

**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	10,599	4,092.2	73

**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	3	11	Increase	0	0	Very Good	0	0
Hickory	1			Medium	12	12	No Change	3	3	Good	0	0
Maple	1	Abundant	0	Low	13	5	Decrease	18	18	Fair	3	3
Oak	5	Common	4	FIA	0		New	1	1	Poor	9	9
Pine	0	Rare	17				Unknown	6	6	Very Poor	9	9
Other	12	Absent	7							FIA Only	0	0
	<b>21</b>		<b>28</b>		<b>28</b>	<b>28</b>		<b>28</b>	<b>28</b>	Unknown	6	6
											<b>27</b>	<b>27</b>

**Potential Changes in Climate Variables**

**Temperature (°F)**

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	70.8	72.2	73.6	74.0	
	CCSM85	70.8	72.4	74.6	76.8	
	GFDL45	70.8	76.1	75.1	76.5	
	GFDL85	70.8	73.4	76.6	80.0	
	HAD45	70.8	72.8	75.1	76.1	
	HAD85	70.8	73.2	76.0	79.2	
Growing Season (May—Sep)	CCSM45	81.8	83.1	84.0	84.5	
	CCSM85	81.8	83.3	85.2	87.6	
	GFDL45	81.8	88.2	86.7	88.7	
	GFDL85	81.8	85.1	88.5	92.5	
	HAD45	81.8	83.8	85.5	86.4	
	HAD85	81.8	84.0	86.9	89.8	
Coldest Month (Average)	CCSM45	53.1	55.3	56.2	56.4	
	CCSM85	53.1	55.2	56.3	57.7	
	GFDL45	53.1	56.5	56.6	56.8	
	GFDL85	53.1	54.2	55.5	56.2	
	HAD45	53.1	54.1	55.6	56.3	
	HAD85	53.1	56.4	57.7	59.3	
Warmest Month (Average)	CCSM45	85.1	86.2	86.7	86.9	
	CCSM85	85.1	86.6	87.3	88.4	
	GFDL45	85.1	88.8	89.6	90.5	
	GFDL85	85.1	89.1	90.6	93.0	
	HAD45	85.1	87.2	87.9	88.5	
	HAD85	85.1	87.5	89.0	90.1	

**Precipitation (in)**

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	33.1	36.1	37.9	35.1	
	CCSM85	33.1	37.2	36.7	34.2	
	GFDL45	33.1	33.0	38.9	29.2	
	GFDL85	33.1	32.4	33.1	31.7	
	HAD45	33.1	34.3	33.0	33.5	
	HAD85	33.1	35.4	33.2	33.7	
Growing Season (May—Sep)	CCSM45	16.6	18.8	19.5	17.8	
	CCSM85	16.6	20.0	18.5	16.5	
	GFDL45	16.6	17.0	22.3	15.4	
	GFDL85	16.6	17.3	17.7	17.2	
	HAD45	16.6	16.1	15.9	16.7	
	HAD85	16.6	18.0	16.5	16.3	

**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
live oak	Quercus virginiana	NDH	High	63.1	409.4	26.3	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	1
post oak	Quercus stellata	WDH	High	20.3	165.4	17.7	Lg. dec.	Lg. dec.	High	Common	Fair	Fair			1	2
sugarberry	Celtis laevigata	NDH	Medium	46.9	98.8	14.1	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	3
hackberry	Celtis occidentalis	WDH	Medium	23.5	60.3	12.2	Lg. dec.	Lg. dec.	High	Common	Fair	Fair			1	4
cedar elm	Ulmus crassifolia	NDH	Medium	22.4	43.8	11.0	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	5
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	28.9	21.8	3.7	Lg. dec.	Sm. dec.	High	Rare	Poor	Poor			1	6
water oak	Quercus nigra	WDH	High	2.6	12.6	37.0	Sm. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			2	7
pecan	Carya illinoensis	NSH	Low	5.7	7.4	13.5	No change	No change	Low	Rare	Very Poor	Very Poor			0	8
Osage-orange	Maclura pomifera	NDH	Medium	5.7	3.8	7.7	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	9
black willow	Salix nigra	NSH	Low	9.5	2.7	2.6	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	10
boxelder	Acer negundo	WSH	Low	5.7	2.6	4.3	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	11
green ash	Fraxinus pennsylvanica	WSH	Low	3.8	2.5	10.4	Sm. dec.	No change	Medium	Rare	Very Poor	Poor		Infill +	1	12
blackjack oak	Quercus marilandica	NSL	Medium	7.9	1.9	0.9	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			1	13
white ash	Fraxinus americana	WDL	Medium	2	1.8	4.0	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	14
American elm	Ulmus americana	WDH	Medium	3.8	1.5	6.2	No change	Sm. dec.	Medium	Rare	Poor	Very Poor		Infill +	2	15
red mulberry	Morus rubra	NSL	Low	3.7	1.3	1.4	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	16
sycamore	Platanus occidentalis	NSL	Low	2	0.9	2.0	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	17
white oak	Quercus alba	WDH	Medium	3.8	0.7	3.0	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	18
slippery elm	Ulmus rubra	WSL	Low	3.8	0.6	2.7	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	19
honeylocust	Gleditsia triacanthos	NSH	Low	2	0.6	1.4	No change	No change	High	Rare	Fair	Fair			0	20
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	0.4	0.5	0.2	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	21
pond cypress	Taxodium ascendens	NSH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	22
shagbark hickory	Carya ovata	WSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	23
mockernut hickory	Carya alba	WDL	Medium	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	24
eastern redbud	Cercis canadensis	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	25
common persimmon	Diospyros virginiana	NSL	Low	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	26
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	27
swamp tupelo	Nyssa biflora	NDH	Medium	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	28