

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	4,871.3	1,880.8	304

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	13	Increase	19	18	Very Good	5	4	Likely	0	0
Hickory	0			Medium	17	24	No Change	3	4	Good	13	14	Infill	6	9
Maple	5	Abundant	8	Low	16	10	Decrease	8	8	Fair	8	8	Migrate	2	12
Oak	3	Common	8	FIA	1		New	15	15	Poor	2	2		8	21
Pine	3	Rare	15				Unknown	2	2	Very Poor	0	0			
Other	18	Absent	16							FIA Only	1	1			
	31		47		47	47		47	47	Unknown	1	1			
											30	30			

Potential Changes in Climate Variables

Temperature (°F)

Scenario	2009	2039	2069	2099		
Annual	CCSM45	38.2	39.6	42.4	42.8	
Average	CCSM85	38.2	40.4	43.8	47.4	
	GFDL45	38.2	41.2	44.1	45.8	
	GFDL85	38.2	41.5	45.5	50.9	
	HAD45	38.2	41.4	44.9	47.1	
	HAD85	38.2	41.9	46.1	52.3	
Growing Season	CCSM45	59.7	61.2	63.7	64.1	
	CCSM85	59.7	62.3	65.1	69.1	
May—Sep	GFDL45	59.7	63.3	66.8	68.8	
	GFDL85	59.7	63.7	68.0	73.9	
	HAD45	59.7	62.9	65.8	68.3	
	HAD85	59.7	62.8	66.8	73.2	
Coldest Month	CCSM45	2.6	4.2	6.5	6.7	
	CCSM85	2.6	3.3	6.0	8.3	
Average	GFDL45	2.6	6.3	8.3	9.3	
	GFDL85	2.6	7.5	9.3	12.9	
	HAD45	2.6	4.9	9.2	8.9	
	HAD85	2.6	8.4	11.6	15.8	
Warmest Month	CCSM45	66.4	68.1	69.7	70.2	
	CCSM85	66.4	69.7	71.7	74.1	
Average	GFDL45	66.4	70.5	72.0	73.6	
	GFDL85	66.4	70.8	73.2	76.2	
	HAD45	66.4	69.9	71.2	73.2	
	HAD85	66.4	70.0	72.1	76.2	

Precipitation (in)

Scenario	2009	2039	2069	2099		
Annual	CCSM45	26.8	27.4	27.6	26.7	
Total	CCSM85	26.8	26.6	27.5	27.0	
	GFDL45	26.8	29.0	30.9	29.7	
	GFDL85	26.8	30.7	31.5	32.0	
	HAD45	26.8	28.2	26.5	27.8	
	HAD85	26.8	27.6	28.1	29.1	
Growing Season	CCSM45	17.7	18.0	17.4	16.9	
	CCSM85	17.7	17.1	17.1	16.2	
May—Sep	GFDL45	17.7	19.4	20.0	19.5	
	GFDL85	17.7	20.6	20.6	19.9	
	HAD45	17.7	17.9	15.7	16.2	
	HAD85	17.7	17.1	15.9	15.3	

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-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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USDA Forest Service
Northern Research Station
Landscape Change Research Group
Iverson, Peters, Prasad, Matthews

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Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIAiv	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
black spruce	<i>Picea mariana</i>	NSH	High	87.2	2792.3	20.6	Lg. dec.	Lg. dec.	Medium	Abundant	Fair	Fair			0	1
quaking aspen	<i>Populus tremuloides</i>	WDH	High	88.4	1991.0	14.6	No change	No change	Medium	Abundant	Good	Good			1	2
tamarack (native)	<i>Larix laricina</i>	NSH	High	84.2	1357.9	10.3	Sm. inc.	Sm. inc.	Low	Abundant	Good	Good			1	3
northern white-cedar	<i>Thuja occidentalis</i>	WSH	High	68.6	1356.9	12.4	Sm. dec.	Sm. dec.	Medium	Abundant	Fair	Fair			0	4
balsam fir	<i>Abies balsamea</i>	NDH	High	93.7	1056.6	7.3	Sm. dec.	Sm. dec.	Low	Abundant	Fair	Fair			0	5
black ash	<i>Fraxinus nigra</i>	WSH	Medium	86.4	951.2	7.9	No change	No change	Low	Abundant	Fair	Fair			0	6
paper birch	<i>Betula papyrifera</i>	WDH	High	88	594.5	4.3	Sm. inc.	No change	Medium	Abundant	Very Good	Good			1	7
balsam poplar	<i>Populus balsamifera</i>	NSH	Medium	77.1	583.2	5.1	No change	No change	Medium	Abundant	Good	Good			1	8
white spruce	<i>Picea glauca</i>	NSL	Medium	70.1	355.4	2.9	Lg. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	9
jack pine	<i>Pinus banksiana</i>	NSH	Medium	27.6	270.4	7.7	Lg. dec.	Lg. dec.	High	Common	Fair	Fair			1	10
bur oak	<i>Quercus macrocarpa</i>	NDH	Medium	19.9	244.5	2.1	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good	Infill ++	Infill ++	1	11
red maple	<i>Acer rubrum</i>	WDH	High	48.6	218.8	2.3	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	12
red pine	<i>Pinus resinosa</i>	NSH	Medium	17.9	124.8	5.7	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	13
eastern white pine	<i>Pinus strobus</i>	WDH	High	16.9	96.0	3.8	Lg. inc.	Lg. inc.	Low	Common	Good	Good	Infill ++	Infill ++	1	14
American elm	<i>Ulmus americana</i>	WDH	Medium	54	73.0	0.8	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	15
American basswood	<i>Tilia americana</i>	WSL	Medium	20	63.0	2.3	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	16
boxelder	<i>Acer negundo</i>	WSH	Low	15.7	42.1	1.9	Lg. inc.	Lg. inc.	High	Rare	Good	Good			1	17
green ash	<i>Fraxinus pennsylvanica</i>	WSH	Low	20	33.2	1.0	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	18
northern red oak	<i>Quercus rubra</i>	WDH	Medium	3.6	28.4	5.6	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	19
mountain maple	<i>Acer spicatum</i>	NSL	Low	28.8	23.6	0.4	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			1	20
bigtooth aspen	<i>Populus grandidentata</i>	NSL	Medium	8.1	19.0	0.7	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	1	21
silver maple	<i>Acer saccharinum</i>	NSH	Low	2.1	9.6	4.7	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	22
sugar maple	<i>Acer saccharum</i>	WDH	High	2.6	8.1	1.7	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	23
serviceberry	<i>Amelanchier spp.</i>	NSL	Low	18.3	6.9	0.4	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	24
chokecherry	<i>Prunus virginiana</i>	NSLX	FIA	17.5	4.7	0.2	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	25
yellow birch	<i>Betula alleghaniensis</i>	NDL	High	5.5	2.8	0.4	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	26
northern pin oak	<i>Quercus ellipsoidalis</i>	NSH	Medium	2.2	2.4	0.2	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	27
pin cherry	<i>Prunus pensylvanica</i>	NSL	Low	6.1	1.5	0.3	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	28
black cherry	<i>Prunus serotina</i>	WDL	Medium	4.1	0.8	0.2	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair		Infill +	2	29
eastern hophornbeam; ironw	<i>Ostrya virginiana</i>	WSL	Low	0.3	0.7	0.1	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	30
black willow	<i>Salix nigra</i>	NSH	Low	1.6	0.3	0.1	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair		Infill +	2	31
eastern redcedar	<i>Juniperus virginiana</i>	WDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate ++	3	32
eastern hemlock	<i>Tsuga canadensis</i>	NSH	High	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	33
bitternut hickory	<i>Carya cordiformis</i>	WSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	34
shagbark hickory	<i>Carya ovata</i>	WSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	35
hackberry	<i>Celtis occidentalis</i>	WDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	36
American beech	<i>Fagus grandifolia</i>	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	37
white ash	<i>Fraxinus americana</i>	WDL	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat		Migrate +	3	38
black walnut	<i>Juglans nigra</i>	WDH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	39
red mulberry	<i>Morus rubra</i>	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	40
eastern cottonwood	<i>Populus deltoides</i>	NSH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	41
white oak	<i>Quercus alba</i>	WDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	42
swamp white oak	<i>Quercus bicolor</i>	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	43
black oak	<i>Quercus velutina</i>	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	44
black locust	<i>Robinia pseudoacacia</i>	NDH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	45
American mountain-ash	<i>Sorbus americana</i>	NSL	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	46
slippery elm	<i>Ulmus rubra</i>	WSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	47