

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	4,149.0	1,602.0	162

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					
		Abundant	Common	High	Low	Scenario	Scenario	Scenario	Scenario	SHIFT	SHIFT				
				Reliability	Adaptability	RCP45	RCP85	RCP45	RCP85	RCP45	RCP85				
Ash	3					Increase	13	13	Very Good	4	3	Likely	0	0	
Hickory	0					No Change	6	6	Good	6	8	Infill	5	5	
Maple	4	Abundant	8	High	17	11	Decrease	12	12	Fair	12	11	Migrate	4	11
Oak	1	Common	13	Medium	19	28	New	17	18	Poor	4	5		9	16
Pine	3	Rare	12	Low	13	11	Unknown	3	2	Very Poor	3	2			
Other	22	Absent	18	FIA	2					FIA Only	1	1			
	33		51		51	50		51	51	Unknown	1	0			
											31	30			

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	42.2	44.0	46.1	46.3	
	CCSM85	42.2	44.6	47.1	50.4	
	GFDL45	42.2	45.1	48.5	50.0	
	GFDL85	42.2	45.5	49.9	54.9	
	HAD45	42.2	45.2	48.1	49.8	
HAD85	42.2	45.5	49.6	54.9		
Growing Season (May—Sep)	CCSM45	60.4	62.5	64.1	64.4	
	CCSM85	60.4	62.7	64.9	68.6	
	GFDL45	60.4	63.9	67.1	68.8	
	GFDL85	60.4	63.9	68.4	73.6	
	HAD45	60.4	63.3	65.8	67.9	
HAD85	60.4	63.1	67.5	73.0		
Coldest Month Average	CCSM45	13.4	14.8	16.4	17.0	
	CCSM85	13.4	16.0	17.5	19.8	
	GFDL45	13.4	16.0	18.9	20.1	
	GFDL85	13.4	17.1	20.0	22.7	
	HAD45	13.4	16.3	18.7	19.5	
HAD85	13.4	17.6	20.1	23.5		
Warmest Month Average	CCSM45	67.0	69.0	70.1	70.1	
	CCSM85	67.0	69.4	71.1	72.8	
	GFDL45	67.0	70.1	71.9	73.1	
	GFDL85	67.0	70.0	73.0	75.7	
	HAD45	67.0	70.0	71.2	72.5	
HAD85	67.0	69.9	72.3	75.8		

Precipitation (in)

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	45.4	45.6	44.2	50.9	
	CCSM85	45.4	47.5	46.7	48.4	
	GFDL45	45.4	49.2	52.4	50.7	
	GFDL85	45.4	49.0	50.7	51.9	
	HAD45	45.4	48.5	53.2	51.9	
HAD85	45.4	48.7	50.3	52.8		
Growing Season (May—Sep)	CCSM45	18.1	18.5	17.2	19.5	
	CCSM85	18.1	19.5	18.9	18.0	
	GFDL45	18.1	17.2	17.7	16.8	
	GFDL85	18.1	18.3	17.5	16.1	
	HAD45	18.1	19.4	20.0	20.6	
HAD85	18.1	18.1	19.7	21.0		

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.

Cite as: Iverson, L.R.; Prasad, A.M.; Peters, M.P.; Matthews, S.N. 2019. Facilitating Adaptive Forest Management under Climate Change: A Spatially Specific Synthesis of 125 Species for Habitat Changes and Assisted Migration over the Eastern United States. *Forests*. 10(11): 989. <https://doi.org/10.3390/f10110989>.

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	96.9	2209.9	12.8	Sm. dec.	Sm. dec.	Low	Abundant	Fair	Fair			0	1
red maple	Acer rubrum	WDH	High	92.5	1440.7	9.4	Sm. inc.	Sm. inc.	High	Abundant	Very Good	Very Good			1	2
northern white-cedar	Thuja occidentalis	WSH	High	81.7	1355.4	9.3	Sm. dec.	Sm. dec.	Medium	Abundant	Fair	Fair			0	3
red spruce	Picea rubens	NDH	High	96.3	1311.8	8.1	Sm. dec.	Sm. dec.	Low	Abundant	Fair	Fair			0	4
eastern hemlock	Tsuga canadensis	NSH	High	78.6	1236.5	10.3	No change	Sm. dec.	Low	Abundant	Fair	Fair			0	5
eastern white pine	Pinus strobus	WDH	High	68.4	655.9	5.9	Lg. inc.	Sm. inc.	Low	Abundant	Very Good	Good			1	6
yellow birch	Betula alleghaniensis	NDL	High	83.9	580.2	4.2	Sm. dec.	Sm. dec.	Medium	Abundant	Fair	Fair			0	7
American beech	Fagus grandifolia	WDH	High	53.2	545.2	6.4	No change	No change	Medium	Abundant	Good	Good			1	8
paper birch	Betula papyrifera	WDH	High	85.8	491.1	3.6	No change	No change	Medium	Common	Fair	Fair			1	9
black spruce	Picea mariana	NSH	High	30.6	446.4	9.1	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	10
quaking aspen	Populus tremuloides	WDH	High	57.5	443.3	4.2	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	11
bigtooth aspen	Populus grandidentata	NSL	Medium	42.8	281.4	4.5	No change	No change	Medium	Common	Fair	Fair			1	12
white spruce	Picea glauca	NSL	Medium	55.4	273.4	3.0	No change	No change	Medium	Common	Fair	Fair			1	13
sugar maple	Acer saccharum	WDH	High	42.2	269.3	3.6	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	14
gray birch	Betula populifolia	NSL	Low	57.1	209.5	2.4	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	15
tamarack (native)	Larix laricina	NSH	High	29.9	194.7	4.2	No change	No change	Low	Common	Poor	Poor			0	16
striped maple	Acer pensylvanicum	NSL	Medium	45.2	113.4	1.2	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	17
chokecherry	Prunus virginiana	NSLX	FIA	3.4	81.9	11.8	Unknown	Unknown	Medium	Common	FIA Only	FIA Only			0	18
white ash	Fraxinus americana	WDL	Medium	33.9	77.2	1.6	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	19
red pine	Pinus resinosa	NSH	Medium	13.5	69.3	2.0	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair	Infill +	Infill +	1	20
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	15.6	56.8	1.4	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	21
northern red oak	Quercus rubra	WDH	Medium	10.5	49.7	3.3	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	1	22
pin cherry	Prunus pensylvanica	NSL	Low	24.3	48.1	1.3	Lg. dec.	Very Lg. dec.	Medium	Rare	Very Poor	Lost			0	23
balsam poplar	Populus balsamifera	NSH	Medium	6.1	42.5	2.6	Very Lg. dec.	Lg. dec.	Medium	Rare	Lost	Very Poor			0	24
Norway spruce	Picea abies	NSH	FIA	4.8	38.8	7.9	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	25
black ash	Fraxinus nigra	WSH	Medium	18.2	37.7	1.2	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	1	26
jack pine	Pinus banksiana	NSH	Medium	0.4	29.0	2.1	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	27
American elm	Ulmus americana	WDH	Medium	9.7	12.8	0.9	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good	Infill +	Infill ++	2	28
black cherry	Prunus serotina	WDL	Medium	5.9	11.2	1.1	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	1	29
American mountain-ash	Sorbus americana	NSL	Low	3.5	9.8	1.5	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	30
serviceberry	Amelanchier spp.	NSL	Low	4.1	1.9	0.3	Lg. dec.	No change	Medium	Rare	Very Poor	Poor			1	31
mountain maple	Acer spicatum	NSL	Low	6.4	1.8	0.2	Very Lg. dec.	Very Lg. dec.	High	Rare	Lost	Lost			0	32
green ash	Fraxinus pennsylvanica	WSH	Low	2.4	0.5	0.2	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	33
eastern redcedar	Juniperus virginiana	WDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate ++	3	34
sweet birch	Betula lenta	NDH	High	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	35
American hornbeam; muscle	Carpinus caroliniana	WSL	Low	0	0	0	New Habitat	New Habitat	Medium	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
shagbark hickory	Carya ovata	WSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	38
mockernut hickory	Carya alba	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			0	39
flowering dogwood	Cornus florida	WDL	Medium	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat			0	40
black walnut	Juglans nigra	WDH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	41
yellow-poplar	Liriodendron tulipifera	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	42
blackgum	Nyssa sylvatica	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	43
sycamore	Platanus occidentalis	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	44
white oak	Quercus alba	WDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	45
swamp white oak	Quercus bicolor	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	46
scarlet oak	Quercus coccinea	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	47

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Northern Research Station
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Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIAiv	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
chestnut oak	Quercus prinus	NDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	48
black oak	Quercus velutina	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	49
black locust	Robinia pseudoacacia	NDH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	50
sassafras	Sassafras albidum	WSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	51