

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

Area of Region    sq. km    sq. mi    FIA Plots  
9,675.2    3,735.6    8

**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	
		Abundant	Rare	High	Low	Scenario	Scenario	Scenario	Scenario	SHIFT	SHIFT
		0	2	Reliability	Adaptability	RCP45	RCP85	RCP45	RCP85	RCP45	RCP85
Ash	0			2	1	Increase	0	0	Very Good	0	0
Hickory	0			4	11	No Change	3	3	Good	0	0
Maple	0	Abundant	0	7	1	Decrease	0	0	Fair	1	1
Oak	1	Common	1	FIA	0	New	4	4	Poor	1	1
Pine	0	Rare	2			Unknown	6	6	Very Poor	1	1
Other	2	Absent	10				<b>13</b>	<b>13</b>	FIA Only	0	0
	<b>3</b>		<b>13</b>						Unknown	6	6
										<b>9</b>	<b>9</b>

**Potential Changes in Climate Variables**

**Temperature (°F)**

Scenario	2009	2039	2069	2099	
Annual	73.9	75.2	76.7	77.2	
Average	73.9	75.6	77.7	80.0	
GFDL45	73.9	79.2	78.2	79.4	
GFDL85	73.9	76.4	79.6	82.8	
HAD45	73.9	75.8	77.9	79.0	
HAD85	73.9	76.2	78.7	81.9	
Growing Season	83.3	84.5	85.6	86.1	
May—Sep	83.3	84.9	86.8	89.1	
GFDL45	83.3	89.4	88.1	89.6	
GFDL85	83.3	86.2	89.6	93.3	
HAD45	83.3	85.0	86.8	87.8	
HAD85	83.3	85.4	87.9	90.9	
Coldest Month	57.9	59.7	60.7	61.0	
Average	57.9	59.9	61.3	62.4	
GFDL45	57.9	60.8	61.3	61.3	
GFDL85	57.9	59.6	60.8	61.7	
HAD45	57.9	59.2	60.6	61.5	
HAD85	57.9	61.3	62.4	64.1	
Warmest Month	85.9	87.0	87.6	87.8	
Average	85.9	87.5	88.2	89.3	
GFDL45	85.9	89.0	90.0	90.7	
GFDL85	85.9	89.0	90.6	92.7	
HAD45	85.9	87.8	88.5	89.2	
HAD85	85.9	88.1	89.4	90.8	

**Precipitation (in)**

Scenario	2009	2039	2069	2099	
Annual	25.0	26.7	26.3	25.0	
Total	25.0	25.9	26.3	23.2	
GFDL45	25.0	25.1	27.3	22.0	
GFDL85	25.0	24.6	24.3	22.8	
HAD45	25.0	25.2	24.4	25.6	
HAD85	25.0	26.1	26.3	25.2	
Growing Season	14.5	15.2	14.8	14.1	
May—Sep	14.5	15.8	15.1	12.9	
GFDL45	14.5	15.0	17.2	13.2	
GFDL85	14.5	14.9	14.2	13.8	
HAD45	14.5	13.5	13.0	13.9	
HAD85	14.5	16.0	14.4	12.9	

**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.

**Cite as:** Iverson, L.R.; Prasad, A.M.; Peters, M.P.; Matthews, S.N. 2019. Facilitating Adaptive Forest Management under Climate Change: A Spatially Specific Synthesis of 125 Species for Habitat Changes and Assisted Migration over the Eastern United States. *Forests*. 10(11): 989. <https://doi.org/10.3390/f10110989>.

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	14.1	136.9	65.5	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	2	1
sugarberry	Celtis laevigata	NDH	Medium	8.1	7.1	7.8	No change	No change	Medium	Rare	Poor	Poor			0	2
black willow	Salix nigra	NSH	Low	3.9	4.9	10.5	No change	No change	Low	Rare	Very Poor	Very Poor			0	3
bald cypress	Taxodium distichum	NSH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	4
pond cypress	Taxodium ascendens	NSH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	5
pawpaw	Asimina triloba	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	6
bitternut hickory	Carya cordiformis	WSL	Low	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	7
eastern redbud	Cercis canadensis	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	8
cucumbertree	Magnolia acuminata	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	9
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	10
black oak	Quercus velutina	WDH	High	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	11
bluejack oak	Quercus incana	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	12
cabbage palmetto	Sabal palmetto	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	13