

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
 8,030.0 3,100.4 237

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	20	RCP45	RCP85	RCP45	RCP85	RCP45	RCP85
Ash	2					Increase	24	30	Very Good	10	10
Hickory	3					No Change	24	20	Good	13	16
Maple	2	Abundant	6			Decrease	11	9	Fair	8	10
Oak	16	Common	12			New	5	6	Poor	17	15
Pine	5	Rare	41			Unknown	12	11	Very Poor	9	7
Other	31	Absent	14			FIA	0		FIA Only	0	0
	59		73				76	76	Unknown	12	11
										69	69

Potential Changes in Climate Variables

Temperature (°F)

Scenario	2009	2039	2069	2099	
Annual	67.2	68.6	70.3	70.4	
Average	67.2	68.9	71.2	73.3	
GFDL45	67.2	70.2	71.3	72.1	
GFDL85	67.2	69.5	72.5	75.7	
HAD45	67.2	69.2	71.7	72.8	
HAD85	67.2	69.5	72.7	76.1	
Growing Season	78.9	80.1	81.4	81.8	
May—Sep	78.9	80.2	82.5	85.0	
GFDL45	78.9	82.0	83.0	84.4	
GFDL85	78.9	81.3	84.3	88.1	
HAD45	78.9	81.5	83.7	84.6	
HAD85	78.9	81.6	85.7	88.7	
Coldest Month	49.2	51.4	52.2	52.0	
Average	49.2	51.6	52.9	53.9	
GFDL45	49.2	52.6	52.8	53.0	
GFDL85	49.2	50.8	51.8	52.6	
HAD45	49.2	49.4	50.9	51.8	
HAD85	49.2	50.9	52.1	53.8	
Warmest Month	82.1	83.2	83.5	83.7	
Average	82.1	83.2	84.2	85.6	
GFDL45	82.1	84.8	85.2	86.1	
GFDL85	82.1	84.3	85.6	87.6	
HAD45	82.1	85.2	86.4	86.7	
HAD85	82.1	85.4	87.8	88.9	

Precipitation (in)

Scenario	2009	2039	2069	2099	
Annual	64.6	66.9	71.7	70.8	
Total	64.6	68.0	69.5	72.4	
GFDL45	64.6	72.1	76.2	73.4	
GFDL85	64.6	70.2	72.0	72.0	
HAD45	64.6	61.5	65.3	68.5	
HAD85	64.6	69.3	60.7	63.5	
Growing Season	29.8	31.4	32.2	32.3	
May—Sep	29.8	29.7	31.2	30.9	
GFDL45	29.8	35.4	38.6	35.0	
GFDL85	29.8	34.8	37.4	38.6	
HAD45	29.8	28.4	29.4	31.0	
HAD85	29.8	30.8	24.0	24.8	

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	75.4	2276.5	27.5	No change	No change	Medium	Abundant	Good	Good			1	1
loblolly pine	Pinus taeda	WDH	High	68.4	1842.8	24.6	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			1	2
longleaf pine	Pinus palustris	NSH	Medium	58.1	747.1	12.0	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			1	3
water oak	Quercus nigra	WDH	High	71.2	626.1	8.0	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			1	4
sweetbay	Magnolia virginiana	NSL	Medium	71.2	571.8	7.6	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			1	5
blackgum	Nyssa sylvatica	WDL	Medium	69.9	566.7	7.6	No change	No change	High	Abundant	Very Good	Very Good			1	6
swamp tupelo	Nyssa biflora	NDH	Medium	38.9	319.4	8.0	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	7
bald cypress	Taxodium distichum	NSH	Medium	33.5	277.8	8.0	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	8
red maple	Acer rubrum	WDH	High	63.5	265.3	3.9	Sm. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	9
sweetgum	Liquidambar styraciflua	WDH	High	50.2	232.3	4.3	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	10
laurel oak	Quercus laurifolia	NDH	Medium	47	231.5	4.6	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	11
yellow-poplar	Liriodendron tulipifera	WDH	High	26.2	118.2	4.1	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	12
live oak	Quercus virginiana	NDH	High	22.1	113.4	6.0	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good	Infill ++	Infill ++	1	13
water tupelo	Nyssa aquatica	NSH	Medium	8.7	94.9	9.8	No change	No change	Low	Common	Poor	Poor	Infill +	Infill +	2	14
black cherry	Prunus serotina	WDL	Medium	34.8	70.6	1.8	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	15
American holly	Ilex opaca	NSL	Medium	27.4	67.0	2.2	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	16
green ash	Fraxinus pennsylvanica	WSH	Low	10	66.9	6.1	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	17
southern red oak	Quercus falcata	WDL	Medium	24.8	62.2	2.3	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	18
pond cypress	Taxodium ascendens	NSH	Medium	9.6	43.3	4.4	No change	Sm. inc.	Medium	Rare	Poor	Fair	Infill +		2	19
American hornbeam; muscley	Carpinus caroliniana	WSL	Low	11.2	42.1	3.4	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	20
redbay	Persea borbonia	NSL	Low	33.2	40.6	1.1	Sm. inc.	Sm. inc.	High	Rare	Good	Good			1	21
southern magnolia	Magnolia grandiflora	NSL	Low	18.7	38.7	1.9	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	22
river birch	Betula nigra	NSL	Low	6.2	27.6	4.0	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	1	23
willow oak	Quercus phellos	NSL	Low	7.5	27.1	3.3	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	24
flowering dogwood	Cornus florida	WDL	Medium	22.3	26.8	1.1	No change	No change	Medium	Rare	Poor	Poor			1	25
water hickory	Carya aquatica	NSL	Medium	5	25.8	4.7	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	26
spruce pine	Pinus glabra	NSL	Low	8.7	16.5	1.7	Sm. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	27
overcup oak	Quercus lyrata	NSL	Medium	8.7	16.1	1.7	No change	Sm. inc.	Low	Rare	Very Poor	Poor		Infill +	2	28
swamp chestnut oak	Quercus michauxii	NSL	Low	5	15.8	2.9	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	1	29
American beech	Fagus grandifolia	WDH	High	5	14.1	2.5	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	30
post oak	Quercus stellata	WDH	High	7.5	13.3	1.6	Sm. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	31
American elm	Ulmus americana	WDH	Medium	7.5	12.5	1.5	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good	Infill +	Infill ++	2	32
blackjack oak	Quercus marilandica	NSL	Medium	7.5	11.3	1.4	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	1	33
white oak	Quercus alba	WDH	Medium	7.5	11.1	1.3	No change	Sm. inc.	High	Rare	Fair	Good	Infill +	Infill ++	2	34
sourwood	Oxydendrum arboreum	NDL	High	5	10.6	1.9	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	1	35
pecan	Carya illinoensis	NSH	Low	2.4	10.1	3.5	No change	No change	Low	Rare	Very Poor	Very Poor			2	36
black willow	Salix nigra	NSH	Low	7.5	10.0	1.2	No change	Lg. inc.	Low	Rare	Very Poor	Fair		Infill +	2	37
Atlantic white-cedar	Chamaecyparis thyoides	NSH	Low	2.5	9.4	3.4	Sm. inc.	Sm. inc.	Low	Rare	Poor	Poor			2	38
mockernut hickory	Carya alba	WDL	Medium	5	9.1	1.7	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	39
bluejack oak	Quercus incana	NSL	Low	2.5	5.8	2.1	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			2	40
water elm	Planera aquatica	NSL	Low	1.2	5.6	4.1	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	41
shortleaf pine	Pinus echinata	WDH	High	3.7	5.2	1.3	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	42
turkey oak	Quercus laevis	NSH	Medium	1.2	4.8	3.5	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	43
common persimmon	Diospyros virginiana	NSL	Low	15.9	4.5	0.3	Very Lg. dec.	Lg. dec.	High	Rare	Lost	Poor			1	44
sycamore	Platanus occidentalis	NSL	Low	2.5	3.3	1.2	No change	Sm. inc.	Medium	Rare	Poor	Fair	Infill +	Infill +	2	45
Nuttall oak	Quercus texana	NSH	Medium	3.7	3.2	0.8	Sm. dec.	No change	High	Rare	Poor	Fair			0	46
silver maple	Acer saccharinum	NSH	Low	2.5	3.2	1.1	No change	No change	High	Rare	Fair	Fair			0	47

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USDA Forest Service
Northern Research Station
Landscape Change Research Group
Iverson, Peters, Prasad, Matthews

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Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIAiv	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
slippery elm	Ulmus rubra	WSL	Low	1.2	2.7	2.0	No change	No change	Medium	Rare	Poor	Poor		Infill +	2	48
sassafras	Sassafras albidum	WSL	Low	2.5	2.5	0.9	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	49
cherrybark oak; swamp red o.	Quercus pagoda	NSL	Medium	3.7	2.1	0.5	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	50
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	1.2	1.8	1.3	Sm. dec.	Lg. inc.	High	Rare	Poor	Good			2	51
sugarberry	Celtis laevigata	NDH	Medium	2.5	1.7	0.6	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	52
red mulberry	Morus rubra	NSL	Low	2.5	1.5	0.6	Very Lg. dec.	Lg. dec.	Medium	Rare	Lost	Very Poor			0	53
black oak	Quercus velutina	WDH	High	1.2	0.8	0.6	Lg. dec.	Very Lg. dec.	Medium	Rare	Very Poor	Lost			0	54
white ash	Fraxinus americana	WDL	Medium	1.2	0.7	0.5	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	55
chinkapin oak	Quercus muehlenbergii	NSL	Medium	1.2	0.7	0.5	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	56
loblolly-bay	Gordonia lasianthus	NSH	Medium	1.2	0.6	0.4	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	57
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	1.2	0.4	0.3	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	58
serviceberry	Amelanchier spp.	NSL	Low	1.2	0.2	0.2	No change	No change	Medium	Rare	Poor	Poor			0	59
Table Mountain pine	Pinus pungens	NSL	Low	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	60
florida maple	Acer barbatum	NSL	Low	0	0	0	Unknown	Unknown	High	Modeled	Unknown	Unknown			0	61
boxelder	Acer negundo	WSH	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	62
striped maple	Acer pensylvanicum	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	63
pawpaw	Asimina triloba	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	64
bitternut hickory	Carya cordiformis	WSL	Low	0	0	0	Unknown	Unknown	High	Modeled	Unknown	Unknown			0	65
pignut hickory	Carya glabra	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	66
eastern redbud	Cercis canadensis	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	67
silverbell	Halesia spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	68
cucumbertree	Magnolia acuminata	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	69
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat			3	70
pin cherry	Prunus pensylvanica	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	71
scarlet oak	Quercus coccinea	WDL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	72
cabbage palmetto	Sabal palmetto	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	73
American basswood	Tilia americana	WSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	74
winged elm	Ulmus alata	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	75
cedar elm	Ulmus crassifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat		Migrate ++	3	76