

**U.S. Census Bureau Urban Areas**  
**Climate Change Atlas Tree Species**  
 Current and Potential Future Habitat, Capability, and Migration

	sq. km	sq. mi	FIA Plots
Area of Region	8,693.6	3,356.6	108

**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				
		High	Low	Reliability	Adaptability	Scenario RCP45	Scenario RCP85	Scenario RCP45	Scenario RCP85	SHIFT RCP45	SHIFT RCP85			
Ash	3					Increase	13	14	Very Good	5	5	Likely	0	0
Hickory	2					No Change	11	10	Good	5	7	Infill	3	4
Maple	1	Abundant	3	High	9	Decrease	6	6	Fair	9	8	Migrate	0	0
Oak	6	Common	12	Medium	22	New	5	5	Poor	7	6		3	4
Pine	5	Rare	18	Low	16	Unknown	15	15	Very Poor	4	4			
Other	16	Absent	14	FIA	3				FIA Only	3	3			
	<b>33</b>		<b>47</b>		<b>50</b>		<b>50</b>	<b>50</b>	Unknown	12	12			
										<b>45</b>	<b>45</b>			

**Potential Changes in Climate Variables**

**Temperature (°F)**

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	72.6	74.0	75.5	75.4	
	CCSM85	72.6	74.1	76.2	78.4	
	GFDL45	72.6	76.4	76.7	77.5	
	GFDL85	72.6	74.9	77.7	81.0	
	HAD45	72.6	74.1	76.3	77.4	
	HAD85	72.6	74.7	77.0	80.4	
Growing Season (May—Sep)	CCSM45	80.7	82.0	83.1	83.3	
	CCSM85	80.7	82.0	84.2	86.5	
	GFDL45	80.7	84.6	84.7	85.7	
	GFDL85	80.7	83.0	85.8	89.3	
	HAD45	80.7	82.9	84.6	85.7	
	HAD85	80.7	83.2	86.1	89.2	
Coldest Month (Average)	CCSM45	59.2	61.3	62.2	62.0	
	CCSM85	59.2	60.7	61.7	63.1	
	GFDL45	59.2	61.9	62.3	62.8	
	GFDL85	59.2	61.6	62.7	63.9	
	HAD45	59.2	59.1	60.3	60.9	
	HAD85	59.2	60.0	60.6	62.5	
Warmest Month (Average)	CCSM45	82.6	83.8	84.5	84.6	
	CCSM85	82.6	83.9	85.2	86.6	
	GFDL45	82.6	84.8	85.8	86.4	
	GFDL85	82.6	85.0	86.5	88.4	
	HAD45	82.6	84.8	85.5	86.1	
	HAD85	82.6	84.8	86.4	87.8	

**Precipitation (in)**

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	49.9	53.2	53.7	56.0	
	CCSM85	49.9	52.3	53.1	51.5	
	GFDL45	49.9	58.2	59.9	61.9	
	GFDL85	49.9	54.3	63.4	58.5	
	HAD45	49.9	51.2	51.8	53.4	
	HAD85	49.9	48.2	49.8	48.8	
Growing Season (May—Sep)	CCSM45	32.1	34.7	33.8	35.6	
	CCSM85	32.1	33.7	34.4	31.8	
	GFDL45	32.1	36.8	37.3	37.4	
	GFDL85	32.1	35.3	39.6	36.0	
	HAD45	32.1	32.9	33.4	31.3	
	HAD85	32.1	30.4	28.4	27.7	

**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
slash pine	Pinus elliottii	NDH	High	62.1	684.0	34.3	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			2	1
pond cypress	Taxodium ascendens	NSH	Medium	34.5	586.0	30.3	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			2	2
live oak	Quercus virginiana	NDH	High	51.8	549.8	23.9	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			2	3
red maple	Acer rubrum	WDH	High	49.4	364.8	14.2	No change	No change	High	Common	Good	Good			2	4
laurel oak	Quercus laurifolia	NDH	Medium	67.8	345.4	12.5	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	2	5
water oak	Quercus nigra	WDH	High	32.2	282.8	13.8	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	2	6
swamp tupelo	Nyssa biflora	NDH	Medium	40.3	186.0	8.7	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair	Infill +	Infill +	2	7
cabbage palmetto	Sabal palmetto	NDH	Medium	32.2	161.9	10.6	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			0	8
loblolly-bay	Gordonia lasianthus	NSH	Medium	21.9	124.8	11.6	No change	No change	Medium	Common	Fair	Fair			0	9
longleaf pine	Pinus palustris	NSH	Medium	16.1	102.8	10.6	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			2	10
bald cypress	Taxodium distichum	NSH	Medium	19.5	102.6	9.1	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			2	11
sweetbay	Magnolia virginiana	NSL	Medium	28.8	91.2	7.7	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			2	12
sweetgum	Liquidambar styraciflua	WDH	High	12.7	75.6	5.6	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			2	13
redbay	Persea borbonia	NSL	Low	33.3	74.0	4.8	No change	No change	High	Common	Good	Good			0	14
black cherry	Prunus serotina	WDL	Medium	17.3	50.6	10.0	No change	No change	Low	Common	Poor	Poor			0	15
American elm	Ulmus americana	WDH	Medium	20.6	28.9	6.8	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good			2	16
American hornbeam; musclev	Carpinus caroliniana	WSL	Low	5.8	20.6	3.3	No change	No change	Medium	Rare	Poor	Poor			0	17
sugarberry	Celtis laevigata	NDH	Medium	9.2	15.9	4.8	No change	Sm. inc.	Medium	Rare	Poor	Fair		Infill +	2	18
Carolina ash	Fraxinus caroliniana	NSL	FIA	17.2	15.6	3.8	Unknown	Unknown	NA	Rare	FIA Only	FIA Only			0	19
turkey oak	Quercus laevis	NSH	Medium	5.8	15.3	9.7	No change	No change	High	Rare	Fair	Fair			0	20
pignut hickory	Carya glabra	WDL	Medium	3.5	14.7	4.0	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	21
pumpkin ash	Fraxinus profunda	NSH	FIA	6.8	9.6	3.2	Unknown	Unknown	NA	Rare	FIA Only	FIA Only			0	22
loblolly pine	Pinus taeda	WDH	High	1.2	6.8	5.5	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good			0	23
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	2.3	6.6	2.7	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	24
sand pine	Pinus clausa	NDH	High	4.6	5.0	16.2	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair			0	25
water hickory	Carya aquatica	NSL	Medium	1.2	3.6	3.0	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	26
waterlocust	Gleditsia aquatica	NSLX	FIA	5.7	2.6	2.7	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	27
common persimmon	Diospyros virginiana	NSL	Low	1.2	1.9	1.5	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	28
green ash	Fraxinus pennsylvanica	WSH	Low	2.3	1.4	0.6	No change	No change	Medium	Rare	Poor	Poor			0	29
bluejack oak	Quercus incana	NSL	Low	4.6	1.2	3.8	No change	No change	Medium	Rare	Poor	Poor			0	30
black willow	Salix nigra	NSH	Low	4.6	1.1	3.5	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	31
willow oak	Quercus phellos	NSL	Low	4.6	0.2	0.6	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	32
pond pine	Pinus serotina	NSH	Medium	4.6	0.0	0.1	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair			0	33
shortleaf pine	Pinus echinata	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	34
striped maple	Acer pensylvanicum	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	35
serviceberry	Amelanchier spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	36
shagbark hickory	Carya ovata	WSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	37
eastern redbud	Cercis canadensis	NSL	Low	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
American holly	Ilex opaca	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	40
cucumbertree	Magnolia acuminata	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	41
southern magnolia	Magnolia grandiflora	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	42
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	43
blackgum	Nyssa sylvatica	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	44
pin cherry	Prunus pensylvanica	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	45
southern red oak	Quercus falcata	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	46
cherrybark oak; swamp red o	Quercus pagoda	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	47

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Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIaiv	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
Shumard oak	Quercus shumardii	NSL	Low	0	0	0	Unknown	Unknown	High	Modeled	Unknown	Unknown			0	48
post oak	Quercus stellata	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	49
American basswood	Tilia americana	WSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	50