

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 4,023.6 338

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	15	20	Increase	27	29	Very Good	9	10	Likely	0	0
Hickory	7		Medium	31	51	No Change	8	11	Good	17	21	Infill	12	14
Maple	3	Abundant	Low	31	10	Decrease	32	27	Fair	10	7	Migrate	0	0
Oak	16	Common	FIA	5		New	5	5	Poor	10	9		12	14
Pine	7	Rare				Unknown	10	10	Very Poor	19	16			
Other	38	Absent							FIA Only	5	5			
									Unknown	5	5			
	72	80		82	81		82	82		75	73			

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	65.2	66.8	68.8	68.9	
	CCSM85	65.2	67.0	69.4	72.1	
	GFDL45	65.2	67.8	69.8	70.5	
	GFDL85	65.2	67.8	70.9	74.5	
	HAD45	65.2	67.4	70.0	71.6	
HAD85	65.2	67.7	71.4	75.3		
Growing Season (May-Sep)	CCSM45	77.8	79.2	80.9	81.3	
	CCSM85	77.8	79.3	81.7	85.0	
	GFDL45	77.8	80.5	82.4	83.6	
	GFDL85	77.8	80.7	83.8	87.9	
	HAD45	77.8	81.0	83.3	85.1	
HAD85	77.8	80.8	86.3	90.0		
Coldest Month Average	CCSM45	46.2	48.5	49.3	49.0	
	CCSM85	46.2	48.2	49.4	50.5	
	GFDL45	46.2	49.1	49.4	49.8	
	GFDL85	46.2	48.2	49.2	49.8	
	HAD45	46.2	46.4	47.9	48.7	
HAD85	46.2	47.3	48.2	49.9		
Warmest Month Average	CCSM45	82.0	83.3	84.3	84.6	
	CCSM85	82.0	83.6	84.9	86.8	
	GFDL45	82.0	84.4	85.1	85.9	
	GFDL85	82.0	84.6	86.1	88.4	
	HAD45	82.0	85.7	87.0	87.8	
HAD85	82.0	85.8	89.1	90.9		

Precipitation (in)

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	45.2	48.0	49.8	51.8	
	CCSM85	45.2	47.7	52.2	55.9	
	GFDL45	45.2	50.7	52.9	56.0	
	GFDL85	45.2	50.1	55.0	53.9	
	HAD45	45.2	42.6	45.0	46.2	
HAD85	45.2	46.2	43.0	45.0		
Growing Season (May-Sep)	CCSM45	20.4	23.3	24.5	25.2	
	CCSM85	20.4	22.1	25.4	26.4	
	GFDL45	20.4	25.8	27.3	28.2	
	GFDL85	20.4	25.0	28.9	29.0	
	HAD45	20.4	20.1	20.1	20.0	
HAD85	20.4	20.9	17.6	18.0		

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	91.4	4349.4	29.0	Sm. dec.	Sm. dec.	Medium	Abundant	Fair	Fair			0	1
slash pine	Pinus elliottii	NDH	High	73.3	2075.0	19.7	No change	No change	Medium	Abundant	Good	Good			1	2
sweetgum	Liquidambar styraciflua	WDH	High	85.1	883.2	6.6	No change	No change	Medium	Abundant	Good	Good			1	3
water oak	Quercus nigra	WDH	High	86.4	874.7	6.2	Sm. inc.	Lg. inc.	Medium	Abundant	Very Good	Very Good			1	4
red maple	Acer rubrum	WDH	High	78.5	718.6	6.1	No change	No change	High	Abundant	Very Good	Very Good			1	5
swamp tupelo	Nyssa biflora	NDH	Medium	59.7	538.8	6.5	Sm. inc.	Sm. inc.	Low	Abundant	Good	Good			1	6
longleaf pine	Pinus palustris	NSH	Medium	35.7	527.5	9.1	Sm. inc.	Lg. inc.	Medium	Abundant	Very Good	Very Good			1	7
laurel oak	Quercus laurifolia	NDH	Medium	65.4	480.3	4.9	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	8
yellow-poplar	Liriodendron tulipifera	WDH	High	30.9	265.6	5.7	Sm. dec.	Sm. dec.	High	Common	Fair	Fair			1	9
black cherry	Prunus serotina	WDL	Medium	63.8	166.6	1.8	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	10
southern red oak	Quercus falcata	WDL	Medium	21.3	115.1	3.8	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	11
post oak	Quercus stellata	WDH	High	22.7	89.6	3.0	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	12
winged elm	Ulmus alata	WDL	Medium	20.6	82.1	2.3	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	13
willow oak	Quercus phellos	NSL	Low	16.1	73.9	3.0	No change	Sm. inc.	Medium	Common	Fair	Good			1	14
black willow	Salix nigra	NSH	Low	15	66.8	2.1	Sm. inc.	Lg. inc.	Low	Common	Fair	Good			1	15
blackgum	Nyssa sylvatica	WDL	Medium	29.7	65.8	1.7	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	16
turkey oak	Quercus laevis	NSH	Medium	10	58.5	3.8	Sm. dec.	No change	High	Common	Fair	Good			1	17
mockernut hickory	Carya alba	WDL	Medium	15.1	57.7	2.6	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	18
sweetbay	Magnolia virginiana	NSL	Medium	26.5	57.6	1.3	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	19
pond cypress	Taxodium ascendens	NSH	Medium	7.2	54.0	4.2	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	20
white oak	Quercus alba	WDH	Medium	12.1	52.3	2.7	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good	Infill ++	Infill ++	1	21
green ash	Fraxinus pennsylvanica	WSL	Low	17	44.1	1.6	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	22
American hornbeam; muscle	Carpinus caroliniana	WSL	Low	11.4	41.0	1.3	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	23
water tupelo	Nyssa aquatica	NSH	Medium	6.5	39.8	2.6	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	24
sand pine	Pinus clausa	NDH	High	1.4	37.5	9.2	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	25
American elm	Ulmus americana	WDH	Medium	10.3	35.3	1.5	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1	26
spruce pine	Pinus glabra	NSL	Low	4.3	34.5	6.7	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	27
bald cypress	Taxodium distichum	NSH	Medium	6.4	34.3	1.9	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	28
shortleaf pine	Pinus echinata	WDH	High	7	33.7	3.3	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1	29
common persimmon	Diospyros virginiana	NSL	Low	18.4	33.6	1.0	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			1	30
florida maple	Acer barbatum	NSL	Low	5.5	32.9	3.7	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			1	31
American holly	Ilex opaca	NSL	Medium	11.3	31.5	2.0	Sm. dec.	No change	Medium	Rare	Very Poor	Poor			1	32
loblolly-bay	Gordonia lasianthus	NSH	Medium	2.2	28.7	5.9	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			2	33
live oak	Quercus virginiana	NDH	High	6.8	27.0	3.0	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	34
swamp chestnut oak	Quercus michauxii	NSL	Low	6.5	26.3	1.9	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	35
pond pine	Pinus serotina	NSH	Medium	7.3	25.4	1.8	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	36
pignut hickory	Carya glabra	WDL	Medium	9.3	24.5	1.2	Sm. dec.	No change	Medium	Rare	Very Poor	Poor		Infill +	1	37
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	5.8	18.8	1.3	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	1	38
pecan	Carya illinoensis	NSH	Low	2.4	18.3	2.2	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			2	39
bluejack oak	Quercus incana	NSL	Low	11.9	17.5	1.4	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good			1	40
cherrybark oak; swamp red o	Quercus pagoda	NSL	Medium	6.7	17.4	2.0	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	41
sycamore	Platanus occidentalis	NSL	Low	5.6	16.3	1.6	Lg. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			2	42
redbay	Persea borbonia	NSL	Low	12.1	16.1	0.7	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			1	43
river birch	Betula nigra	NSL	Low	3.1	13.2	1.1	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1	44
sugarberry	Celtis laevigata	NDH	Medium	1.6	10.9	1.1	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	45
flowering dogwood	Cornus florida	WDL	Medium	7.9	10.6	0.6	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair			1	46
ogeechee tupelo	Nyssa ogeche	NSLX	FIA	4.3	10.4	1.7	Unknown	Unknown	Low	Rare	FIA Only	FIA Only			0	47



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water hickory	Carya aquatica	NSL	Medium	3	10.4	2.3	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor				0 48
southern magnolia	Magnolia grandiflora	NSL	Low	3.3	9.5	1.2	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++		2 49
overcup oak	Quercus lyrata	NSL	Medium	3.4	9.3	0.7	Sm. dec.	No change	Low	Rare	Very Poor	Very Poor				2 50
red mulberry	Morus rubra	NSL	Low	7.5	8.6	0.7	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor				0 51
sassafras	Sassafras albidum	WSL	Low	6.5	7.7	0.7	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good	Infill +	Infill ++		1 52
blackjack oak	Quercus marilandica	NSL	Medium	5.1	7.3	1.2	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++		2 53
black oak	Quercus velutina	WDH	High	3.8	6.3	1.6	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor				0 54
eastern redcedar	Juniperus virginiana	WDH	Medium	2.1	6.2	2.0	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good				2 55
Shumard oak	Quercus shumardii	NSL	Low	1.9	6.0	3.1	Sm. dec.	No change	High	Rare	Poor	Fair				0 56
wild plum	Prunus americana	NSLX	FIA	3.5	5.2	0.6	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only				0 57
boxelder	Acer negundo	WSH	Low	0.1	5.1	0.6	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor				0 58
slippery elm	Ulmus rubra	WSL	Low	3.2	5.0	0.8	No change	Sm. inc.	Medium	Rare	Poor	Fair		Infill +		2 59
hackberry	Celtis occidentalis	WDH	Medium	1.4	3.9	1.3	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor				0 60
eastern redbud	Cercis canadensis	NSL	Low	4	3.0	0.5	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor				0 61
shagbark hickory	Carya ovata	WSL	Medium	1	2.6	2.8	Lg. dec.	Very Lg. dec.	Medium	Rare	Very Poor	Lost				0 62
pawpaw	Asimina triloba	NSL	Low	0.1	1.2	0.1	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor				0 63
waterlocust	Gleditsia aquatica	NSLX	FIA	0.6	1.0	0.2	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only				0 64
bitternut hickory	Carya cordiformis	WSL	Low	0.1	1.0	0.1	Very Lg. dec.	Very Lg. dec.	High	Rare	Lost	Lost				0 65
sourwood	Oxydendrum arboreum	NDL	High	1	0.6	0.6	Lg. dec.	Very Lg. dec.	High	Rare	Poor	Lost				0 66
water elm	Planera aquatica	NSL	Low	1	0.6	0.6	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost				0 67
American chestnut	Castanea dentata	NSLX	FIA	1	0.5	0.5	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only				0 68
northern red oak	Quercus rubra	WDH	Medium	1	0.4	0.4	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor				0 69
black walnut	Juglans nigra	WDH	Low	1	0.3	0.3	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor				0 70
American beech	Fagus grandifolia	WDH	High	1	0.2	0.2	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good				2 71
sand hickory	Carya pallida	NSL	FIA	1	0.2	0.2	Unknown	Unknown	NA	Rare	FIA Only	FIA Only				0 72
Virginia pine	Pinus virginiana	NDH	High	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0 73
serviceberry	Amelanchier spp.	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				3 74
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat				3 75
shellbark hickory	Carya laciniosa	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				3 76
black hickory	Carya texana	NDL	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				3 77
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0 78
eastern cottonwood	Populus deltoides	NSH	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown				0 79
swamp white oak	Quercus bicolor	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown				0 80
scarlet oak	Quercus coccinea	WDL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0 81
cedar elm	Ulmus crassifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat				3 82