1	4.2	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	9
black spruce	Picea mariana	NSH	High	23.5	210.7	7.4	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	10
striped maple	Acer pensylvanicum	NSL	Medium	74.6	179.3	1.6	No change	No change	Medium	Common	Fair	Fair			1	11
white spruce	Picea glauca	NSL	Medium	53.4	169.2	2.1	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	12
eastern white pine	Pinus strobus	WDH	High	30.3	112.6	2.5	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	13
red pine	Pinus resinosa	NSH	Medium	14.3	108.2	5.7	Sm. inc.	Lg. inc.	Low	Common	Fair	Good	Infill +	Infill ++	1	14
pin cherry	Prunus pensylvanica	NSL	Low	34.9	70.7	1.4	Sm. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	15
eastern hemlock	Tsuga canadensis	NSH	High	14.2	69.6	2.4	Lg. inc.	Lg. inc.	Low	Common	Good	Good	Infill ++	Infill ++	1	16
bigtooth aspen	Populus grandidentata	NSL	Medium	19.9	60.1	2.2	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	17
white ash	Fraxinus americana	WDL	Medium	18.7	55.7	1.6	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	18
black ash	Fraxinus nigra	WSH	Medium	13.1	44.1	2.3	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair			1	19
American mountain-ash	Sorbus americana	NSL	Low	21	26.5	0.8	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	20
tamarack (native)	Larix laricina	NSH	High	6.8	26.0	3.8	No change	Sm. inc.	Low	Rare	Very Poor	Poor		Infill +	1	21
black cherry	Prunus serotina	WDL	Medium	21.2	23.8	1.0	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair			1	22
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	8.8	19.7	1.5	Lg. inc.	Lg. inc.	High	Rare	Good	Good			1	23
mountain maple	Acer spicatum	NSL	Low	21.4	14.2	0.5	Very Lg. dec.	Very Lg. dec.	High	Rare	Lost	Lost			0	24
gray birch	Betula populifolia	NSL	Low	6.6	12.2	1.0	No change	No change	Medium	Rare	Poor	Poor			1	25
northern red oak	Quercus rubra	WDH	Medium	2.1	10.2	0.9	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	26
balsam poplar	Populus balsamifera	NSH	Medium	5.1	9.4	1.8	Lg. dec.	Very Lg. dec.	Medium	Rare	Very Poor	Lost			0	27
serviceberry	Amelanchier spp.	NSL	Low	6.7	8.3	0.8	No change	Sm. inc.	Medium	Rare	Poor	Fair			1	28
green ash	Fraxinus pennsylvanica	WSH	Low	1.7	5.6	3.2	Sm. dec.	Lg. inc.	Medium	Rare	Very Poor	Good			2	29
American basswood	Tilia americana	WSL	Medium	0.2	3.6	0.2	No change	Lg. inc.	Medium	Rare	Poor	Good			2	30
chokecherry	Prunus virginiana	NSLX	FIA	1.7	1.2	0.7	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	31
eastern redcedar	Juniperus virginiana	WDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	32
yellow buckeye	Aesculus flava	NSL	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	33
sweet birch	Betula lenta	NDH	High	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	34
American hornbeam; muscle	Carpinus caroliniana	WSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	35
bitternut hickory	Carya cordiformis	WSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	36
pignut hickory	Carya glabra	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	37
pecan	Carya illinoensis	NSH	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	38
shagbark hickory	Carya ovata	WSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	39
silverbell	Halesia spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	40
black walnut	Juglans nigra	WDH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	41
yellow-poplar	Liriodendron tulipifera	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	42
blackgum	Nyssa sylvatica	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	43
white oak	Quercus alba	WDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	44
scarlet oak	Quercus coccinea	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	45
northern pin oak	Quercus ellipsoidalis	NSH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			0	46
chestnut oak	Quercus prinus	NDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate ++	3	47

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Northern Research Station
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black oak	Quercus velutina	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	48
black locust	Robinia pseudoacacia	NDH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	49
American elm	Ulmus americana	WDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	50