

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
 8,303.8 3,206.1 279

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			15	22	Increase	22	26	Very Good	10	11	Likely	0	0
Hickory	6			35	52	No Change	14	15	Good	14	15	Infill	11	18
Maple	3	Abundant	4	34	11	Decrease	29	24	Fair	4	6	Migrate	2	2
Oak	18	Common	19	FIA	3	New	5	6	Poor	13	15		13	20
Pine	5	Rare	45			Unknown	17	16	Very Poor	14	12			
Other	33	Absent	14				87	87	FIA Only	3	3			
	68		82						Unknown	14	13			
										72	75			

Potential Changes in Climate Variables

Temperature (°F)

Scenario	2009	2039	2069	2099	
Annual	63.3	64.8	66.6	66.7	
Average	63.3	65.1	67.3	69.7	
GFDL45	63.3	65.9	67.9	68.7	
GFDL85	63.3	65.9	69.0	72.4	
HAD45	63.3	65.1	67.6	68.9	
HAD85	63.3	65.4	68.4	72.1	
Growing Season	76.2	77.6	79.0	79.4	
May—Sep	76.2	78.9	81.0	82.2	
GFDL45	76.2	78.9	82.3	86.1	
GFDL85	76.2	79.0	82.3	86.1	
HAD45	76.2	78.6	80.6	82.1	
HAD85	76.2	78.6	82.3	85.9	
Coldest Month	43.9	46.1	46.9	46.8	
Average	43.9	45.9	46.9	48.1	
GFDL45	43.9	46.8	47.2	47.8	
GFDL85	43.9	45.7	46.8	47.7	
HAD45	43.9	44.1	45.7	46.2	
HAD85	43.9	44.8	45.8	47.4	
Warmest Month	80.9	82.4	83.2	83.3	
Average	80.9	82.6	84.0	85.4	
GFDL45	80.9	83.1	84.0	84.9	
GFDL85	80.9	83.5	85.1	87.3	
HAD45	80.9	83.4	84.5	85.1	
HAD85	80.9	83.7	85.9	87.7	

Precipitation (in)

Scenario	2009	2039	2069	2099	
Annual	51.4	56.3	57.2	58.7	
Total	51.4	56.1	57.9	62.7	
GFDL45	51.4	56.5	59.5	62.2	
GFDL85	51.4	55.1	62.2	60.7	
HAD45	51.4	53.3	54.3	53.9	
HAD85	51.4	56.0	52.0	51.4	
Growing Season	26.8	32.0	32.2	32.6	
May—Sep	26.8	29.3	31.5	33.6	
GFDL45	26.8	30.7	32.6	33.8	
GFDL85	26.8	29.6	35.4	34.5	
HAD45	26.8	26.9	27.4	26.3	
HAD85	26.8	28.7	24.8	22.2	

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.

Cite as: Iverson, L.R.; Prasad, A.M.; Peters, M.P.; Matthews, S.N. 2019. Facilitating Adaptive Forest Management under Climate Change: A Spatially Specific Synthesis of 125 Species for Habitat Changes and Assisted Migration over the Eastern United States. *Forests*. 10(11): 989. <https://doi.org/10.3390/f10110989>.

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	
loblolly pine	Pinus taeda	WDH	High	94.4	4298.3	43.2	Sm. dec.	Sm. dec.	Medium	Abundant	Fair	Fair			0	1	
red maple	Acer rubrum	WDH	High	84.6	788.3	9.1	No change	No change	High	Abundant	Very Good	Very Good			1	2	
sweetgum	Liquidambar styraciflua	WDH	High	86.7	767.8	8.6	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			1	3	
swamp tupelo	Nyssa biflora	NDH	Medium	68.9	564.3	7.8	Sm. inc.	Sm. inc.	Low	Abundant	Good	Good			1	4	
pond pine	Pinus serotina	NSH	Medium	31.8	484.7	13.9	No change	Sm. dec.	Low	Common	Poor	Poor			0	5	
water oak	Quercus nigra	WDH	High	71.1	452.1	6.1	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	6	
longleaf pine	Pinus palustris	NSH	Medium	26.1	343.8	11.5	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	7	
laurel oak	Quercus laurifolia	NDH	Medium	63.1	336.8	4.8	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	8	
yellow-poplar	Liriodendron tulipifera	WDH	High	26.5	174.5	6.5	Lg. dec.	Lg. dec.	High	Common	Fair	Fair			1	9	
water tupelo	Nyssa aquatica	NSH	Medium	19.2	172.1	8.8	No change	No change	Low	Common	Poor	Poor			0	10	
slash pine	Pinus elliotii	NDH	High	9.8	154.0	11.9	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good	Infill ++	Infill ++	2	11	
loblolly-bay	Gordonia lasianthus	NSH	Medium	21	151.2	6.7	No change	No change	Medium	Common	Fair	Fair			1	12	
redbay	Persea borbonia	NSL	Low	54.3	118.9	2.0	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	13	
willow oak	Quercus phellos	NSL	Low	32.4	106.1	3.2	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	14	
green ash	Fraxinus pennsylvanica	WSH	Low	36	102.0	2.8	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	15	
bald cypress	Taxodium distichum	NSH	Medium	31.4	97.0	3.1	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	16	
swamp chestnut oak	Quercus michauxii	NSL	Low	22.9	92.7	4.0	Lg. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	17	
live oak	Quercus virginiana	NDH	High	16.6	84.1	4.5	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good	Infill ++	Infill ++	2	18	
American holly	Ilex opaca	NSL	Medium	52.5	83.0	1.5	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	19	
white oak	Quercus alba	WDH	Medium	22.9	61.0	2.6	Sm. dec.	No change	High	Common	Fair	Good	Infill +	Infill ++	1	20	
blackgum	Nyssa sylvatica	WDL	Medium	37.1	59.7	1.6	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	21	
turkey oak	Quercus laevis	NSH	Medium	8.6	53.0	4.2	No change	No change	High	Common	Good	Good	Infill ++	Infill ++	2	22	
sweetbay	Magnolia virginiana	NSL	Medium	40.6	51.9	1.2	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	23	
black cherry	Prunus serotina	WDL	Medium	15.6	44.6	2.8	No change	Lg. inc.	Low	Rare	Very Poor	Fair			1	24	
American hornbeam; muscley	Carpinus caroliniana	WSL	Low	19.3	40.0	2.1	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	25	
mockernut hickory	Carya alba	WDL	Medium	14.2	33.5	2.3	Sm. inc.	Lg. inc.	High	Rare	Good	Good			1	26	
pond cypress	Taxodium ascendens	NSH	Medium	13	33.1	2.5	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	27	
American elm	Ulmus americana	WDH	Medium	20.4	28.2	1.4	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1	28	
post oak	Quercus stellata	WDH	High	20.4	25.7	1.2	Sm. dec.	Lg. inc.	High	Rare	Poor	Good			1	29	
blackjack oak	Quercus marilandica	NSL	Medium	1.2	22.5	18.4	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			Infill +	2	30
Carolina ash	Fraxinus caroliniana	NSL	FIA	4.8	21.4	4.4	Unknown	Unknown	NA	Rare	FIA Only	FIA Only			0	31	
black willow	Salix nigra	NSH	Low	6	17.5	2.9	No change	Sm. inc.	Low	Rare	Very Poor	Poor			Infill +	1	32
water elm	Planera aquatica	NSL	Low	3.6	16.9	4.6	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	33	
Atlantic white-cedar	Chamaecyparis thyoides	NSH	Low	3.6	15.5	4.2	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	34	
southern red oak	Quercus falcata	WDL	Medium	13.2	15.4	1.2	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	1	35	
flowering dogwood	Cornus florida	WDL	Medium	8.4	14.9	1.7	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	36	
river birch	Betula nigra	NSL	Low	7.2	13.8	1.9	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	1	37	
slippery elm	Ulmus rubra	WSL	Low	9.6	9.6	1.0	Sm. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	38	
American beech	Fagus grandifolia	WDH	High	2.4	8.5	3.5	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	39	
sycamore	Platanus occidentalis	NSL	Low	2.4	7.7	3.1	No change	No change	Medium	Rare	Poor	Poor			Infill +	2	40
waterlocust	Gleditsia aquatica	NSLX	FIA	1.2	6.6	5.4	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	41	
sand hickory	Carya pallida	NSL	FIA	1.2	5.8	4.8	Unknown	Unknown	NA	Rare	FIA Only	FIA Only			0	42	
water hickory	Carya aquatica	NSL	Medium	6	5.7	0.9	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	43	
Virginia pine	Pinus virginiana	NDH	High	3.6	4.6	1.3	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	44	
black oak	Quercus velutina	WDH	High	2.4	4.6	1.9	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	45	
bluejack oak	Quercus incana	NSL	Low	4.3	4.5	0.9	Very Lg. dec.	Lg. dec.	Medium	Rare	Lost	Very Poor			2	46	
scarlet oak	Quercus coccinea	WDL	Medium	2.4	4.4	1.8	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	47	

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Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIAiv	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
overcup oak	Quercus lyrata	NSL	Medium	6	4.2	0.7	No change	Sm. inc.	Low	Rare	Very Poor	Poor	Infill +		2	48
common persimmon	Diospyros virginiana	NSL	Low	3.6	4.0	1.1	Very Lg. dec.	Very Lg. dec.	High	Rare	Lost	Lost			0	49
florida maple	Acer barbatum	NSL	Low	2.2	3.0	1.1	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			0	50
pecan	Carya illinoensis	NSH	Low	1.2	1.9	1.6	Sm. dec.	No change	Low	Rare	Very Poor	Very Poor			2	51
boxelder	Acer negundo	WSH	Low	1.2	1.8	1.5	Very Lg. dec.	No change	High	Rare	Lost	Fair			0	52
sassafras	Sassafras albidum	WSL	Low	3.6	1.8	0.5	Very Lg. dec.	No change	Medium	Rare	Lost	Poor	Infill +		1	53
eastern redcedar	Juniperus virginiana	WDH	Medium	2.2	1.7	0.6	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	54
cherrybark oak; swamp red o.	Quercus pagoda	NSL	Medium	2.4	1.4	0.6	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	55
sugarberry	Celtis laevigata	NDH	Medium	3.6	1.4	0.4	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	56
pignut hickory	Carya glabra	WDL	Medium	1.2	1.3	1.1	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	57
sourwood	Oxydendrum arboreum	NDL	High	1.2	1.0	0.8	Very Lg. dec.	Very Lg. dec.	High	Rare	Lost	Lost			0	58
swamp white oak	Quercus bicolor	NSL	Low	1.2	1.0	0.8	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	59
northern red oak	Quercus rubra	WDH	Medium	1.1	0.9	0.7	Very Lg. dec.	Very Lg. dec.	High	Rare	Lost	Lost			0	60
chestnut oak	Quercus prinus	NDH	High	1.2	0.8	0.6	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			0	61
bitternut hickory	Carya cordiformis	WSL	Low	1.2	0.7	0.6	Very Lg. dec.	Very Lg. dec.	High	Rare	Lost	Lost			0	62
honeylocust	Gleditsia triacanthos	NSH	Low	1.2	0.6	0.5	Very Lg. dec.	No change	High	Rare	Lost	Fair	Infill +		2	63
eastern cottonwood	Populus deltoides	NSH	Low	1.2	0.6	0.5	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	64
red mulberry	Morus rubra	NSL	Low	1.2	0.5	0.4	Lg. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	65
serviceberry	Amelanchier spp.	NSL	Low	1.2	0.4	0.3	No change	No change	Medium	Rare	Poor	Poor			0	66
white ash	Fraxinus americana	WDL	Medium	1.2	0.2	0.2	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	67
winged elm	Ulmus alata	WDL	Medium	1.2	0.2	0.2	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	68
sand pine	Pinus clausa	NDH	High	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate +		3	69
shortleaf pine	Pinus echinata	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	70
pawpaw	Asimina triloba	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	71
shellbark hickory	Carya laciniosa	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	72
hackberry	Celtis occidentalis	WDH	Medium	0	0	0	Unknown	Unknown	High	Modeled	Unknown	Unknown			0	73
eastern redbud	Cercis canadensis	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	74
silverbell	Halesia spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	75
black walnut	Juglans nigra	WDH	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	76
Osage-orange	Maclura pomifera	NDH	Medium	0	0	0	Unknown	Unknown	High	Modeled	Unknown	Unknown			0	77
cucumbertree	Magnolia acuminata	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	78
southern magnolia	Magnolia grandiflora	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	79
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	80
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	0	0	0	Unknown	New Habitat	High	Absent	Unknown	New Habitat			3	81
pin cherry	Prunus pensylvanica	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	82
Nuttall oak	Quercus texana	NSH	Medium	0	0	0	Unknown	Unknown	High	Modeled	Unknown	Unknown			0	83
black locust	Robinia pseudoacacia	NDH	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	84
cabbage palmetto	Sabal palmetto	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	85
American basswood	Tilia americana	WSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	86
cedar elm	Ulmus crassifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			0	87