

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
 8,837.4 3,412.1 393

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	21	17	Increase	15	21	Very Good	4	3	Likely	1	1
Hickory	0			Medium	21	35	No Change	8	3	Good	10	15	Infill	4	8
Maple	6	Abundant	7	Low	25	15	Decrease	14	13	Fair	5	8	Migrate	8	16
Oak	2	Common	12	FIA	1		New	22	24	Poor	13	6		13	25
Pine	3	Rare	19				Unknown	9	7	Very Poor	4	3			
Other	24	Absent	30					68	68	FIA Only	0	0			
	38		68		68	67				Unknown	8	6			
											44	41			

Potential Changes in Climate Variables

Temperature (°F)

Scenario	2009	2039	2069	2099		
Annual	CCSM45	40.2	42.1	44.5	44.6	
Average	CCSM85	40.2	42.7	45.4	48.7	
	GFDL45	40.2	43.1	46.7	48.3	
	GFDL85	40.2	43.8	48.2	53.4	
	HAD45	40.2	43.3	46.4	48.2	
	HAD85	40.2	43.5	47.6	53.4	
Growing Season	CCSM45	58.3	60.4	62.3	62.7	
	CCSM85	58.3	60.7	63.2	67.0	
May—Sep	GFDL45	58.3	61.6	65.3	67.1	
	GFDL85	58.3	62.2	66.9	72.4	
	HAD45	58.3	61.4	64.0	66.3	
	HAD85	58.3	61.0	65.6	71.7	
Coldest Month	CCSM45	11.5	13.3	15.4	15.7	
	CCSM85	11.5	14.6	16.0	18.5	
Average	GFDL45	11.5	14.4	17.0	18.4	
	GFDL85	11.5	15.6	18.0	21.1	
	HAD45	11.5	14.4	17.3	17.7	
	HAD85	11.5	15.8	18.3	22.1	
Warmest Month	CCSM45	64.4	66.6	67.9	67.9	
	CCSM85	64.4	67.1	68.9	70.9	
Average	GFDL45	64.4	67.4	69.4	70.8	
	GFDL85	64.4	68.0	71.0	73.9	
	HAD45	64.4	67.6	69.0	70.5	
	HAD85	64.4	67.2	69.9	74.2	

Precipitation (in)

Scenario	2009	2039	2069	2099		
Annual	CCSM45	49.0	48.1	46.9	51.8	
Total	CCSM85	49.0	49.4	50.0	52.0	
	GFDL45	49.0	53.1	56.1	54.7	
	GFDL85	49.0	51.6	54.6	55.8	
	HAD45	49.0	52.9	55.2	54.2	
	HAD85	49.0	54.1	53.6	57.1	
Growing Season	CCSM45	23.1	23.2	21.5	23.2	
	CCSM85	23.1	22.9	23.3	22.3	
May—Sep	GFDL45	23.1	23.3	22.6	22.8	
	GFDL85	23.1	23.4	22.8	21.5	
	HAD45	23.1	24.9	24.7	25.6	
	HAD85	23.1	24.2	23.9	26.1	

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	96.2	2240.2	16.4	Lg. dec.	Lg. dec.	Low	Abundant	Poor	Poor			0	1
sugar maple	Acer saccharum	WDH	High	86.4	1706.0	14.0	No change	Sm. dec.	High	Abundant	Very Good	Good			1	2
yellow birch	Betula alleghaniensis	NDL	High	91.9	1369.8	11.6	Sm. dec.	Lg. dec.	Medium	Abundant	Fair	Fair			0	3
red maple	Acer rubrum	WDH	High	94.2	1209.5	9.3	Sm. inc.	Sm. inc.	High	Abundant	Very Good	Very Good			1	4
red spruce	Picea rubens	NDH	High	88.7	1047.4	8.3	Sm. dec.	Sm. dec.	Low	Abundant	Fair	Fair			0	5
paper birch	Betula papyrifera	WDH	High	89	982.0	8.5	Sm. dec.	Sm. dec.	Medium	Abundant	Fair	Fair			0	6
American beech	Fagus grandifolia	WDH	High	76.2	847.7	7.9	No change	No change	Medium	Abundant	Good	Good			1	7
eastern hemlock	Tsuga canadensis	NSH	High	44.2	377.7	5.2	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	8
eastern white pine	Pinus strobus	WDH	High	33.7	326.7	5.7	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	9
quaking aspen	Populus tremuloides	WDH	High	47.1	250.5	4.2	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	10
striped maple	Acer pensylvanicum	NSL	Medium	76.4	229.2	2.3	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	11
white ash	Fraxinus americana	WDL	Medium	50.3	195.6	2.7	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	12
black cherry	Prunus serotina	WDL	Medium	37.7	179.8	3.3	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	13
northern white-cedar	Thuja occidentalis	WSH	High	12.5	153.9	5.6	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	14
white spruce	Picea glauca	NSL	Medium	19.5	108.6	3.0	No change	Sm. inc.	Medium	Common	Fair	Good			1	15
northern red oak	Quercus rubra	WDH	Medium	14.8	108.1	2.9	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	16
pin cherry	Prunus pensylvanica	NSL	Low	55.1	97.8	1.4	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	17
balsam poplar	Populus balsamifera	NSH	Medium	11.9	74.7	4.2	Lg. dec.	Very Lg. dec.	Medium	Common	Poor	Lost			0	18
bigtooth aspen	Populus grandidentata	NSL	Medium	24.2	66.8	2.1	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	19
black spruce	Picea mariana	NSH	High	2.6	50.0	9.8	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			2	20
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	14.6	29.8	1.5	Lg. inc.	Lg. inc.	High	Rare	Good	Good			1	21
American mountain-ash	Sorbus americana	NSL	Low	28.6	29.0	0.8	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	22
tamarack (native)	Larix laricina	NSH	High	10.4	29.0	2.1	No change	No change	Low	Rare	Very Poor	Very Poor			0	23
gray birch	Betula populifolia	NSL	Low	13.8	26.9	1.5	No change	Sm. inc.	Medium	Rare	Poor	Fair			1	24
black ash	Fraxinus nigra	WSH	Medium	16.5	21.8	0.9	Sm. inc.	Sm. inc.	Low	Rare	Poor	Poor	Infill +	Infill +	1	25
silver maple	Acer saccharinum	NSH	Low	1.1	20.7	18.3	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	26
mountain maple	Acer spicatum	NSL	Low	20.8	16.3	0.6	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			1	27
American basswood	Tilia americana	WSL	Medium	8.3	14.1	1.3	No change	Lg. inc.	Medium	Rare	Poor	Good	Infill +	Infill ++	1	28
Scots pine	Pinus sylvestris	NSH	FIA	0.3	13.2	2.6	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	29
American elm	Ulmus americana	WDH	Medium	10.6	11.4	0.6	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1	30
red pine	Pinus resinosa	NSH	Medium	3.6	9.2	0.9	Sm. inc.	Lg. inc.	Low	Rare	Poor	Fair		Infill +	2	31
serviceberry	Amelanchier spp.	NSL	Low	9.4	7.6	0.7	No change	Sm. inc.	Medium	Rare	Poor	Fair			1	32
green ash	Fraxinus pennsylvanica	WSH	Low	4.6	6.5	0.8	No change	Lg. inc.	Medium	Rare	Poor	Good		Infill ++	2	33
white oak	Quercus alba	WDH	Medium	0.5	5.6	2.1	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	34
boxelder	Acer negundo	WSH	Low	0.1	2.9	0.3	Sm. dec.	No change	High	Rare	Poor	Fair		Infill +	2	35
American hornbeam; muscle	Carpinus caroliniana	WSL	Low	1.1	1.2	1.1	Sm. dec.	Lg. inc.	Medium	Rare	Very Poor	Good		Infill ++	2	36
slippery elm	Ulmus rubra	WSL	Low	1.1	1.1	1.0	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	37
sweet birch	Betula lenta	NDH	High	1.1	0.3	0.3	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	2	38
eastern redcedar	Juniperus virginiana	WDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate ++	3	39
jack pine	Pinus banksiana	NSH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	40
sand pine	Pinus clausa	NDH	High	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			0	41
pitch pine	Pinus rigida	NSH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	42
loblolly pine	Pinus taeda	WDH	High	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat			0	43
Virginia pine	Pinus virginiana	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	44
black maple	Acer nigrum	NSH	Low	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	45
yellow buckeye	Aesculus flava	NSL	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			0	46
pawpaw	Asimina triloba	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	47



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bitternut hickory	<i>Carya cordiformis</i>	WSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	48
pignut hickory	<i>Carya glabra</i>	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	49
pecan	<i>Carya illinoensis</i>	NSH	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	50
shagbark hickory	<i>Carya ovata</i>	WSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	51
mockernut hickory	<i>Carya alba</i>	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	52
flowering dogwood	<i>Cornus florida</i>	WDL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	53
common persimmon	<i>Diospyros virginiana</i>	NSL	Low	0	0	0	Unknown	New Habitat	High	Absent	Unknown	New Habitat			0	54
silverbell	<i>Halesia spp.</i>	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	55
black walnut	<i>Juglans nigra</i>	WDH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	56
yellow-poplar	<i>Liriodendron tulipifera</i>	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate ++	3	57
Osage-orange	<i>Maclura pomifera</i>	NDH	Medium	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	58
bigleaf magnolia	<i>Magnolia macrophylla</i>	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	59
mountain or Fraser magnolia	<i>Magnolia fraseri</i>	NSL	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			0	60
blackgum	<i>Nyssa sylvatica</i>	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	61
sycamore	<i>Platanus occidentalis</i>	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	62
swamp white oak	<i>Quercus bicolor</i>	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	63
scarlet oak	<i>Quercus coccinea</i>	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	64
chestnut oak	<i>Quercus prinus</i>	NDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	65
black oak	<i>Quercus velutina</i>	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	66
black locust	<i>Robinia pseudoacacia</i>	NDH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	67
sassafras	<i>Sassafras albidum</i>	WSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	68