

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	8,216.1	3,172.3	25

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	1			High	8	14	Increase	2	2	Very Good	0	0
Hickory	0			Medium	14	21	No Change	5	5	Good	3	3
Maple	1	Abundant	0	Low	16	5	Decrease	8	8	Fair	1	1
Oak	1	Common	5	FIA	2		New	20	20	Poor	7	7
Pine	0	Rare	12				Unknown	5	5	Very Poor	3	3
Other	14	Absent	22							FIA Only	2	2
	17		39		40	40		40	40	Unknown	3	3
											19	19

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	39.5	41.2	43.9	44.6	
	CCSM85	39.5	41.8	45.5	49.1	
	GFDL45	39.5	46.1	44.5	46.1	
	GFDL85	39.5	42.3	45.9	51.0	
	HAD45	39.5	43.0	46.8	48.9	
HAD85	39.5	43.4	48.1	54.2		
Growing Season (May—Sep)	CCSM45	62.3	64.2	66.6	67.2	
	CCSM85	62.3	65.1	68.2	72.1	
	GFDL45	62.3	70.2	68.4	70.2	
	GFDL85	62.3	65.7	69.5	75.2	
	HAD45	62.3	65.5	68.4	70.8	
HAD85	62.3	65.4	69.4	75.2		
Coldest Month Average	CCSM45	2.9	4.8	7.1	7.2	
	CCSM85	2.9	4.0	6.9	9.5	
	GFDL45	2.9	6.4	7.8	8.4	
	GFDL85	2.9	6.9	8.7	11.8	
	HAD45	2.9	5.9	9.9	9.6	
HAD85	2.9	8.6	12.8	16.6		
Warmest Month Average	CCSM45	69.0	71.6	73.1	73.4	
	CCSM85	69.0	72.5	74.7	76.9	
	GFDL45	69.0	72.8	74.4	75.7	
	GFDL85	69.0	72.8	75.0	78.4	
	HAD45	69.0	72.8	74.2	76.3	
HAD85	69.0	72.7	75.1	78.9		

Precipitation (in)

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	20.1	19.6	20.0	19.2	
	CCSM85	20.1	19.7	19.9	19.5	
	GFDL45	20.1	22.3	24.1	23.8	
	GFDL85	20.1	23.5	24.8	25.1	
	HAD45	20.1	20.8	19.2	20.2	
HAD85	20.1	20.0	20.1	21.2		
Growing Season (May—Sep)	CCSM45	14.0	13.5	13.6	12.7	
	CCSM85	14.0	13.3	13.3	12.6	
	GFDL45	14.0	15.7	16.7	16.3	
	GFDL85	14.0	16.1	16.9	16.4	
	HAD45	14.0	14.0	12.2	12.3	
HAD85	14.0	13.1	12.1	11.6		

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.

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Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIAiv	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
boxelder	Acer negundo	WSH	Low	46.6	108.9	18.4	Sm. dec.	Sm. dec.	High	Common	Fair	Fair	Infill +	Infill +	2	1
bur oak	Quercus macrocarpa	NDH	Medium	41.2	105.4	20.2	No change	No change	High	Common	Good	Good	Infill ++	Infill ++	2	2
quaking aspen	Populus tremuloides	WDH	High	17.5	97.6	20.3	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor	Infill +	Infill +	2	3
green ash	Fraxinus pennsylvanica	WSH	Low	37.7	90.8	14.7	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor	Infill +	Infill +	2	4
American elm	Ulmus americana	WDH	Medium	34.5	79.4	16.8	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor	Infill +	Infill +	2	5
peachleaf willow	Salix amygdaloides	NSLX	FIA	1.6	26.7	29.1	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	6
eastern cottonwood	Populus deltoides	NSH	Low	3.5	23.3	4.8	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	7
American basswood	Tilia americana	WSL	Medium	9.3	12.0	11.3	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	8
balsam poplar	Populus balsamifera	NSH	Medium	7.4	10.5	12.5	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	9
chokecherry	Prunus virginiana	NSLX	FIA	24.5	8.2	1.4	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	10
white spruce	Picea glauca	NSL	Medium	4.6	5.5	16.9	Sm. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			2	11
slippery elm	Ulmus rubra	WSL	Low	4.9	3.0	9.7	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	12
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	6.5	0.9	1.0	Sm. inc.	Lg. inc.	High	Rare	Good	Good			2	13
serviceberry	Amelanchier spp.	NSL	Low	5.3	0.9	0.7	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	14
hackberry	Celtis occidentalis	WDH	Medium	0.7	0.7	0.3	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	15
paper birch	Betula papyrifera	WDH	High	2.8	0.2	0.5	No change	No change	Medium	Rare	Poor	Poor			0	16
pin cherry	Prunus pensylvanica	NSL	Low	2.8	0.1	0.1	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	17
ashe juniper	Juniperus ashei	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	18
eastern redcedar	Juniperus virginiana	WDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	19
eastern white pine	Pinus strobus	WDH	High	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	20
red maple	Acer rubrum	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	21
silver maple	Acer saccharinum	NSH	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	22
sugar maple	Acer saccharum	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	23
mountain maple	Acer spicatum	NSL	Low	0	0	0	Unknown	Unknown	High	Modeled	Unknown	Unknown			0	24
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			0	25
shagbark hickory	Carya ovata	WSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	26
black ash	Fraxinus nigra	WSH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	27
honeylocust	Gleditsia triacanthos	NSH	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			0	28
black walnut	Juglans nigra	WDH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	29
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	30
white oak	Quercus alba	WDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	31
swamp white oak	Quercus bicolor	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	32
nuttall oak	Quercus texana	NSH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			0	33
pin oak	Quercus palustris	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			0	34
northern red oak	Quercus rubra	WDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	35
post oak	Quercus stellata	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			0	36
live oak	Quercus virginiana	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	37
American mountain-ash	Sorbus americana	NSL	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	38
winged elm	Ulmus alata	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	39
cedar elm	Ulmus crassifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			0	40