

**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  
 8,219.4    3,173.5    50

**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	6	8	Increase	5	10	Very Good	1	0	Likely	2	2
Hickory	3			Medium	23	32	No Change	11	8	Good	4	9	Infill	10	13
Maple	2	Abundant	1	Low	19	8	Decrease	13	11	Fair	5	7	Migrate	3	3
Oak	6	Common	9	FIA	0		New	8	8	Poor	11	7			
Pine	0	Rare	19				Unknown	11	11	Very Poor	6	4			
Other	17	Absent	17							FIA Only	0	0			
	<b>29</b>		<b>46</b>		<b>48</b>	<b>48</b>		<b>48</b>	<b>48</b>	Unknown	11	11			
											<b>38</b>	<b>38</b>			

**Potential Changes in Climate Variables**

**Temperature (°F)**

Scenario	2009	2039	2069	2099		
Annual	CCSM45	69.0	70.4	72.0	72.1	
Average	CCSM85	69.0	70.6	72.8	74.8	
	GFDL45	69.0	73.4	73.1	73.9	
	GFDL85	69.0	71.3	74.3	77.4	
	HAD45	69.0	70.9	73.2	74.2	
	HAD85	69.0	71.1	74.0	77.2	
Growing Season	CCSM45	80.0	81.1	82.2	82.6	
	CCSM85	80.0	81.2	83.3	85.5	
May—Sep	GFDL45	80.0	84.8	84.1	85.5	
	GFDL85	80.0	82.5	85.5	89.2	
	HAD45	80.0	82.3	84.3	85.0	
	HAD85	80.0	82.3	85.8	88.5	
Coldest Month	CCSM45	51.8	53.9	54.8	54.7	
Average	CCSM85	51.8	54.3	55.5	56.5	
	GFDL45	51.8	54.9	55.1	55.2	
	GFDL85	51.8	53.3	54.4	55.2	
	HAD45	51.8	52.2	53.6	54.4	
	HAD85	51.8	53.5	54.6	56.3	
Warmest Month	CCSM45	82.8	83.6	84.0	84.2	
Average	CCSM85	82.8	83.8	84.6	85.8	
	GFDL45	82.8	85.4	85.9	86.8	
	GFDL85	82.8	85.2	86.6	88.7	
	HAD45	82.8	85.2	86.2	86.5	
	HAD85	82.8	85.3	87.2	88.3	

**Precipitation (in)**

Scenario	2009	2039	2069	2099		
Annual	CCSM45	63.1	65.4	71.4	69.3	
Total	CCSM85	63.1	66.0	67.6	68.1	
	GFDL45	63.1	68.8	73.4	68.0	
	GFDL85	63.1	66.4	67.9	65.2	
	HAD45	63.1	59.3	62.6	66.7	
	HAD85	63.1	67.4	61.0	64.1	
Growing Season	CCSM45	31.6	33.2	34.6	34.2	
May—Sep	CCSM85	31.6	32.6	33.7	32.1	
	GFDL45	31.6	35.9	39.4	34.7	
	GFDL85	31.6	34.7	36.4	36.5	
	HAD45	31.6	30.8	31.2	33.7	
	HAD85	31.6	32.3	27.7	28.2	

**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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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
bald cypress	Taxodium distichum	NSH	Medium	57.7	751.5	25.9	Sm. dec.	Sm. dec.	Medium	Abundant	Fair	Fair	Infill +	Infill +	0	1
water tupelo	Nyssa aquatica	NSH	Medium	28.1	423.0	20.1	Sm. dec.	Sm. dec.	Low	Common	Poor	Poor	Infill +	Infill +	0	2
red maple	Acer rubrum	WDH	High	57.8	407.5	18.7	Sm. inc.	No change	High	Common	Very Good	Good	Infill ++	Infill ++	1	3
green ash	Fraxinus pennsylvanica	WSH	Low	46.9	210.7	10.5	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	4
sugarberry	Celtis laevigata	NDH	Medium	21.8	144.7	9.3	No change	Sm. inc.	Medium	Common	Fair	Good	Infill +	Infill ++	1	5
water oak	Quercus nigra	WDH	High	19.3	112.7	10.6	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor	Infill +	Infill +	0	6
American elm	Ulmus americana	WDH	Medium	38.3	103.7	5.4	Sm. inc.	No change	Medium	Common	Good	Fair	Infill ++	Infill +	1	7
black willow	Salix nigra	NSH	Low	14.2	85.0	11.8	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair	Infill +	Infill +	1	8
boxelder	Acer negundo	WSH	Low	24.8	64.3	5.5	No change	No change	High	Common	Good	Good	Infill ++	Infill ++	1	9
sweetgum	Liquidambar styraciflua	WDH	High	29.6	57.9	5.5	Sm. inc.	Sm. inc.	Medium	Common	Good	Good	Infill ++	Infill ++	1	10
nuttall oak	Quercus texana	NSH	Medium	11.6	37.9	3.5	No change	Sm. inc.	High	Rare	Fair	Good			0	11
eastern cottonwood	Populus deltoides	NSH	Low	0.7	7.5	3.4	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	12
pecan	Carya illinoensis	NSH	Low	7.8	7.2	4.8	No change	Lg. inc.	Low	Rare	Very Poor	Fair		Infill +	2	13
red mulberry	Morus rubra	NSL	Low	3.6	6.6	1.8	No change	No change	Medium	Rare	Poor	Poor			0	14
sycamore	Platanus occidentalis	NSL	Low	5.5	6.5	1.8	Sm. dec.	No change	Medium	Rare	Very Poor	Poor		Infill +	2	15
live oak	Quercus virginiana	NDH	High	8.8	6.1	4.3	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	16
slippery elm	Ulmus rubra	WSL	Low	2.4	3.2	1.3	No change	No change	Medium	Rare	Poor	Poor			0	17
laurel oak	Quercus laurifolia	NDH	Medium	6.7	2.7	1.8	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			2	18
cherrybark oak; swamp red o	Quercus pagoda	NSL	Medium	1.2	1.6	1.4	Sm. dec.	Sm. inc.	Medium	Rare	Very Poor	Fair		Infill +	2	19
pond cypress	Taxodium ascendens	NSH	Medium	2.3	1.6	2.5	No change	Lg. inc.	Medium	Rare	Poor	Good			2	20
winged elm	Ulmus alata	WDL	Medium	6	1.0	0.8	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	21
mockernut hickory	Carya alba	WDL	Medium	1.2	1.0	0.8	Very Lg. dec.	Very Lg. dec.	High	Rare	Lost	Lost			0	22
willow oak	Quercus phellos	NSL	Low	2.3	0.7	1.2	No change	Lg. inc.	Medium	Rare	Poor	Good			2	23
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	7.6	0.7	0.7	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	24
black cherry	Prunus serotina	WDL	Medium	1.2	0.5	0.4	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	25
common persimmon	Diospyros virginiana	NSL	Low	4.9	0.4	1.3	Sm. dec.	No change	High	Rare	Poor	Fair			0	26
water hickory	Carya aquatica	NSL	Medium	2.7	0.4	0.7	No change	Lg. inc.	Medium	Rare	Poor	Good			2	27
blackgum	Nyssa sylvatica	WDL	Medium	1.7	0.1	0.2	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			0	28
sassafras	Sassafras albidum	WSL	Low	4.9	0.1	0.2	No change	Lg. dec.	Medium	Rare	Poor	Very Poor			0	29
Atlantic white-cedar	Chamaecyparis thyoides	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate +		3	30
eastern redcedar	Juniperus virginiana	WDH	Medium	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	31
loblolly pine	Pinus taeda	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	32
striped maple	Acer pensylvanicum	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	33
serviceberry	Amelanchier spp.	NSL	Low	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat			3	34
pawpaw	Asimina triloba	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	35
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	36
flowering dogwood	Cornus florida	WDL	Medium	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	37
loblolly-bay	Gordonia lasianthus	NSH	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	38
silverbell	Halesia spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	39
sweetbay	Magnolia virginiana	NSL	Medium	0	0	0	New Habitat	Unknown	Medium	Absent	New Habitat	Unknown			3	40
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	41
swamp tupelo	Nyssa biflora	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Likely +	Likely +	3	42
pin cherry	Prunus pensylvanica	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	43
overcup oak	Quercus lyrata	NSL	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat		Migrate ++	3	44
black oak	Quercus velutina	WDH	High	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	45
cabbage palmetto	Sabal palmetto	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	46
American basswood	Tilia americana	WSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	47

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cedar elm	Ulmus crassifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	48