

One x One Degree
Climate Change Atlas Tree Species
 Current and Potential Future Habitat, Capability, and Migration

Area of Region sq. km sq. mi FIA Plots
 6,513.2 2,514.7 188

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 RCP45	Scenario RCP85	Scenario RCP45	Scenario RCP85	SHIFT RCP45	SHIFT RCP85				
Ash	1			High	14	19	Increase	23	28	Very Good	10	11	Likely	2	1
Hickory	6			Medium	35	47	No Change	20	18	Good	13	15	Infill	17	17
Maple	3	Abundant	5	Low	29	12	Decrease	12	9	Fair	10	8	Migrate	2	5
Oak	13	Common	16	FIA	1		New	10	11	Poor	12	14			
Pine	6	Rare	35				Unknown	14	13	Very Poor	7	6			
Other	27	Absent	21							FIA Only	1	1			
	56		77		79	78		79	79	Unknown	13	12			
											66	67			

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	66.9	68.4	70.1	70.2	
	CCSM85	66.9	68.6	70.9	73.1	
	GFDL45	66.9	69.7	71.3	72.0	
	GFDL85	66.9	69.3	72.3	75.6	
	HAD45	66.9	68.9	71.3	72.6	
HAD85	66.9	69.2	72.3	75.8		
Growing Season May—Sep	CCSM45	78.8	80.0	81.3	81.6	
	CCSM85	78.8	79.9	82.3	84.8	
	GFDL45	78.8	81.5	82.9	84.2	
	GFDL85	78.8	81.1	84.1	87.9	
	HAD45	78.8	81.3	83.3	84.5	
HAD85	78.8	81.3	85.4	88.4		
Coldest Month Average	CCSM45	49.0	51.2	51.9	51.7	
	CCSM85	49.0	51.2	52.3	53.4	
	GFDL45	49.0	52.3	52.5	52.8	
	GFDL85	49.0	50.7	51.8	52.4	
	HAD45	49.0	49.0	50.6	51.3	
HAD85	49.0	50.4	51.5	53.1		
Warmest Month Average	CCSM45	81.9	83.1	83.5	83.7	
	CCSM85	81.9	82.9	84.0	85.5	
	GFDL45	81.9	84.5	85.1	85.9	
	GFDL85	81.9	83.9	85.2	87.3	
	HAD45	81.9	84.8	86.0	86.5	
HAD85	81.9	85.1	87.4	88.8		

Precipitation (in)

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	66.4	69.1	71.9	73.7	
	CCSM85	66.4	70.9	72.6	76.0	
	GFDL45	66.4	74.2	78.4	78.0	
	GFDL85	66.4	73.2	76.8	75.6	
	HAD45	66.4	63.5	69.2	72.4	
HAD85	66.4	71.4	63.4	66.9		
Growing Season May—Sep	CCSM45	31.2	33.4	33.6	34.6	
	CCSM85	31.2	32.1	33.4	34.0	
	GFDL45	31.2	37.3	39.9	37.7	
	GFDL85	31.2	37.5	40.7	40.9	
	HAD45	31.2	29.9	31.4	32.5	
HAD85	31.2	32.4	25.4	26.8		

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-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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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	61.3	2444.4	29.1	No change	No change	Medium	Abundant	Good	Good			1	1
slash pine	Pinus elliotii	NDH	High	65.5	2190.4	22.8	No change	No change	Medium	Abundant	Good	Good			1	2
longleaf pine	Pinus palustris	NSH	Medium	64.4	1224.5	14.5	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			1	3
water oak	Quercus nigra	WDH	High	72.7	883.5	7.8	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			1	4
sweetbay	Magnolia virginiana	NSL	Medium	57.3	550.5	6.4	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			1	5
swamp tupelo	Nyssa biflora	NDH	Medium	48.5	488.5	7.2	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	6
laurel oak	Quercus laurifolia	NDH	Medium	44.2	457.0	7.0	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	7
yellow-poplar	Liriodendron tulipifera	WDH	High	29.1	242.5	6.4	No change	No change	High	Common	Good	Good			1	8
water tupelo	Nyssa aquatica	NSH	Medium	14.4	223.1	9.5	Sm. dec.	Sm. dec.	Low	Common	Poor	Poor	Infill +	Infill +	0	9
red maple	Acer rubrum	WDH	High	52.8	194.7	2.4	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	10
blackgum	Nyssa sylvatica	WDL	Medium	40.5	175.6	2.6	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	11
sweetgum	Liquidambar styraciflua	WDH	High	26	170.3	3.6	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	12
live oak	Quercus virginiana	NDH	High	27.4	149.3	4.6	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good	Infill ++	Infill ++	1	13
bald cypress	Taxodium distichum	NSH	Medium	18.4	121.8	4.8	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	14
southern magnolia	Magnolia grandiflora	NSL	Low	16.1	119.3	5.8	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	15
southern red oak	Quercus falcata	WDL	Medium	30.6	115.9	3.6	Sm. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	16
pond cypress	Taxodium ascendens	NSH	Medium	10.5	108.2	4.6	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good	Infill ++	Infill ++	2	17
Atlantic white-cedar	Chamaecyparis thyoides	NSH	Low	10.8	95.5	6.8	Lg. inc.	Sm. inc.	Low	Common	Good	Fair			1	18
green ash	Fraxinus pennsylvanica	WSH	Low	8.8	79.3	4.9	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	19
bluejack oak	Quercus incana	NSL	Low	9.7	59.7	0.7	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	20
redbay	Persea borbonia	NSL	Low	31.2	55.1	1.2	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	21
flowering dogwood	Cornus florida	WDL	Medium	22	46.6	1.9	No change	No change	Medium	Rare	Poor	Poor			1	22
American holly	Ilex opaca	NSL	Medium	23.9	44.4	1.6	Lg. inc.	Sm. inc.	Medium	Rare	Good	Fair			1	23
black cherry	Prunus serotina	WDL	Medium	22.1	44.3	1.8	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair			1	24
pecan	Carya illinoensis	NSH	Low	7.3	40.1	4.0	Sm. dec.	No change	Low	Rare	Very Poor	Very Poor			0	25
black willow	Salix nigra	NSH	Low	3.5	37.6	5.7	No change	No change	Low	Rare	Very Poor	Very Poor			2	26
turkey oak	Quercus laevis	NSH	Medium	15.1	34.9	1.7	Lg. inc.	Sm. inc.	High	Rare	Good	Good			1	27
sand pine	Pinus clausa	NDH	High	3.9	22.3	3.1	No change	No change	Low	Rare	Very Poor	Very Poor			2	28
common persimmon	Diospyros virginiana	NSL	Low	10.8	21.3	1.0	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			1	29
American hornbeam; muscle	Carpinus caroliniana	WSL	Low	3.7	20.5	3.4	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	1	30
overcup oak	Quercus lyrata	NSL	Medium	3.7	19.2	3.2	No change	No change	Low	Rare	Very Poor	Very Poor			2	31
blackjack oak	Quercus marilandica	NSL	Medium	9.1	18.8	2.0	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	1	32
post oak	Quercus stellata	WDH	High	6.5	15.9	1.1	Sm. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	33
slippery elm	Ulmus rubra	WSL	Low	3.3	11.5	1.6	No change	No change	Medium	Rare	Poor	Poor	Infill +		2	34
shortleaf pine	Pinus echinata	WDH	High	4.6	9.2	2.0	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	35
sugarberry	Celtis laevigata	NDH	Medium	0.7	8.4	2.4	No change	Lg. inc.	Medium	Rare	Poor	Good	Infill +		2	36
spruce pine	Pinus glabra	NSL	Low	3.1	7.4	2.4	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	37
black oak	Quercus velutina	WDH	High	1.4	7.1	4.3	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	38
florida maple	Acer barbatum	NSL	Low	1	6.1	2.7	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	39
American elm	Ulmus americana	WDH	Medium	7.3	4.9	0.4	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	40
pignut hickory	Carya glabra	WDL	Medium	1.5	4.5	2.9	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	2	41
river birch	Betula nigra	NSL	Low	1.5	4.2	2.7	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	42
boxelder	Acer negundo	WSH	Low	0.7	3.5	1.0	No change	No change	High	Rare	Fair	Fair	Infill +		2	43
water hickory	Carya aquatica	NSL	Medium	1.7	3.2	0.6	No change	No change	Medium	Rare	Poor	Poor		Infill +	2	44
white oak	Quercus alba	WDH	Medium	0.9	2.8	1.1	No change	Sm. inc.	High	Rare	Fair	Good	Infill +		2	45
sassafras	Sassafras albidum	WSL	Low	1.5	2.5	1.7	Sm. dec.	No change	Medium	Rare	Very Poor	Poor		Infill +	2	46
loblolly-bay	Gordonia lasianthus	NSH	Medium	1.5	2.2	1.4	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	47



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willow oak	Quercus phellos	NSL	Low	0.7	2.1	0.6	No change	Lg. inc.	Medium	Rare	Poor	Good				2 48
water elm	Planera aquatica	NSL	Low	2.2	1.7	0.4	Very Lg. dec.	No change	Medium	Rare	Lost	Poor		Infill +		2 49
eastern redcedar	Juniperus virginiana	WDH	Medium	3.7	1.7	0.2	Very Lg. dec.	No change	Medium	Rare	Lost	Poor		Infill +		2 50
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	1	1.6	0.7	No change	Sm. inc.	High	Rare	Fair	Good	Infill +	Infill ++		2 51
sourwood	Oxydendrum arboreum	NDL	High	0.9	1.3	0.5	No change	Sm. dec.	High	Rare	Fair	Poor		Infill +		2 52
bitternut hickory	Carya cordiformis	WSL	Low	1.5	0.9	0.6	Very Lg. dec.	Very Lg. dec.	High	Rare	Lost	Lost				0 53
mockernut hickory	Carya alba	WDL	Medium	0.6	0.7	0.2	No change	Lg. inc.	High	Rare	Fair	Good		Infill ++		2 54
nuttall oak	Quercus texana	NSH	Medium	1	0.5	0.2	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor				0 55
sand hickory	Carya pallida	NSL	FIA	1.7	0.1	0.1	Unknown	Unknown	NA	Rare	FIA Only	FIA Only				0 56
Table Mountain pine	Pinus pungens	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat				3 57
pond pine	Pinus serotina	NSH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate +	Migrate +		3 58
Virginia pine	Pinus virginiana	NDH	High	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0 59
striped maple	Acer pensylvanicum	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0 60
silver maple	Acer saccharinum	NSH	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat				3 61
serviceberry	Amelanchier spp.	NSL	Low	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat				3 62
pawpaw	Asimina triloba	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0 63
shellbark hickory	Carya laciniosa	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0 64
shagbark hickory	Carya ovata	WSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0 65
eastern redbud	Cercis canadensis	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown				0 66
American beech	Fagus grandifolia	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++		3 67
white ash	Fraxinus americana	WDL	Medium	0	0	0	Unknown	New Habitat	Low	Absent	Unknown	New Habitat		Migrate +		3 68
black ash	Fraxinus nigra	WSH	Medium	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown				0 69
silverbell	Halesia spp.	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				3 70
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0 71
red mulberry	Morus rubra	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown				0 72
eastern cottonwood	Populus deltoides	NSH	Low	0	0	0	New Habitat	Unknown	Medium	Absent	New Habitat	Unknown	Likely +			3 73
cherrybark oak; swamp red o.	Quercus pagoda	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +		3 74
chinkapin oak	Quercus muehlenbergii	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0 75
cabbage palmetto	Sabal palmetto	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				0 76
American basswood	Tilia americana	WSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0 77
winged elm	Ulmus alata	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +		3 78
cedar elm	Ulmus crassifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat		Migrate ++		3 79