

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
 8,353.4 3,225.3 77

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	5	9	Increase	8	11	Very Good	2	2	Likely	3	3
Hickory	4			Medium	24	31	No Change	13	10	Good	4	7	Infill	16	17
Maple	2	Abundant	3	Low	19	8	Decrease	11	11	Fair	10	9	Migrate	0	1
Oak	7	Common	8	FIA	0		New	6	7	Poor	7	7			
Pine	0	Rare	21				Unknown	10	9	Very Poor	7	6			
Other	18	Absent	14							FIA Only	0	0			
	32		46		48	48		48	48	Unknown	10	9			
											40	40			

Potential Changes in Climate Variables

Temperature (°F)

Scenario	2009	2039	2069	2099	
Annual	68.7	70.1	71.7	71.8	
Average	68.7	70.3	72.5	74.5	
GFDL45	68.7	72.6	72.8	73.6	
GFDL85	68.7	71.0	74.0	77.1	
HAD45	68.7	70.6	73.0	74.0	
HAD85	68.7	70.8	73.8	77.0	
Growing Season	79.8	80.9	82.0	82.3	
May—Sep	79.8	81.0	83.1	85.4	
GFDL45	79.8	84.2	83.9	85.3	
GFDL85	79.8	82.3	85.3	89.0	
HAD45	79.8	82.1	84.1	84.9	
HAD85	79.8	82.1	85.8	88.5	
Coldest Month	51.3	53.5	54.4	54.3	
Average	51.3	53.9	55.1	56.1	
GFDL45	51.3	54.5	54.7	54.8	
GFDL85	51.3	52.8	53.9	54.7	
HAD45	51.3	51.8	53.3	54.1	
HAD85	51.3	53.1	54.3	56.0	
Warmest Month	82.6	83.4	83.8	84.0	
Average	82.6	83.6	84.5	85.7	
GFDL45	82.6	85.3	85.7	86.7	
GFDL85	82.6	85.1	86.5	88.6	
HAD45	82.6	85.1	86.2	86.4	
HAD85	82.6	85.2	87.2	88.3	

Precipitation (in)

Scenario	2009	2039	2069	2099	
Annual	63.1	65.2	71.4	69.1	
Total	63.1	65.7	67.4	68.2	
GFDL45	63.1	68.7	73.6	68.0	
GFDL85	63.1	66.4	67.7	65.6	
HAD45	63.1	59.7	62.7	66.8	
HAD85	63.1	67.4	61.0	64.3	
Growing Season	31.3	32.8	34.4	33.8	
May—Sep	31.3	32.1	33.2	31.9	
GFDL45	31.3	35.5	39.3	34.4	
GFDL85	31.3	34.3	36.1	36.4	
HAD45	31.3	30.7	31.0	33.4	
HAD85	31.3	31.9	27.6	28.1	

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-DGP30 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	63.4	1458.7	31.1	Sm. dec.	Sm. dec.	Medium	Abundant	Fair	Fair	Infill +	Infill +	0	1
water tupelo	Nyssa aquatica	NSH	Medium	37.1	972.6	25.0	Sm. dec.	Sm. dec.	Low	Abundant	Fair	Fair	Infill +	Infill +	0	2
red maple	Acer rubrum	WDH	High	64.6	758.9	18.1	Sm. inc.	No change	High	Abundant	Very Good	Very Good	Infill ++	Infill ++	1	3
green ash	Fraxinus pennsylvanica	WSH	Low	61.1	356.8	11.1	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	4
sugarberry	Celtis laevigata	NDH	Medium	27.5	331.0	12.7	No change	Sm. inc.	Medium	Common	Fair	Good	Infill +	Infill ++	1	5
American elm	Ulmus americana	WDH	Medium	44.3	234.7	9.4	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	6
black willow	Salix nigra	NSH	Low	16.8	191.9	19.6	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair	Infill +	Infill +	1	7
water oak	Quercus nigra	WDH	High	28.7	159.1	10.5	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	8
boxelder	Acer negundo	WSH	Low	21.5	129.1	9.6	No change	No change	High	Common	Good	Good	Infill ++	Infill ++	1	9
sweetgum	Liquidambar styraciflua	WDH	High	28.7	94.8	4.6	Sm. inc.	Sm. inc.	Medium	Common	Good	Good	Infill ++	Infill ++	1	10
Nuttall oak	Quercus texana	NSH	Medium	15.6	62.1	3.8	Sm. inc.	Lg. inc.	High	Common	Very Good	Very Good			0	11
pecan	Carya illinoensis	NSH	Low	6	24.4	11.1	No change	Sm. inc.	Low	Rare	Very Poor	Poor		Infill +	2	12
water hickory	Carya aquatica	NSL	Medium	9.6	21.3	3.8	Sm. dec.	No change	Medium	Rare	Very Poor	Poor		Infill +	2	13
swamp tupelo	Nyssa biflora	NDH	Medium	2.4	18.9	5.7	No change	Sm. dec.	Low	Rare	Very Poor	Very Poor			2	14
live oak	Quercus virginiana	NDH	High	8.4	14.6	3.9	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	15
slippery elm	Ulmus rubra	WSL	Low	6	12.5	1.5	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	16
red mulberry	Morus rubra	NSL	Low	4.8	9.3	1.4	No change	No change	Medium	Rare	Poor	Poor			0	17
laurel oak	Quercus laurifolia	NDH	Medium	4.8	7.5	1.1	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			2	18
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	2.4	3.1	0.9	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	19
flowering dogwood	Cornus florida	WDL	Medium	1.2	2.9	1.8	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	20
cherrybark oak; swamp red o.	Quercus pagoda	NSL	Medium	1.2	2.3	1.4	No change	Lg. inc.	Medium	Rare	Poor	Good	Infill +		2	21
cedar elm	Ulmus crassifolia	NDH	Medium	1.2	1.8	1.1	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	2	22
honeylocust	Gleditsia triacanthos	NSH	Low	2.4	1.5	0.5	Very Lg. dec.	No change	High	Rare	Lost	Fair			0	23
common persimmon	Diospyros virginiana	NSL	Low	10.8	1.4	0.8	No change	Sm. inc.	High	Rare	Fair	Good	Infill +	Infill ++	2	24
winged elm	Ulmus alata	WDL	Medium	6	1.4	0.8	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	25
mockernut hickory	Carya alba	WDL	Medium	1.2	1.3	0.8	Very Lg. dec.	Very Lg. dec.	High	Rare	Lost	Lost			0	26
willow oak	Quercus phellos	NSL	Low	1.2	0.8	0.5	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	27
black cherry	Prunus serotina	WDL	Medium	1.2	0.6	0.4	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	28
pignut hickory	Carya glabra	WDL	Medium	1.2	0.6	0.3	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	29
overcup oak	Quercus lyrata	NSL	Medium	1.2	0.5	0.3	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	2	30
blackgum	Nyssa sylvatica	WDL	Medium	4.8	0.2	0.4	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			0	31
sassafras	Sassafras albidum	WSL	Low	4.8	0.1	0.2	No change	Lg. dec.	Medium	Rare	Poor	Very Poor			0	32
eastern redcedar	Juniperus virginiana	WDH	Medium	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	33
loblolly pine	Pinus taeda	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	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	New Habitat	Medium	Absent	Unknown	New Habitat			0	36
pawpaw	Asimina triloba	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	37
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	38
shagbark hickory	Carya ovata	WSL	Medium	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	39
black ash	Fraxinus nigra	WSH	Medium	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	40
loblolly-bay	Gordonia lasianthus	NSH	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	41
silverbell	Halesia spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	42
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	43
water elm	Planera aquatica	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	44
sycamore	Platanus occidentalis	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	45
pin cherry	Prunus pensylvanica	NSL	Low	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat			3	46
cabbage palmetto	Sabal palmetto	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	47

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Northern Research Station
Landscape Change Research Group
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Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIaiv	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
American basswood	Tilia americana	WSL	Medium	0	0	0	New Habitat	Unknown	Medium	Absent	New Habitat	Unknown			3	48