

**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    7,694.5    2,970.9      156

**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	10	11	Increase	14	17	Very Good	6	8	Likely	0	0
Hickory	1			Medium	25	41	No Change	12	10	Good	7	5	Infill	8	10
Maple	1	Abundant	5	Low	22	6	Decrease	12	11	Fair	8	10	Migrate	2	4
Oak	8	Common	16	FIA	3		New	6	7	Poor	10	11		<b>10</b>	<b>14</b>
Pine	5	Rare	20				Unknown	16	15	Very Poor	7	3			
Other	23	Absent	17					<b>60</b>	<b>60</b>	FIA Only	3	3			
	<b>41</b>		<b>58</b>		<b>60</b>	<b>58</b>				Unknown	13	12			
											<b>54</b>	<b>52</b>			

**Potential Changes in Climate Variables**

**Temperature (°F)**

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	71.4	72.9	74.4	74.3	
	CCSM85	71.4	73.0	75.1	77.2	
	GFDL45	71.4	74.3	75.6	76.4	
	GFDL85	71.4	73.7	76.6	80.0	
	HAD45	71.4	73.1	75.4	76.6	
	HAD85	71.4	73.8	76.2	79.8	
Growing Season (May—Sep)	CCSM45	80.1	81.4	82.5	82.7	
	CCSM85	80.1	81.4	83.5	85.8	
	GFDL45	80.1	83.0	84.1	85.2	
	GFDL85	80.1	82.5	85.3	88.9	
	HAD45	80.1	82.6	84.4	85.6	
	HAD85	80.1	82.9	86.1	89.4	
Coldest Month (Average)	CCSM45	57.2	59.4	60.3	60.1	
	CCSM85	57.2	59.0	59.9	61.3	
	GFDL45	57.2	59.8	60.3	60.8	
	GFDL85	57.2	59.5	60.6	61.7	
	HAD45	57.2	57.0	58.2	58.8	
	HAD85	57.2	57.9	58.5	60.4	
Warmest Month (Average)	CCSM45	82.1	83.4	84.1	84.2	
	CCSM85	82.1	83.5	84.7	86.0	
	GFDL45	82.1	84.3	85.3	85.9	
	GFDL85	82.1	84.5	86.0	87.9	
	HAD45	82.1	84.7	85.4	86.0	
	HAD85	82.1	84.6	86.5	87.8	

**Precipitation (in)**

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	51.2	55.0	56.8	58.0	
	CCSM85	51.2	54.0	55.5	54.6	
	GFDL45	51.2	59.1	61.1	63.2	
	GFDL85	51.2	55.5	64.1	60.1	
	HAD45	51.2	51.9	52.6	54.9	
	HAD85	51.2	49.9	50.6	49.9	
Growing Season (May—Sep)	CCSM45	31.9	34.7	34.7	35.4	
	CCSM85	31.9	33.5	35.0	33.1	
	GFDL45	31.9	36.9	37.6	38.1	
	GFDL85	31.9	35.6	39.9	37.2	
	HAD45	31.9	32.5	33.2	31.3	
	HAD85	31.9	30.2	27.9	27.2	

**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
laurel oak	Quercus laurifolia	NDH	Medium	75.6	965.2	12.6	No change	Sm. dec.	Medium	Abundant	Good	Fair			1	1
slash pine	Pinus elliottii	NDH	High	43.8	942.4	19.6	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			1	2
pond cypress	Taxodium ascendens	NSH	Medium	33.3	862.9	25.1	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			1	3
longleaf pine	Pinus palustris	NSH	Medium	43.3	840.6	21.2	No change	No change	Medium	Abundant	Good	Good			1	4
live oak	Quercus virginiana	NDH	High	63.5	800.0	13.0	Sm. inc.	Lg. inc.	Medium	Abundant	Very Good	Very Good			1	5
red maple	Acer rubrum	WDH	High	45.9	324.9	7.2	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	6
sand pine	Pinus clausa	NDH	High	9.6	310.0	17.8	No change	No change	Low	Common	Poor	Poor			0	7
sweetgum	Liquidambar styraciflua	WDH	High	42.9	305.7	6.3	No change	No change	Medium	Common	Fair	Fair			1	8
bald cypress	Taxodium distichum	NSH	Medium	32.4	298.9	11.5	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	9
turkey oak	Quercus laevis	NSH	Medium	29.5	293.6	12.7	Sm. dec.	Sm. dec.	High	Common	Fair	Fair			1	10
cabbage palmetto	Sabal palmetto	NDH	Medium	30.5	258.7	7.8	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			0	11
water oak	Quercus nigra	WDH	High	32.8	255.9	7.4	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	12
swamp tupelo	Nyssa biflora	NDH	Medium	42.6	234.1	6.6	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	13
loblolly pine	Pinus taeda	WDH	High	9.2	130.1	10.9	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	14
black cherry	Prunus serotina	WDL	Medium	18	86.5	5.1	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	15
sweetbay	Magnolia virginiana	NSL	Medium	19.1	65.7	3.5	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	16
eastern cottonwood	Populus deltoides	NSH	Low	1.3	65.0	50.0	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	17
redbay	Persea borbonia	NSL	Low	24.7	56.6	1.8	No change	Sm. inc.	High	Common	Good	Very Good			1	18
American elm	Ulmus americana	WDH	Medium	29.6	56.4	3.1	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	19
pignut hickory	Carya glabra	WDL	Medium	10.4	54.4	5.2	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	20
loblolly-bay	Gordonia lasianthus	NSH	Medium	3	53.4	6.7	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	2	21
pumpkin ash	Fraxinus profunda	NSH	FIA	18	47.7	4.4	Unknown	Unknown	NA	Rare	FIA Only	FIA Only			0	22
bluejack oak	Quercus incana	NSL	Low	23.9	47.4	2.6	Sm. dec.	No change	Medium	Rare	Very Poor	Poor			1	23
American hornbeam; musclev	Carpinus caroliniana	WSL	Low	14.4	42.8	3.1	Sm. dec.	No change	Medium	Rare	Very Poor	Poor			1	24
southern magnolia	Magnolia grandiflora	NSL	Low	12.7	36.9	3.6	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	1	25
sugarberry	Celtis laevigata	NDH	Medium	8.3	27.6	2.7	No change	Sm. inc.	Medium	Rare	Poor	Fair	Infill +	Infill +	1	26
post oak	Quercus stellata	WDH	High	7.5	21.1	4.2	No change	Sm. inc.	High	Rare	Fair	Good	Infill +	Infill ++	2	27
green ash	Fraxinus pennsylvanica	WSH	Low	5.7	18.4	3.4	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	28
Carolina ash	Fraxinus caroliniana	NSL	FIA	9.7	13.1	2.4	Unknown	Unknown	NA	Rare	FIA Only	FIA Only			0	29
common persimmon	Diospyros virginiana	NSL	Low	10.1	11.5	1.5	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			1	30
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	4.8	9.4	1.7	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor		Infill +	1	31
blackgum	Nyssa sylvatica	WDL	Medium	2.6	5.4	2.1	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	32
pond pine	Pinus serotina	NSH	Medium	1.3	3.0	2.3	Sm. inc.	Lg. inc.	Low	Rare	Poor	Fair	Infill +	Infill +	2	33
Shumard oak	Quercus shumardii	NSL	Low	1.3	2.7	2.1	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	34
waterlocust	Gleditsia aquatica	NSLX	FIA	4.4	2.7	1.8	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	35
eastern redcedar	Juniperus virginiana	WDH	Medium	4.9	2.5	1.9	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	36
winged elm	Ulmus alata	WDL	Medium	6.2	2.2	0.6	Sm. dec.	No change	Medium	Rare	Very Poor	Poor		Infill +	2	37
water tupelo	Nyssa aquatica	NSH	Medium	1.3	1.4	1.1	No change	Very Lg. dec.	Low	Rare	Very Poor	Lost			0	38
American basswood	Tilia americana	WSL	Medium	1.3	0.4	0.3	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	39
flowering dogwood	Cornus florida	WDL	Medium	1.3	0.3	0.3	No change	No change	Medium	Rare	Poor	Poor			0	40
cherrybark oak; swamp red o.	Quercus pagoda	NSL	Medium	3.6	0.1	0.1	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	41
shortleaf pine	Pinus echinata	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	42
spruce pine	Pinus glabra	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	43
striped maple	Acer pensylvanicum	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	44
serviceberry	Amelanchier spp.	NSL	Low	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat			3	45
river birch	Betula nigra	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	46
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	Unknown	New Habitat	High	Absent	Unknown	New Habitat			0	47



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shagbark hickory	<i>Carya ovata</i>	WSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	48
mockernut hickory	<i>Carya alba</i>	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	49
eastern redbud	<i>Cercis canadensis</i>	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	50
American beech	<i>Fagus grandifolia</i>	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	51
silverbell	<i>Halesia spp.</i>	NSL	Low	0	0	0	New Habitat	Unknown	Medium	Absent	New Habitat	Unknown			0	52
cucumbertree	<i>Magnolia acuminata</i>	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	53
bigleaf magnolia	<i>Magnolia macrophylla</i>	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	54
pin cherry	<i>Prunus pensylvanica</i>	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	55
southern red oak	<i>Quercus falcata</i>	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	56
swamp chestnut oak	<i>Quercus michauxii</i>	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	57
willow oak	<i>Quercus phellos</i>	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	58
black locust	<i>Robinia pseudoacacia</i>	NDH	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	59
American mountain-ash	<i>Sorbus americana</i>	NSL	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	60