

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

sq. km sq. mi FIA Plots
 Area of Region 10,421 4,023.6 370

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	Medium	Increase	RCP45	RCP85	Very Good	Good	Fair	Poor	RCP45	RCP85
Ash	3			14	21	33	34	11	11	Likely	2	3		
Hickory	7			33	51	No Change	16	18	21	25	Infill	14	14	
Maple	4	Abundant	3	Low	34	12	Decrease	20	17	9	Migrate	1	1	
Oak	15	Common	24	FIA	5		New	7	8	11				
Pine	4	Rare	47				Unknown	10	9	13				
Other	41	Absent	10							4	4			
	74		84					86	86	5	4			
										76	76			

Potential Changes in Climate Variables

Temperature (°F)

Scenario	2009	2039	2069	2099	
Annual	64.3	66.0	67.9	68.1	
Average	64.3	66.3	68.8	71.3	
GFDL45	64.3	67.2	68.6	69.7	
GFDL85	64.3	67.1	70.0	73.4	
HAD45	64.3	66.8	69.7	70.7	
HAD85	64.3	67.1	71.2	74.9	
Growing Season	78.0	79.7	81.1	81.6	
May—Sep	78.0	81.4	82.7	84.8	
GFDL45	78.0	81.4	84.5	88.8	
GFDL85	78.0	81.2	84.1	84.6	
HAD45	78.0	81.2	84.1	84.6	
HAD85	78.0	81.5	87.1	90.3	
Coldest Month	44.1	46.5	47.5	47.5	
Average	44.1	46.7	47.7	47.7	
GFDL45	44.1	47.7	47.7	47.7	
GFDL85	44.1	45.2	46.3	46.8	
HAD45	44.1	45.0	46.7	47.5	
HAD85	44.1	46.1	47.7	49.5	
Warmest Month	82.8	84.3	84.7	84.9	
Average	82.8	84.4	85.3	87.0	
GFDL45	82.8	87.1	86.9	88.5	
GFDL85	82.8	86.5	87.9	90.8	
HAD45	82.8	86.8	88.4	88.3	
HAD85	82.8	87.5	90.6	91.5	

Precipitation (in)

Scenario	2009	2039	2069	2099	
Annual	56.5	57.2	63.4	61.4	
Total	56.5	59.0	62.6	64.4	
GFDL45	56.5	60.7	69.7	63.6	
GFDL85	56.5	60.3	63.0	64.6	
HAD45	56.5	55.4	56.6	60.6	
HAD85	56.5	58.2	51.3	55.9	
Growing Season	20.4	20.3	21.5	20.8	
May—Sep	20.4	22.6	27.7	23.8	
GFDL45	20.4	23.3	24.9	25.6	
GFDL85	20.4	23.3	24.9	25.6	
HAD45	20.4	19.6	19.7	19.2	
HAD85	20.4	19.9	15.3	15.7	

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
loblolly pine	Pinus taeda	WDH	High	92.4	4837.5	39.5	No change	Sm. dec.	Medium	Abundant	Good	Fair			1	1
sweetgum	Liquidambar styraciflua	WDH	High	93.3	1136.9	9.2	No change	No change	Medium	Abundant	Good	Good			1	2
water oak	Quercus nigra	WDH	High	86.4	544.6	4.8	Lg. inc.	Lg. inc.	Medium	Abundant	Very Good	Very Good			1	3
willow oak	Quercus phellos	NSL	Low	43.2	476.6	8.4	No change	No change	Medium	Common	Fair	Fair			1	4
shortleaf pine	Pinus echinata	WDH	High	55.8	428.7	6.1	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	5
white oak	Quercus alba	WDH	Medium	67.7	378.1	4.4	No change	No change	High	Common	Good	Good			1	6
southern red oak	Quercus falcata	WDL	Medium	71.7	335.9	3.2	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	7
overcup oak	Quercus lyrata	NSL	Medium	27.2	256.1	6.8	No change	No change	Low	Common	Poor	Poor			0	8
red maple	Acer rubrum	WDH	High	74.1	238.6	2.5	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	9
blackgum	Nyssa sylvatica	WDL	Medium	70.2	220.4	2.2	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	10
bald cypress	Taxodium distichum	NSH	Medium	19	201.5	8.8	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	11
cherrybark oak; swamp red o	Quercus pagoda	NSL	Medium	44.5	186.7	2.9	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	12
American beech	Fagus grandifolia	WDH	High	34.8	150.0	3.6	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	13
winged elm	Ulmus alata	WDL	Medium	73.1	141.6	1.5	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	14
mockernut hickory	Carya alba	WDL	Medium	46.9	137.1	2.3	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	15
American hornbeam; musclev	Carpinus caroliniana	WSL	Low	46.3	131.9	2.3	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	16
post oak	Quercus stellata	WDH	High	38.3	119.0	2.2	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	17
green ash	Fraxinus pennsylvanica	WSH	Low	36.6	113.4	2.1	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	18
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	46.9	107.6	1.9	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	19
flowering dogwood	Cornus florida	WDL	Medium	47.7	103.4	1.3	No change	No change	Medium	Common	Fair	Fair			1	20
water hickory	Carya aquatica	NSL	Medium	10.7	87.7	6.8	No change	No change	Medium	Common	Fair	Fair			1	21
American holly	Ilex opaca	NSL	Medium	38.6	74.8	1.6	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	22
black cherry	Prunus serotina	WDL	Medium	44.2	71.8	1.5	Sm. inc.	Lg. inc.	Low	Common	Fair	Good			1	23
sugarberry	Celtis laevigata	NDH	Medium	8.9	70.8	4.6	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	24
cedar elm	Ulmus crassifolia	NDH	Medium	10	67.7	4.3	Lg. inc.	Lg. inc.	Low	Common	Good	Good	Infill ++	Infill ++	1	25
water tupelo	Nyssa aquatica	NSH	Medium	8.2	57.2	3.5	No change	No change	Low	Common	Poor	Poor	Infill +		2	26
nuttall oak	Quercus texana	NSH	Medium	5.8	51.6	3.8	No change	No change	High	Common	Good	Good			0	27
laurel oak	Quercus laurifolia	NDH	Medium	14.8	37.2	1.9	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	28
American elm	Ulmus americana	WDH	Medium	22.9	36.4	1.2	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	29
pignut hickory	Carya glabra	WDL	Medium	16.3	35.6	1.8	Sm. dec.	No change	Medium	Rare	Very Poor	Poor			1	30
common persimmon	Diospyros virginiana	NSL	Low	21	33.6	1.2	No change	Lg. inc.	High	Rare	Fair	Good			1	31
sassafras	Sassafras albidum	WSL	Low	23.8	32.7	1.2	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	32
slash pine	Pinus elliotii	NDH	High	4	32.7	6.7	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	33
sweetbay	Magnolia virginiana	NSL	Medium	19.3	32.0	1.4	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	34
swamp chestnut oak	Quercus michauxii	NSL	Low	14.9	25.3	1.5	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	35
white ash	Fraxinus americana	WDL	Medium	16.1	23.7	0.9	Sm. dec.	No change	Low	Rare	Very Poor	Very Poor			0	36
eastern redcedar	Juniperus virginiana	WDH	Medium	17.6	21.5	1.1	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	37
swamp tupelo	Nyssa biflora	NDH	Medium	5.5	21.2	3.3	No change	No change	Low	Rare	Very Poor	Very Poor			2	38
honeylocust	Gleditsia triacanthos	NSH	Low	5.4	20.4	2.7	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	1	39
black oak	Quercus velutina	WDH	High	15.4	19.5	1.0	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	40
Shumard oak	Quercus shumardii	NSL	Low	5.1	18.5	3.1	Sm. dec.	No change	High	Rare	Poor	Fair		Infill +	2	41
water elm	Planera aquatica	NSL	Low	2.2	15.2	5.2	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	42
black willow	Salix nigra	NSH	Low	4.2	12.1	1.9	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	1	43
longleaf pine	Pinus palustris	NSH	Medium	5	11.4	1.6	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	44
black locust	Robinia pseudoacacia	NDH	Low	1.9	10.2	5.3	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	45
blackjack oak	Quercus marilandica	NSL	Medium	6.8	10.0	1.0	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	1	46
river birch	Betula nigra	NSL	Low	1.1	8.8	1.4	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good	Infill +	Infill ++	2	47



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yellow-poplar	Liriodendron tulipifera	WDH	High	3.8	7.8	2.0	Sm. dec.	No change	High	Rare	Poor	Fair				0 48
red mulberry	Morus rubra	NSL	Low	10.3	7.7	0.7	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor				0 49
eastern redbud	Cercis canadensis	NSL	Low	2.3	7.0	2.3	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor				0 50
black hickory	Carya texana	NDL	High	1.7	6.5	3.3	No change	Lg. inc.	Medium	Rare	Poor	Good	Infill +			2 51
shagbark hickory	Carya ovata	WSL	Medium	2.5	6.2	1.9	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor				0 52
pin cherry	Prunus pensylvanica	NSL	Low	5.8	6.0	0.9	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor				0 53
swamp white oak	Quercus bicolor	NSL	Low	2.3	6.0	1.8	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor				0 54
shellbark hickory	Carya laciniosa	NSL	Low	0.8	4.9	4.4	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor				0 55
slippery elm	Ulmus rubra	WSL	Low	5.5	4.0	0.5	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good	Infill +	Infill ++		2 56
bitternut hickory	Carya cordiformis	WSL	Low	2.9	3.7	1.3	Lg. dec.	Sm. dec.	High	Rare	Poor	Poor		Infill +		2 57
sourwood	Oxydendrum arboreum	NDL	High	2.7	3.4	1.1	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor				0 58
American basswood	Tilia americana	WSL	Medium	2.9	2.9	1.0	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor				0 59
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	1.9	2.5	1.3	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++		2 60
southern magnolia	Magnolia grandiflora	NSL	Low	2	2.2	0.6	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++		2 61
florida maple	Acer barbatum	NSL	Low	2.7	2.1	0.6	Sm. dec.	Lg. dec.	High	Rare	Poor	Poor				0 62
sycamore	Platanus occidentalis	NSL	Low	1	1.9	2.0	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +		2 63
sugar maple	Acer saccharum	WDH	High	1	1.4	1.5	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor				0 64
northern red oak	Quercus rubra	WDH	Medium	1.5	1.3	0.5	Very Lg. dec.	Lg. dec.	High	Rare	Lost	Poor				0 65
waterlocust	Gleditsia aquatica	NSLX	FIA	1	1.1	1.1	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only				0 66
black walnut	Juglans nigra	WDH	Low	0.4	1.0	0.5	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost				0 67
boxelder	Acer negundo	WSH	Low	0.1	1.0	0.1	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +		2 68
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0.7	0.8	0.6	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor				0 69
wild plum	Prunus americana	NSLX	FIA	1	0.4	0.4	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only				0 70
serviceberry	Amelanchier spp.	NSL	Low	1	0.4	0.4	Sm. inc.	No change	Medium	Rare	Fair	Poor				0 71
ogeechee tupelo	Nyssa ogeche	NSLX	FIA	0.9	0.3	0.3	Unknown	Unknown	Low	Rare	FIA Only	FIA Only				0 72
white mulberry	Morus alba	NSL	FIA	1	0.3	0.3	Unknown	Unknown	NA	Rare	NNIS	NNIS				0 73
Carolina ash	Fraxinus caroliniana	NSL	FIA	1	0.2	0.2	Unknown	Unknown	NA	Rare	FIA Only	FIA Only				0 74
Atlantic white-cedar	Chamaecyparis thyoides	NSH	Low	0	0	0	Unknown	Unknown	Low	Modeled	Unknown	Unknown				0 75
pond pine	Pinus serotina	NSH	Medium	0	0	0	Unknown	Unknown	Low	Modeled	Unknown	Unknown				0 76
striped maple	Acer pensylvanicum	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				3 77
pecan	Carya illinoensis	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Likely +	Likely +		3 78
black ash	Fraxinus nigra	WSH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat				3 79
silverbell	Halesia spp.	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				3 80
cucumbertree	Magnolia acuminata	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0 81
redbay	Persea borbonia	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Likely +	Likely +		3 82
scarlet oak	Quercus coccinea	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				3 83
chinkapin oak	Quercus muehlenbergii	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0 84
live oak	Quercus virginiana	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++		3 85
bluejack oak	Quercus incana	NSL	Low	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat		Likely +		3 86