

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
 8,900.0 3,436.3 116

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	Common	High	Medium	Reliability	Adaptability	Scenario RCP45	Scenario RCP85	Scenario RCP45	Scenario RCP85	SHIFT RCP45	SHIFT RCP85	
Ash	3													
Hickory	3													
Maple	6	3		13	21	Increase	10	12	Very Good	3	3	Likely	1	1
Oak	8	26		25	32	No Change	16	14	Good	9	11	Infill	14	14
Pine	5	27		22	9	Decrease	22	22	Fair	12	7	Migrate	5	7
Other	31	12		8		New	10	10	Poor	13	17			
	56	68		68	62	Unknown	10	10	Very Poor	9	7		20	22
							68	68	FIA Only	2	2			
									Unknown	2	2			
										50	49			

Potential Changes in Climate Variables

Temperature (°F)

Scenario	2009	2039	2069	2099		
Annual	CCSM45	48.8	50.7	53.5	53.5	
Average	CCSM85	48.8	51.4	54.1	57.3	
	GFDL45	48.8	51.7	54.4	55.4	
	GFDL85	48.8	51.9	55.4	59.8	
	HAD45	48.8	52.0	55.4	57.2	
	HAD85	48.8	52.2	56.8	62.0	
Growing Season	CCSM45	66.2	68.0	70.4	70.8	
	CCSM85	66.2	68.9	71.3	75.1	
May—Sep	GFDL45	66.2	69.6	73.0	74.6	
	GFDL85	66.2	70.1	74.3	79.4	
	HAD45	66.2	69.8	72.4	74.8	
	HAD85	66.2	69.5	74.8	80.2	
Coldest Month	CCSM45	22.1	23.7	26.3	26.2	
	CCSM85	22.1	24.7	26.7	28.6	
Average	GFDL45	22.1	25.0	26.2	26.6	
	GFDL85	22.1	25.4	26.6	28.3	
	HAD45	22.1	23.8	27.4	27.4	
	HAD85	22.1	25.8	28.7	32.0	
Warmest Month	CCSM45	72.1	74.3	75.8	76.3	
	CCSM85	72.1	75.6	77.2	79.2	
Average	GFDL45	72.1	75.3	77.1	78.1	
	GFDL85	72.1	76.3	78.3	81.3	
	HAD45	72.1	76.2	78.0	79.5	
	HAD85	72.1	76.9	80.3	84.1	

Precipitation (in)

Scenario	2009	2039	2069	2099		
Annual	CCSM45	37.9	37.0	36.5	37.4	
Total	CCSM85	37.9	37.7	37.5	38.3	
	GFDL45	37.9	40.6	44.9	45.2	
	GFDL85	37.9	41.2	46.1	47.7	
	HAD45	37.9	38.7	41.2	40.4	
	HAD85	37.9	40.7	38.0	41.3	
Growing Season	CCSM45	18.8	18.8	18.4	18.2	
	CCSM85	18.8	18.1	18.3	17.3	
May—Sep	GFDL45	18.8	19.6	21.7	22.2	
	GFDL85	18.8	20.7	21.7	22.2	
	HAD45	18.8	18.3	17.6	18.1	
	HAD85	18.8	18.5	15.2	16.2	

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
black cherry	Prunus serotina	WDL	Medium	49.4	1333.2	26.1	Sm. dec.	Lg. dec.	Low	Abundant	Fair	Poor			0	1
red maple	Acer rubrum	WDH	High	48.3	889.5	17.8	Sm. dec.	Sm. dec.	High	Abundant	Good	Good			1	2
black oak	Quercus velutina	WDH	High	36	546.4	14.7	No change	No change	Medium	Abundant	Good	Good			1	3
American elm	Ulmus americana	WDH	Medium	46.1	380.7	9.3	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	4
northern red oak	Quercus rubra	WDH	Medium	21.3	311.6	14.1	No change	No change	High	Common	Good	Good			1	5
sassafras	Sassafras albidum	WSL	Low	30.3	294.1	9.4	No change	Lg. dec.	Medium	Common	Fair	Poor			1	6
sugar maple	Acer saccharum	WDH	High	23.6	291.0	11.9	Sm. inc.	No change	High	Common	Very Good	Good			1	7
green ash	Fraxinus pennsylvanica	WSH	Low	25.8	225.0	10.4	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	8
Scots pine	Pinus sylvestris	NSH	FIA	13.5	204.5	22.0	Unknown	Unknown	NA	Common	NNIS	NNIS			0	9
white ash	Fraxinus americana	WDL	Medium	13.5	196.3	14.1	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	10
silver maple	Acer saccharinum	NSH	Low	10.1	185.3	17.7	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	11
white oak	Quercus alba	WDH	Medium	19.1	184.1	9.3	Lg. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	12
eastern white pine	Pinus strobus	WDH	High	13.5	173.2	12.4	Lg. dec.	Lg. dec.	Low	Common	Very Poor	Very Poor			0	13
red pine	Pinus resinosa	NSH	Medium	9	167.3	18.0	Lg. dec.	Lg. dec.	Low	Common	Very Poor	Very Poor			0	14
black walnut	Juglans nigra	WDH	Low	16.9	164.1	12.0	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	15
bigtooth aspen	Populus grandidentata	NSL	Medium	10.1	144.1	13.8	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	16
American basswood	Tilia americana	WSL	Medium	12.4	139.6	10.9	No change	No change	Medium	Common	Fair	Fair			1	17
black willow	Salix nigra	NSH	Low	5.6	137.0	23.6	Sm. dec.	No change	Low	Common	Poor	Poor	Infill +	Infill +	0	18
bitternut hickory	Carya cordiformis	WSL	Low	12.4	125.5	9.8	Sm. dec.	Sm. dec.	High	Common	Fair	Fair			1	19
black ash	Fraxinus nigra	WSH	Medium	6.7	114.1	16.4	Lg. dec.	Lg. dec.	Low	Common	Very Poor	Very Poor			0	20
yellow birch	Betula alleghaniensis	NDL	High	7.9	111.7	13.7	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	21
shagbark hickory	Carya ovata	WDL	Medium	16.9	84.5	4.9	No change	Lg. dec.	Medium	Common	Fair	Poor			1	22
quaking aspen	Populus tremuloides	WDH	High	3.4	75.1	21.5	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	23
eastern cottonwood	Populus deltoides	NSH	Low	9	71.9	14.5	No change	Sm. inc.	Medium	Common	Fair	Good	Infill +	Infill ++	1	24
white spruce	Picea glauca	NSL	Medium	3.4	62.7	18.0	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	25
yellow-poplar	Liriodendron tulipifera	WDH	High	7.9	55.0	6.8	No change	No change	High	Common	Good	Good	Infill ++	Infill ++	1	26
American beech	Fagus grandifolia	WDH	High	11.2	55.0	4.7	No change	Lg. dec.	Medium	Common	Fair	Poor	Infill +		1	27
Siberian elm	Ulmus pumila	NDH	FIA	3.4	53.5	15.3	Unknown	Unknown	NA	Common	NNIS	NNIS			0	28
pin oak	Quercus palustris	NSH	Low	4.5	51.0	11.0	No change	No change	Low	Common	Poor	Poor	Infill +	Infill +	2	29
black locust	Robinia pseudoacacia	NDH	Low	5.6	49.8	8.6	No change	Sm. inc.	Medium	Rare	Poor	Fair	Infill +	Infill +	1	30
pignut hickory	Carya glabra	WDL	Medium	9	49.1	5.3	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	1	31
slippery elm	Ulmus rubra	WSL	Low	6.7	42.4	6.1	Sm. dec.	No change	Medium	Rare	Very Poor	Poor		Infill +	1	32
jack pine	Pinus banksiana	NSH	Medium	6.7	29.6	4.3	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor	Infill +	Infill +	2	33
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	6.7	29.3	4.2	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			1	34
northern catalpa	Catalpa speciosa	NSHX	FIA	1.1	24.4	21.0	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	35
hackberry	Celtis occidentalis	WDH	Medium	6.7	22.6	3.2	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	36
Norway maple	Acer platanoides	NSL	FIA	2.2	21.1	9.1	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	37
loblolly pine	Pinus taeda	WDH	High	1.1	20.0	17.2	Sm. dec.	No change	Medium	Rare	Very Poor	Poor		Infill +	2	38
swamp white oak	Quercus bicolor	NSL	Low	3.4	19.9	5.7	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	2	39
white mulberry	Morus alba	NSL	FIA	4.5	19.6	4.2	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	40
sycamore	Platanus occidentalis	NSL	Low	2.2	18.3	7.9	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	41
American hornbeam; musclev	Carpinus caroliniana	WSL	Low	5.6	16.2	2.8	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	42
ailanthus	Ailanthus altissima	NSL	FIA	1.1	16.1	13.9	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	43
boxelder	Acer negundo	WSH	Low	3.4	15.1	4.3	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	1	44
flowering dogwood	Cornus florida	WDL	Medium	6.7	13.6	1.9	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	45
Norway spruce	Picea abies	NSH	FIA	2.2	11.1	4.8	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	46
blackgum	Nyssa sylvatica	WDL	Medium	3.4	10.9	3.1	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	47

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Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIAiv	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
tamarack (native)	Larix laricina	NSH	High	2.2	10.7	4.6	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	48
shingle oak	Quercus imbricaria	NDH	Medium	1.1	5.4	4.6	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	49
eastern redcedar	Juniperus virginiana	WDH	Medium	2.2	3.8	1.7	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	50
northern pin oak	Quercus ellipsoidalis	NSH	Medium	1.1	3.3	2.9	Very Lg. dec.	Very Lg. dec.	High	Rare	Lost	Lost			0	51
black maple	Acer nigrum	NSH	Low	2.2	2.8	1.2	Lg. dec.	Very Lg. dec.	High	Rare	Poor	Lost			0	52
bur oak	Quercus macrocarpa	NDH	Medium	1.1	2.2	1.9	No change	Sm. inc.	High	Rare	Fair	Good	Infill +		2	53
chokecherry	Prunus virginiana	NSLX	FIA	1.1	2.1	1.8	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	54
red mulberry	Morus rubra	NSL	Low	1.1	1.5	1.3	No change	No change	Medium	Rare	Poor	Poor			0	55
serviceberry	Amelanchier spp.	NSL	Low	2.2	1.3	0.6	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	56
black hickory	Carya texana	NDL	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	57
mockernut hickory	Carya alba	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	58
sugarberry	Celtis laevigata	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	59
common persimmon	Diospyros virginiana	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	60
sweetgum	Liquidambar styraciflua	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	61
Osage-orange	Maclura pomifera	NDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Likely +	Likely +	3	62
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	63
blackjack oak	Quercus marilandica	NSL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	64
Shumard oak	Quercus shumardii	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	65
post oak	Quercus stellata	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	66
American mountain-ash	Sorbus americana	NSL	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	67
winged elm	Ulmus alata	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	68