

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
 1,659.0 640.6 74

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	16	10	Increase	11	10	Very Good	4	4	Likely	1	1
Hickory	0			Medium	18	25	No Change	4	5	Good	8	8	Infill	2	3
Maple	4	Abundant	9	Low	12	12	Decrease	8	8	Fair	6	6	Migrate	3	7
Oak	0	Common	10	FIA	1		New	21	21	Poor	4	3		6	11
Pine	2	Rare	5				Unknown	3	3	Very Poor	1	1			
Other	16	Absent	22							FIA Only	1	1			
	24		46		47	47		47	47	Unknown	2	2			
											26	25			

Potential Changes in Climate Variables

Temperature (°F)

Scenario	2009	2039	2069	2099		
Annual	CCSM45	37.3	39.1	41.7	41.7	
Average	CCSM85	37.3	39.9	42.7	46.3	
	GFDL45	37.3	40.1	44.2	45.8	
	GFDL85	37.3	40.8	45.8	51.5	
	HAD45	37.3	40.7	43.6	45.4	
	HAD85	37.3	41.0	45.0	51.0	
Growing Season	CCSM45	57.4	59.4	61.3	61.5	
	CCSM85	57.4	59.7	62.2	66.0	
May—Sep	GFDL45	57.4	61.0	64.9	66.8	
	GFDL85	57.4	61.5	66.3	71.9	
	HAD45	57.4	60.2	62.7	64.8	
	HAD85	57.4	60.0	64.3	70.5	
Coldest Month	CCSM45	5.9	7.2	9.4	9.6	
	CCSM85	5.9	8.3	10.1	12.9	
Average	GFDL45	5.9	8.2	11.6	12.9	
	GFDL85	5.9	9.4	13.0	16.5	
	HAD45	5.9	9.2	11.9	13.2	
	HAD85	5.9	11.4	14.0	18.1	
Warmest Month	CCSM45	64.1	66.1	67.4	67.6	
	CCSM85	64.1	66.7	68.4	70.3	
Average	GFDL45	64.1	67.5	69.4	70.9	
	GFDL85	64.1	67.6	70.5	73.2	
	HAD45	64.1	67.1	68.4	69.7	
	HAD85	64.1	67.0	69.6	73.7	

Precipitation (in)

Scenario	2009	2039	2069	2099		
Annual	CCSM45	42.8	41.6	43.6	45.6	
Total	CCSM85	42.8	44.4	43.6	45.5	
	GFDL45	42.8	47.0	48.1	47.9	
	GFDL85	42.8	46.8	48.5	49.7	
	HAD45	42.8	45.1	48.0	49.0	
	HAD85	42.8	47.4	46.7	51.5	
Growing Season	CCSM45	20.6	20.4	20.3	21.4	
	CCSM85	20.6	21.3	20.4	20.0	
May—Sep	GFDL45	20.6	20.7	20.2	19.8	
	GFDL85	20.6	21.2	20.6	19.6	
	HAD45	20.6	21.4	21.5	23.6	
	HAD85	20.6	22.0	21.5	23.6	

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>.

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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	95.5	3936.6	16.9	Lg. dec.	Lg. dec.	Low	Abundant	Poor	Poor			0	1
sugar maple	Acer saccharum	WDH	High	85	1679.8	9.7	No change	No change	High	Abundant	Very Good	Very Good			1	2
yellow birch	Betula alleghaniensis	NDL	High	93.5	1269.1	6.2	Sm. dec.	Sm. dec.	Medium	Abundant	Fair	Fair			0	3
northern white-cedar	Thuja occidentalis	WSH	High	81.1	1148.9	6.5	No change	Sm. dec.	Medium	Abundant	Good	Fair			1	4
red spruce	Picea rubens	NDH	High	95.5	1093.4	4.8	Sm. inc.	No change	Low	Abundant	Good	Fair			1	5
red maple	Acer rubrum	WDH	High	75.8	956.1	4.1	Lg. inc.	Lg. inc.	High	Abundant	Very Good	Very Good			1	6
white spruce	Picea glauca	NSL	Medium	92.5	885.0	4.1	Sm. dec.	Sm. dec.	Medium	Abundant	Fair	Fair			0	7
paper birch	Betula papyrifera	WDH	High	86.5	827.9	3.6	No change	No change	Medium	Abundant	Good	Good			1	8
black spruce	Picea mariana	NSH	High	52.6	561.8	6.9	No change	No change	Medium	Abundant	Good	Good			1	9
quaking aspen	Populus tremuloides	WDH	High	52.6	489.2	2.9	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	10
American beech	Fagus grandifolia	WDH	High	44.7	438.2	4.3	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	11
mountain maple	Acer spicatum	NSL	Low	67.5	147.4	1.2	Lg. dec.	Lg. dec.	High	Common	Fair	Fair			1	12
balsam poplar	Populus balsamifera	NSH	Medium	38.1	132.2	2.4	Lg. dec.	Very Lg. dec.	Medium	Common	Poor	Lost			0	13
tamarack (native)	Larix laricina	NSH	High	22.4	117.4	2.4	Sm. inc.	Lg. inc.	Low	Common	Fair	Good			1	14
eastern white pine	Pinus strobus	WDH	High	26.6	108.1	2.4	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	15
pin cherry	Prunus pensylvanica	NSL	Low	38.3	95.4	1.0	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	16
red pine	Pinus resinosa	NSH	Medium	2.2	86.2	5.2	Sm. dec.	No change	Low	Common	Poor	Poor		Infill +	2	17
striped maple	Acer pensylvanicum	NSL	Medium	51.8	74.7	0.5	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	18
black ash	Fraxinus nigra	WSH	Medium	20.1	63.4	1.4	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	19
bigtooth aspen	Populus grandidentata	NSL	Medium	10.9	26.8	0.5	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	20
American elm	Ulmus americana	WDH	Medium	6	16.0	2.7	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good	Infill +	Infill ++	2	21
chokecherry	Prunus virginiana	NSLX	FIA	7.5	5.6	0.2	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	22
American mountain-ash	Sorbus americana	NSL	Low	7.8	3.4	0.2	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	23
white ash	Fraxinus americana	WDL	Medium	5.5	2.1	0.3	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	2	24
eastern redcedar	Juniperus virginiana	WDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	25
eastern hemlock	Tsuga canadensis	NSH	High	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	26
serviceberry	Amelanchier spp.	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	27
sweet birch	Betula lenta	NDH	High	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat		Migrate +	3	28
gray birch	Betula populifolia	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	29
American hornbeam; muscle	Carpinus caroliniana	WSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	30
bitternut hickory	Carya cordiformis	WSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	31
shagbark hickory	Carya ovata	WSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	32
green ash	Fraxinus pennsylvanica	WSH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	33
black walnut	Juglans nigra	WDH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	34
eastern hophornbeam; ironw	Ostrya virginiana	WDL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Likely +	Likely +	3	35
black cherry	Prunus serotina	WDL	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	36
white oak	Quercus alba	WDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate ++	3	37
scarlet oak	Quercus coccinea	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	38
northern pin oak	Quercus ellipsoidalis	NSH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			0	39
bur oak	Quercus macrocarpa	NDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	40
chinkapin oak	Quercus muehlenbergii	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	41
chestnut oak	Quercus prinus	NDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			0	42
northern red oak	Quercus rubra	WDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	43
black oak	Quercus velutina	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	44
black locust	Robinia pseudoacacia	NDH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	45
black willow	Salix nigra	NSH	Low	0	0	0	Unknown	Unknown	Low	Modeled	Unknown	Unknown			0	46
American basswood	Tilia americana	WSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	47

