

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
 8,100.0 3,127.4 222

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	12	14	Increase	19	20	Very Good	5	5	Likely	2	2
Hickory	3			Medium	31	41	No Change	6	7	Good	12	15	Infill	10	14
Maple	2	Abundant	4	Low	22	10	Decrease	18	16	Fair	9	7	Migrate	1	3
Oak	10	Common	16	FIA	2		New	6	8	Poor	8	8			
Pine	6	Rare	25				Unknown	18	16	Very Poor	9	8			
Other	21	Absent	19							FIA Only	2	2			
	45		64		67	65		67	67	Unknown	16	14			
											61	59			

Potential Changes in Climate Variables

Temperature (°F)

Scenario	2009	2039	2069	2099		
Annual	CCSM45	69.2	70.7	72.4	72.3	
Average	CCSM85	69.2	70.8	73.1	75.3	
	GFDL45	69.2	71.7	73.5	74.2	
	GFDL85	69.2	71.5	74.5	77.9	
	HAD45	69.2	71.1	73.5	74.9	
	HAD85	69.2	71.7	74.5	78.3	
Growing Season	CCSM45	79.2	80.4	81.7	82.0	
	CCSM85	79.2	80.5	82.7	85.2	
May—Sep	GFDL45	79.2	81.5	83.2	84.3	
	GFDL85	79.2	81.6	84.4	88.2	
	HAD45	79.2	81.9	84.0	85.5	
	HAD85	79.2	82.3	86.1	89.6	
Coldest Month	CCSM45	53.3	55.7	56.6	56.2	
	CCSM85	53.3	55.2	56.3	57.6	
Average	GFDL45	53.3	56.0	56.4	57.0	
	GFDL85	53.3	55.5	56.7	57.6	
	HAD45	53.3	53.1	54.4	55.2	
	HAD85	53.3	53.8	54.6	56.6	
Warmest Month	CCSM45	81.6	83.0	83.8	83.9	
	CCSM85	81.6	83.0	84.3	85.8	
Average	GFDL45	81.6	83.9	84.7	85.4	
	GFDL85	81.6	84.0	85.4	87.4	
	HAD45	81.6	84.8	85.7	86.4	
	HAD85	81.6	84.9	87.2	88.6	

Precipitation (in)

Scenario	2009	2039	2069	2099		
Annual	CCSM45	51.3	55.1	57.1	57.6	
Total	CCSM85	51.3	54.1	56.3	57.0	
	GFDL45	51.3	59.3	60.9	63.3	
	GFDL85	51.3	55.8	63.2	61.0	
	HAD45	51.3	49.5	49.3	52.1	
	HAD85	51.3	49.0	47.8	47.2	
Growing Season	CCSM45	29.4	31.7	32.3	32.0	
	CCSM85	29.4	30.5	32.7	32.5	
May—Sep	GFDL45	29.4	35.0	35.6	36.4	
	GFDL85	29.4	33.6	37.9	37.0	
	HAD45	29.4	28.5	28.1	27.2	
	HAD85	29.4	27.2	24.1	23.7	

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	69.1	3048.0	43.5	No change	No change	Medium	Abundant	Good	Good			1	1
laurel oak	Quercus laurifolia	NDH	Medium	66.7	1043.0	16.8	No change	Sm. dec.	Medium	Abundant	Good	Fair			1	2
loblolly pine	Pinus taeda	WDH	High	53.1	958.0	19.5	No change	No change	Medium	Abundant	Good	Good			1	3
live oak	Quercus virginiana	NDH	High	59.3	754.2	13.6	Sm. inc.	Lg. inc.	Medium	Abundant	Very Good	Very Good			1	4
water oak	Quercus nigra	WDH	High	56.8	484.3	9.4	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	5
longleaf pine	Pinus palustris	NSH	Medium	28.4	468.1	16.3	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	6
pond cypress	Taxodium ascendens	NSH	Medium	28.4	348.8	12.1	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	7
turkey oak	Quercus laevis	NSH	Medium	25.9	328.8	14.7	Sm. dec.	Sm. dec.	High	Common	Fair	Fair			1	8
sweetgum	Liquidambar styraciflua	WDH	High	45.7	320.8	7.8	No change	Sm. inc.	Medium	Common	Fair	Good			1	9
sand pine	Pinus clausa	NDH	High	11.1	258.4	23.0	Sm. inc.	No change	Low	Common	Fair	Poor	Infill +	Infill +	2	10
swamp tupelo	Nyssa biflora	NDH	Medium	30.9	182.7	5.9	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	11
loblolly-bay	Gordonia lasianthus	NSH	Medium	19.8	130.0	6.5	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	12
red maple	Acer rubrum	WDH	High	30.9	129.0	4.1	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	13
black cherry	Prunus serotina	WDL	Medium	32.1	120.0	4.3	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	14
American hornbeam; musclev	Carpinus caroliniana	WSL	Low	18.5	79.8	4.3	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	15
redbay	Persea borbonia	NSL	Low	27.2	66.4	2.4	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	16
sweetbay	Magnolia virginiana	NSL	Medium	19.8	63.8	3.2	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	17
bluejack oak	Quercus incana	NSL	Low	8.6	63.3	7.2	Sm. dec.	No change	Medium	Common	Poor	Fair	Infill +	Infill +	1	18
pignut hickory	Carya glabra	WDL	Medium	7.4	61.4	8.2	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor	Infill +	Infill +	0	19
common persimmon	Diospyros virginiana	NSL	Low	6.2	60.9	9.7	Sm. dec.	Sm. dec.	High	Common	Fair	Fair			1	20
cabbage palmetto	Sabal palmetto	NDH	Medium	7.4	48.3	6.5	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			0	21
pumpkin ash	Fraxinus profunda	NSH	FIA	4.9	36.1	7.2	Unknown	Unknown	NA	Rare	FIA Only	FIA Only			0	22
blackgum	Nyssa sylvatica	WDL	Medium	13.6	33.4	2.4	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	1	23
southern magnolia	Magnolia grandiflora	NSL	Low	8.6	30.7	3.5	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	1	24
post oak	Quercus stellata	WDH	High	4.9	23.1	4.6	Sm. inc.	Lg. inc.	High	Rare	Good	Good		Infill ++	2	25
mockernut hickory	Carya alba	WDL	Medium	3.7	21.4	5.7	Sm. dec.	No change	High	Rare	Poor	Fair		Infill +	2	26
southern red oak	Quercus falcata	WDL	Medium	3.7	17.9	4.8	No change	Sm. inc.	High	Rare	Fair	Good	Infill +	Infill ++	2	27
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	3.7	15.0	4.0	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			1	28
American elm	Ulmus americana	WDL	Medium	9.9	14.3	1.4	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good	Infill +	Infill ++	2	29
flowering dogwood	Cornus florida	WDL	Medium	7.4	13.9	1.9	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	30
swamp chestnut oak	Quercus michauxii	NSL	Low	4.9	12.2	2.4	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	31
blackjack oak	Quercus marilandica	NSL	Medium	1.2	10.9	8.7	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	32
bald cypress	Taxodium distichum	NSH	Medium	4.9	10.1	2.0	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	33
sugarberry	Celtis laevigata	NDH	Medium	3.7	8.4	2.2	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good		Infill ++	2	34
American holly	Ilex opaca	NSL	Medium	6.2	7.1	1.1	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	35
winged elm	Ulmus alata	WDL	Medium	4.9	6.2	1.2	Sm. dec.	No change	Medium	Rare	Very Poor	Poor		Infill +	2	36
overcup oak	Quercus lyrata	NSL	Medium	1.2	5.9	4.8	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	37
spruce pine	Pinus glabra	NSL	Low	2.5	4.8	1.9	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	38
florida maple	Acer barbatum	NSL	Low	1.2	4.6	3.7	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	39
American beech	Fagus grandifolia	WDH	High	1.2	4.6	3.7	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	40
pond pine	Pinus serotina	NSH	Medium	1.2	4.0	3.2	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	2	41
pecan	Carya illinoensis	NSH	Low	1.2	3.6	2.9	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	42
green ash	Fraxinus pennsylvanica	WSH	Low	1.2	2.8	2.2	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good	Infill +	Infill ++	2	43
eastern redcedar	Juniperus virginiana	WDH	Medium	1.2	0.6	0.5	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	44
Carolina ash	Fraxinus caroliniana	NSL	FIA	1.2	0.4	0.3	Unknown	Unknown	NA	Rare	FIA Only	FIA Only			0	45
shortleaf pine	Pinus echinata	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	46
striped maple	Acer pensylvanicum	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	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
serviceberry	Amelanchier spp.	NSL	Low	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat			3	48
river birch	Betula nigra	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	49
shagbark hickory	Carya ovata	WSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	50
black hickory	Carya texana	NDL	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	51
hackberry	Celtis occidentalis	WDH	Medium	0	0	0	Unknown	Unknown	High	Modeled	Unknown	Unknown			0	52
eastern redbud	Cercis canadensis	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	53
black ash	Fraxinus nigra	WSH	Medium	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	54
silverbell	Halesia spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	55
cucumbertree	Magnolia acuminata	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	56
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	57
water tupelo	Nyssa aquatica	NSH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Likely +	Likely +	3	58
sourwood	Oxydendrum arboreum	NDL	High	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	59
pin cherry	Prunus pensylvanica	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	60
white oak	Quercus alba	WDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	61
cherrybark oak; swamp red o.	Quercus pagoda	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	62
willow oak	Quercus phellos	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	63
black locust	Robinia pseudoacacia	NDH	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	64
sassafras	Sassafras albidum	WSL	Low	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat		Migrate +	3	65
American mountain-ash	Sorbus americana	NSL	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	66
cedar elm	Ulmus crassifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat		Migrate +	3	67