

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
 8,054.3 3,109.8 234

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	Scenario	Scenario	Scenario	SHIFT	SHIFT
				High	Low	RCP45	RCP85	RCP45	RCP85	RCP45	RCP85
Ash	3			11	16	Increase	19	22	Very Good	7	8
Hickory	2			33	40	No Change	5	6	Good	10	11
Maple	1	Abundant	3	22	10	Decrease	20	16	Fair	7	7
Oak	11	Common	16	FIA	2	New	9	9	Poor	8	11
Pine	5	Rare	27			Unknown	15	15	Very Poor	8	5
Other	24	Absent	21						FIA Only	2	2
	46		67	68	66		68	68	Unknown	13	13
										55	57

Potential Changes in Climate Variables

Temperature (°F)

Scenario	2009	2039	2069	2099	
Annual	68.2	69.6	71.2	71.2	
Average	68.2	69.8	71.9	74.1	
GFDL45	68.2	70.8	72.5	73.2	
GFDL85	68.2	70.6	73.5	76.9	
HAD45	68.2	69.9	72.2	73.5	
HAD85	68.2	70.5	73.1	76.7	
Growing Season	78.4	79.6	80.8	81.1	
May—Sep	78.4	80.9	82.5	83.5	
	78.4	80.9	83.7	87.4	
	78.4	80.9	82.8	84.2	
	78.4	81.2	84.7	87.9	
Coldest Month	52.2	54.4	55.3	54.9	
Average	52.2	53.9	55.0	56.3	
GFDL45	52.2	54.8	55.1	55.8	
GFDL85	52.2	54.3	55.4	56.3	
HAD45	52.2	52.0	53.2	53.9	
HAD85	52.2	52.6	53.5	55.2	
Warmest Month	81.2	82.6	83.4	83.5	
Average	81.2	82.6	83.9	85.3	
GFDL45	81.2	83.3	84.0	84.8	
GFDL85	81.2	83.4	84.9	86.9	
HAD45	81.2	84.1	84.9	85.5	
HAD85	81.2	84.2	86.3	87.6	

Precipitation (in)

Scenario	2009	2039	2069	2099	
Annual	50.0	53.2	54.8	55.6	
Total	50.0	52.6	54.0	54.6	
GFDL45	50.0	58.4	59.3	61.6	
GFDL85	50.0	54.8	62.3	60.4	
HAD45	50.0	47.4	45.8	49.3	
HAD85	50.0	46.9	45.2	43.9	
Growing Season	28.3	30.2	30.2	30.5	
May—Sep	28.3	29.4	30.8	30.4	
	28.3	34.4	34.6	35.5	
	28.3	32.7	37.5	36.9	
	28.3	26.9	25.4	25.1	
	28.3	25.7	22.7	21.4	

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	88.1	4493.0	48.1	Sm. dec.	Sm. dec.	Medium	Abundant	Fair	Fair			0	1
loblolly pine	Pinus taeda	WDH	High	46.6	772.7	15.9	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			1	2
red maple	Acer rubrum	WDH	High	60.1	612.5	8.3	No change	No change	High	Abundant	Very Good	Very Good			1	3
laurel oak	Quercus laurifolia	NDH	Medium	57	396.9	6.7	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	4
water oak	Quercus nigra	WDH	High	51.8	372.8	6.7	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	5
swamp tupelo	Nyssa biflora	NDH	Medium	58.1	338.7	5.1	Sm. inc.	Lg. inc.	Low	Common	Fair	Good			1	6
sweetgum	Liquidambar styraciflua	WDH	High	53.5	329.2	5.6	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	7
loblolly-bay	Gordonia lasianthus	NSH	Medium	44.2	279.1	6.5	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	8
live oak	Quercus virginiana	NDH	High	37.5	250.6	7.0	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	9
longleaf pine	Pinus palustris	NSH	Medium	32.7	218.4	6.7	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	10
pond cypress	Taxodium ascendens	NSH	Medium	34.5	183.1	5.0	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	11
turkey oak	Quercus laevis	NSH	Medium	13.1	177.8	11.5	Sm. dec.	Sm. dec.	High	Common	Fair	Fair			1	12
redbay	Persea borbonia	NSL	Low	49.5	168.8	2.9	No change	Sm. inc.	High	Common	Good	Very Good			1	13
sand pine	Pinus clausa	NDH	High	8	154.3	16.6	No change	No change	Low	Common	Poor	Poor	Infill +	Infill +	0	14
pumpkin ash	Fraxinus profunda	NSH	FIA	5.5	118.4	13.2	Unknown	Unknown	NA	Common	FIA Only	FIA Only			0	15
sweetbay	Magnolia virginiana	NSL	Medium	43.6	109.8	2.5	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	16
bald cypress	Taxodium distichum	NSH	Medium	13	103.8	6.7	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good	Infill ++	Infill ++	1	17
green ash	Fraxinus pennsylvanica	WSH	Low	10.8	99.4	7.8	No change	Sm. inc.	Medium	Common	Fair	Good	Infill +	Infill ++	1	18
pond pine	Pinus serotina	NSH	Medium	17.3	83.7	5.4	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	19
southern magnolia	Magnolia grandiflora	NSL	Low	13.7	46.3	2.6	No change	No change	Medium	Rare	Poor	Poor			1	20
cabbage palmetto	Sabal palmetto	NDH	Medium	9.5	45.5	3.4	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			0	21
blackgum	Nyssa sylvatica	WDL	Medium	12.6	40.0	2.1	Lg. inc.	Lg. inc.	High	Rare	Good	Good			1	22
pignut hickory	Carya glabra	WDL	Medium	7	27.2	3.2	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			2	23
American hornbeam; musclev	Carpinus caroliniana	WSL	Low	10.5	25.9	1.8	Sm. dec.	Sm. inc.	Medium	Rare	Very Poor	Fair		Infill +	1	24
American elm	Ulmus americana	WDH	Medium	9.2	25.5	2.1	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	2	25
bluejack oak	Quercus incana	NSL	Low	6.1	18.0	2.7	Sm. dec.	No change	Medium	Rare	Very Poor	Poor		Infill +	1	26
water tupelo	Nyssa aquatica	NSH	Medium	1.2	10.1	7.7	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	27
post oak	Quercus stellata	WDH	High	3.7	9.5	2.4	Sm. inc.	Lg. inc.	High	Rare	Good	Good			2	28
sugarberry	Celtis laevigata	NDH	Medium	1.2	8.3	6.4	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	29
yellow-poplar	Liriodendron tulipifera	WDH	High	4.9	8.1	1.5	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	30
black cherry	Prunus serotina	WDL	Medium	10.4	6.7	0.9	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	1	31
hackberry	Celtis occidentalis	WDH	Medium	0.9	5.4	3.1	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	32
water elm	Planera aquatica	NSL	Low	1.2	5.1	3.9	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	33
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	4.9	5.1	1.0	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	34
American holly	Ilex opaca	NSL	Medium	7	3.2	0.5	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	35
southern red oak	Quercus falcata	WDL	Medium	2.4	3.1	1.2	Sm. inc.	Lg. inc.	High	Rare	Good	Good			2	36
river birch	Betula nigra	NSL	Low	1.2	2.7	2.1	Sm. dec.	No change	Medium	Rare	Very Poor	Poor		Infill +	2	37
common persimmon	Diospyros virginiana	NSL	Low	3.3	2.5	0.5	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			1	38
Shumard oak	Quercus shumardii	NSL	Low	1.1	2.4	1.6	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	39
eastern redcedar	Juniperus virginiana	WDH	Medium	1.2	1.8	1.4	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	40
blackjack oak	Quercus marilandica	NSL	Medium	1.1	1.6	1.1	Very Lg. dec.	No change	High	Rare	Lost	Fair		Infill +	2	41
chinkapin oak	Quercus muehlenbergii	NSL	Medium	1.2	1.5	1.2	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	42
sycamore	Platanus occidentalis	NSL	Low	1.1	1.2	0.8	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	43
white oak	Quercus alba	WDH	Medium	1.2	1.2	0.9	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	44
mockernut hickory	Carya alba	WDL	Medium	1.2	1.0	0.7	Very Lg. dec.	Sm. dec.	High	Rare	Lost	Poor		Infill +	2	45
Carolina ash	Fraxinus caroliniana	NSL	FIA	2.5	0.7	0.3	Unknown	Unknown	NA	Rare	FIA Only	FIA Only			0	46
shortleaf pine	Pinus echinata	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	47

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Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIaiv	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
striped maple	Acer pensylvanicum	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	48
serviceberry	Amelanchier spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	49
gray birch	Betula populifolia	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	50
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			0	51
shellbark hickory	Carya laciniosa	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	52
shagbark hickory	Carya ovata	WSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	53
black hickory	Carya texana	NDL	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	54
eastern redbud	Cercis canadensis	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	55
flowering dogwood	Cornus florida	WDL	Medium	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat			3	56
white ash	Fraxinus americana	WDL	Medium	0	0	0	Unknown	Unknown	Low	Modeled	Unknown	Unknown			0	57
black ash	Fraxinus nigra	WSH	Medium	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	58
silverbell	Halesia spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	59
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	60
scarlet oak	Quercus coccinea	WDL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	61
bur oak	Quercus macrocarpa	NDH	Medium	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	62
willow oak	Quercus phellos	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	63
black locust	Robinia pseudoacacia	NDH	Low	0	0	0	New Habitat	Unknown	Medium	Absent	New Habitat	Unknown			3	64
black willow	Salix nigra	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Likely +	Likely +	3	65
American mountain-ash	Sorbus americana	NSL	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			0	66
winged elm	Ulmus alata	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	67
cedar elm	Ulmus crassifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	68