

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 93

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 Reliability	Adaptability	Scenario RCP45	Scenario RCP85	Scenario RCP45	Scenario RCP85	SHIFT RCP45	SHIFT RCP85
Ash	3										
Hickory	3										
Maple	5	4		14	20	Increase	13	11	Very Good	4	3
Oak	8	19		22	30	No Change	14	11	Good	10	9
Pine	4	26		21	8	Decrease	19	24	Fair	9	8
Other	26	11		3		New	11	11	Poor	11	14
	49	60		60	58	Unknown	3	3	Very Poor	8	8
							60	60	FIA Only	1	1
									Unknown	0	0
										43	43

Potential Changes in Climate Variables

Temperature (°F)

Scenario	2009	2039	2069	2099	
Annual	47.6	49.5	52.4	52.3	
Average	47.6	50.1	53.0	56.3	
GFDL45	47.6	51.3	53.3	54.4	
GFDL85	47.6	50.8	54.4	58.9	
HAD45	47.6	50.9	54.2	56.1	
HAD85	47.6	51.0	55.4	60.9	
Growing Season	65.2	67.0	69.5	69.7	
May—Sep	65.2	69.7	72.2	73.7	
GFDL45	65.2	69.2	73.5	78.6	
GFDL85	65.2	68.7	71.1	73.6	
HAD45	65.2	68.7	71.1	73.6	
HAD85	65.2	68.2	73.0	78.5	
Coldest Month	20.6	22.3	25.1	24.9	
Average	20.6	23.3	25.4	27.5	
GFDL45	20.6	23.4	24.9	25.4	
GFDL85	20.6	24.1	25.5	27.6	
HAD45	20.6	22.4	26.3	26.2	
HAD85	20.6	24.5	27.4	31.1	
Warmest Month	71.2	73.5	75.1	75.3	
Average	71.2	74.6	76.2	78.4	
GFDL45	71.2	74.4	76.2	77.3	
GFDL85	71.2	75.3	77.5	80.6	
HAD45	71.2	75.3	76.8	78.5	
HAD85	71.2	75.6	78.7	82.7	

Precipitation (in)

Scenario	2009	2039	2069	2099	
Annual	32.0	31.7	30.9	32.4	
Total	32.0	32.3	32.2	32.6	
GFDL45	32.0	34.4	38.0	37.6	
GFDL85	32.0	34.7	38.2	39.6	
HAD45	32.0	32.6	34.6	33.9	
HAD85	32.0	34.4	32.2	35.4	
Growing Season	16.4	16.4	15.6	16.0	
May—Sep	16.4	17.1	18.6	18.6	
GFDL45	16.4	17.6	17.8	18.1	
GFDL85	16.4	17.6	15.0	15.5	
HAD45	16.4	15.9	15.0	15.5	
HAD85	16.4	16.3	13.0	14.2	

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-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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Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIAiv	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
red maple	Acer rubrum	WDH	High	45.7	771.8	21.3	Sm. dec.	Sm. dec.	High	Abundant	Good	Good	Infill ++	Infill ++	1	1
black cherry	Prunus serotina	WDL	Medium	48.1	596.2	14.9	No change	Sm. dec.	Low	Abundant	Fair	Fair	Infill +	Infill +	0	2
American elm	Ulmus americana	WDH	Medium	55.6	554.9	12.8	No change	No change	Medium	Abundant	Good	Good	Infill ++	Infill ++	1	3
green ash	Fraxinus pennsylvanica	WSH	Low	51.9	522.4	12.8	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good	Infill ++	Infill ++	1	4
silver maple	Acer saccharinum	NSH	Low	22.2	284.5	19.6	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good	Infill ++	Infill ++	1	5
northern red oak	Quercus rubra	WDH	Medium	34.6	282.6	11.1	No change	Sm. dec.	High	Common	Good	Fair	Infill ++	Infill +	1	6
eastern cottonwood	Populus deltoides	NSH	Low	27.2	273.4	18.6	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	7
white oak	Quercus alba	WDH	Medium	19.8	240.1	11.7	Sm. inc.	No change	High	Common	Very Good	Good	Infill ++	Infill ++	1	8
black oak	Quercus velutina	WDH	High	16	218.9	13.1	Sm. inc.	Sm. inc.	Medium	Common	Good	Good	Infill ++	Infill ++	2	9
boxelder	Acer negundo	WSH	Low	4.9	206.5	40.3	No change	No change	High	Common	Good	Good	Infill ++	Infill ++	1	10
quaking aspen	Populus tremuloides	WDH	High	14.8	203.9	21.9	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor	Infill +	Infill +	0	11
sugar maple	Acer saccharum	WDH	High	18.5	181.0	12.3	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good	Infill ++	Infill ++	1	12
Scots pine	Pinus sylvestris	NSH	FIA	3.7	172.7	44.9	Unknown	Unknown	NA	Common	NNIS	NNIS			0	13
bigtooth aspen	Populus grandidentata	NSL	Medium	8.6	160.6	17.9	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	14
American basswood	Tilia americana	WSL	Medium	25.9	144.9	9.0	Sm. inc.	No change	Medium	Common	Good	Fair	Infill ++	Infill +	1	15
white ash	Fraxinus americana	WDL	Medium	22.2	130.1	8.2	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair	Infill +	Infill +	1	16
scarlet oak	Quercus coccinea	WDL	Medium	1.2	128.2	100.0	Very Lg. dec.	Very Lg. dec.	Medium	Common	Lost	Lost			0	17
paper birch	Betula papyrifera	WDH	High	11.1	109.2	9.5	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	18
shagbark hickory	Carya ovata	WSL	Medium	16	88.2	5.3	Sm. inc.	Sm. dec.	Medium	Common	Good	Poor	Infill ++	Infill +	1	19
red pine	Pinus resinosa	NSH	Medium	3.7	86.6	22.5	Lg. dec.	Lg. dec.	Low	Common	Very Poor	Very Poor			2	20
northern white-cedar	Thuja occidentalis	WSH	High	3.7	86.4	22.5	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	21
slippery elm	Ulmus rubra	WSL	Low	4.9	83.2	16.2	Lg. dec.	Sm. dec.	Medium	Common	Poor	Poor	Infill +	Infill +	2	22
sassafras	Sassafras albidum	WSL	Low	11.1	78.3	6.8	Sm. inc.	Sm. dec.	Medium	Common	Good	Poor	Infill ++		2	23
pignut hickory	Carya glabra	WDL	Medium	8.6	49.6	5.5	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	24
American beech	Fagus grandifolia	WDH	High	21	46.6	3.6	Sm. inc.	Sm. dec.	Medium	Rare	Fair	Very Poor	Infill +		2	25
black willow	Salix nigra	NSH	Low	11.1	46.4	6.5	Sm. dec.	Sm. inc.	Low	Rare	Very Poor	Poor		Infill +	1	26
Norway spruce	Picea abies	NSH	FIA	2.5	45.8	17.9	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	27
jack pine	Pinus banksiana	NSH	Medium	1.2	45.1	35.2	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	28
bitternut hickory	Carya cordiformis	WSL	Low	4.9	41.5	8.1	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	29
swamp white oak	Quercus bicolor	NSL	Low	9.9	38.5	6.8	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	30
tamarack (native)	Larix laricina	NSH	High	2.5	37.8	14.8	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			2	31
eastern redcedar	Juniperus virginiana	WDH	Medium	2.5	36.8	14.4	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	32
white spruce	Picea glauca	NSL	Medium	2.5	30.0	11.7	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	33
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	13.6	27.1	2.7	Sm. dec.	Lg. dec.	High	Rare	Poor	Poor	Infill +	Infill +	1	34
American hornbeam; muscle	Carpinus caroliniana	WSL	Low	12.3	25.8	4.9	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	35
black walnut	Juglans nigra	WDH	Low	9.9	24.1	7.2	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	1	36
bur oak	Quercus macrocarpa	NDH	Medium	6.2	22.4	3.5	No change	Sm. inc.	High	Rare	Fair	Good	Infill +		2	37
eastern white pine	Pinus strobus	WDH	High	7.4	19.8	12.6	No change	Lg. dec.	Low	Rare	Very Poor	Very Poor			2	38
pin oak	Quercus palustris	NSH	Low	1.2	16.5	12.9	No change	No change	Low	Rare	Very Poor	Very Poor			2	39
chokecherry	Prunus virginiana	NSLX	FIA	3.7	15.4	4.0	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	40
serviceberry	Amelanchier spp.	NSL	Low	6.2	13.6	2.1	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	41
northern pin oak	Quercus ellipsoidalis	NSH	Medium	1.2	12.6	9.8	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	42
yellow birch	Betula alleghaniensis	NDL	High	7.4	11.5	3.4	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	43
black maple	Acer nigrum	NSH	Low	1.2	7.2	5.6	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	44
black ash	Fraxinus nigra	WSH	Medium	3.7	6.3	1.6	Very Lg. dec.	Very Lg. dec.	Low	Rare	Lost	Lost			0	45
hackberry	Celtis occidentalis	WDH	Medium	1.2	5.3	4.1	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	46
pin cherry	Prunus pensylvanica	NSL	Low	1.2	2.1	1.6	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	47



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blackgum	<i>Nyssa sylvatica</i>	WDL	Medium	1.2	1.8	1.4	No change	Sm. inc.	High	Rare	Fair	Good	Infill +		2	48
red mulberry	<i>Morus rubra</i>	NSL	Low	4.9	1.7	5.5	No change	No change	Medium	Rare	Poor	Poor			0	49
black hickory	<i>Carya texana</i>	NDL	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	50
mockernut hickory	<i>Carya alba</i>	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	51
eastern redbud	<i>Cercis canadensis</i>	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	52
honeylocust	<i>Gleditsia triacanthos</i>	NSH	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	53
sweetgum	<i>Liquidambar styraciflua</i>	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	54
yellow-poplar	<i>Liriodendron tulipifera</i>	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	55
Osage-orange	<i>Maclura pomifera</i>	NDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	56
sycamore	<i>Platanus occidentalis</i>	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	57
blackjack oak	<i>Quercus marilandica</i>	NSL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			0	58
post oak	<i>Quercus stellata</i>	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	59
black locust	<i>Robinia pseudoacacia</i>	NDH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate +	3	60