

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	5,923.8	2,287.2	168

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		RCP45	RCP85	RCP45	RCP85	RCP45	RCP85				
Ash	4			11	14	Increase	19	22	Very Good	7	8	Likely	0	0	
Hickory	2			31	39	No Change	8	7	Good	11	12	Infill	6	10	
Maple	1	Abundant	3	Low	23	12	Decrease	18	16	Fair	6	6	Migrate	0	4
Oak	11	Common	18	FIA	2		New	7	7	Poor	9	9			
Pine	5	Rare	26				Unknown	15	15	Very Poor	8	7			
Other	24	Absent	16							FIA Only	2	2			
	47		63					67	67	Unknown	13	13			
											56	57			

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	67.4	68.9	70.5	70.4	
	CCSM85	67.4	69.0	71.2	73.4	
	GFDL45	67.4	70.2	71.8	72.5	
	GFDL85	67.4	69.9	72.8	76.2	
	HAD45	67.4	69.2	71.5	72.8	
	HAD85	67.4	69.7	72.4	75.9	
Growing Season (May—Sep)	CCSM45	78.0	79.2	80.5	80.7	
	CCSM85	78.0	79.3	81.5	84.0	
	GFDL45	78.0	80.7	82.1	83.2	
	GFDL85	78.0	80.5	83.3	87.1	
	HAD45	78.0	80.5	82.5	83.8	
	HAD85	78.0	80.8	84.3	87.5	
Coldest Month	CCSM45	51.0	53.2	54.1	53.7	
	CCSM85	51.0	52.7	53.8	55.1	
	GFDL45	51.0	53.6	53.9	54.6	
	GFDL85	51.0	53.1	54.2	55.1	
	HAD45	51.0	50.7	51.9	52.7	
	HAD85	51.0	51.5	52.3	54.0	
Warmest Month	CCSM45	81.1	82.4	83.2	83.3	
	CCSM85	81.1	82.4	83.8	85.2	
	GFDL45	81.1	83.1	83.8	84.6	
	GFDL85	81.1	83.3	84.7	86.7	
	HAD45	81.1	83.9	84.8	85.4	
	HAD85	81.1	84.1	86.2	87.5	

Precipitation (in)

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	49.9	52.8	54.3	55.3	
	CCSM85	49.9	52.3	53.8	54.5	
	GFDL45	49.9	58.0	58.8	61.1	
	GFDL85	49.9	54.7	62.0	60.2	
	HAD45	49.9	47.1	45.4	49.2	
	HAD85	49.9	47.0	45.2	44.0	
Growing Season (May—Sep)	CCSM45	27.8	29.6	29.6	29.9	
	CCSM85	27.8	28.7	30.3	29.9	
	GFDL45	27.8	33.9	34.0	35.0	
	GFDL85	27.8	32.3	37.2	36.6	
	HAD45	27.8	26.3	24.7	24.7	
	HAD85	27.8	25.4	22.3	21.1	

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
slash pine	Pinus elliottii	NDH	High	84.6	4027.9	31.8	Sm. dec.	Sm. dec.	Medium	Abundant	Fair	Fair			0	1
loblolly pine	Pinus taeda	WDH	High	51.2	1232.6	18.7	No change	Sm. inc.	Medium	Abundant	Good	Very Good			1	2
red maple	Acer rubrum	WDH	High	66.1	694.0	7.4	No change	No change	High	Abundant	Very Good	Very Good			1	3
laurel oak	Quercus laurifolia	NDH	Medium	70.6	462.4	5.3	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	4
swamp tupelo	Nyssa biflora	NDH	Medium	61.5	435.3	5.0	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	5
water oak	Quercus nigra	WDH	High	54.9	397.0	4.9	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	6
sweetgum	Liquidambar styraciflua	WDH	High	60.6	358.1	4.5	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	7
loblolly-bay	Gordonia lasianthus	NSH	Medium	43.1	273.3	5.5	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	8
live oak	Quercus virginiana	NDH	High	43.1	264.0	5.2	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	9
longleaf pine	Pinus palustris	NSH	Medium	32.3	252.7	5.7	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	10
redbay	Persea borbonia	NSL	Low	52.7	238.8	3.1	No change	No change	High	Common	Good	Good			1	11
turkey oak	Quercus laevis	NSH	Medium	11.6	181.3	10.5	Lg. dec.	Lg. dec.	High	Common	Fair	Fair	Infill +	Infill +	1	12
pond cypress	Taxodium ascendens	NSH	Medium	23.8	156.9	4.8	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	13
pumpkin ash	Fraxinus profunda	NSH	FIA	9.2	154.6	11.2	Unknown	Unknown	NA	Common	FIA Only	FIA Only			0	14
bald cypress	Taxodium distichum	NSH	Medium	17.9	147.3	5.8	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	15
sweetbay	Magnolia virginiana	NSL	Medium	44.8	131.7	2.0	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	16
green ash	Fraxinus pennsylvanica	WSH	Low	15.4	112.5	4.9	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	17
pond pine	Pinus serotina	NSH	Medium	17	97.7	6.0	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	18
water tupelo	Nyssa aquatica	NSH	Medium	5.4	73.3	5.2	Sm. dec.	Sm. dec.	Low	Common	Poor	Poor			0	19
cabbage palmetto	Sabal palmetto	NDH	Medium	15.4	70.1	2.8	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			0	20
southern magnolia	Magnolia grandiflora	NSL	Low	18	59.5	2.3	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	21
sand pine	Pinus clausa	NDH	High	2	46.8	12.2	No change	No change	Low	Rare	Very Poor	Very Poor			2	22
pignut hickory	Carya glabra	WDL	Medium	8.4	46.3	3.0	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	23
blackgum	Nyssa sylvatica	WDL	Medium	8.3	43.1	1.8	Sm. inc.	Sm. inc.	High	Rare	Good	Good	Infill ++	Infill ++	1	24
black willow	Salix nigra	NSH	Low	2.9	40.1	8.5	Sm. dec.	No change	Low	Rare	Very Poor	Very Poor			2	25
American elm	Ulmus americana	WDH	Medium	11.6	34.8	1.9	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1	26
yellow-poplar	Liriodendron tulipifera	WDH	High	6.3	24.8	2.5	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			1	27
American hornbeam; musclev	Carpinus caroliniana	WSL	Low	10.2	17.8	0.9	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good	Infill +	Infill ++	1	28
post oak	Quercus stellata	WDH	High	5.5	16.6	1.9	No change	Sm. inc.	High	Rare	Fair	Good		Infill ++	2	29
American holly	Ilex opaca	NSL	Medium	14.5	12.5	1.0	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	30
sugarberry	Celtis laevigata	NDH	Medium	0.6	10.7	2.4	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	31
Carolina ash	Fraxinus caroliniana	NSL	FIA	2.3	6.5	1.9	Unknown	Unknown	NA	Rare	FIA Only	FIA Only			0	32
black cherry	Prunus serotina	WDL	Medium	9.6	6.0	0.7	Sm. inc.	Lg. inc.	Low	Rare	Poor	Fair	Infill +	Infill +	1	33
winged elm	Ulmus alata	WDL	Medium	1.7	5.8	3.4	No change	Sm. inc.	Medium	Rare	Poor	Fair		Infill +	2	34
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	5	5.4	1.1	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	35
common persimmon	Diospyros virginiana	NSL	Low	3.7	4.5	0.6	Lg. dec.	Sm. dec.	High	Rare	Poor	Poor			1	36
southern red oak	Quercus falcata	WDL	Medium	3.9	4.5	0.7	Sm. inc.	Lg. inc.	High	Rare	Good	Good			2	37
eastern redcedar	Juniperus virginiana	WDH	Medium	3.4	3.2	1.0	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	38
Shumard oak	Quercus shumardii	NSL	Low	1.5	3.0	1.6	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	39
bluejack oak	Quercus incana	NSL	Low	3.4	2.4	0.7	Sm. dec.	No change	Medium	Rare	Very Poor	Poor		Infill +	2	40
white oak	Quercus alba	WDH	Medium	3.4	2.4	0.7	Very Lg. dec.	Sm. dec.	High	Rare	Lost	Poor		Infill +	2	41
mockernut hickory	Carya alba	WDL	Medium	3.4	2.3	0.7	Very Lg. dec.	Very Lg. dec.	High	Rare	Lost	Lost			0	42
chinkapin oak	Quercus muehlenbergii	NSL	Medium	1.7	1.9	1.2	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	43
sycamore	Platanus occidentalis	NSL	Low	1.5	1.5	0.8	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	44
slippery elm	Ulmus rubra	WSL	Low	1	0.9	0.3	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	45
overcup oak	Quercus lyrata	NSL	Medium	1.7	0.8	0.5	No change	No change	Low	Rare	Very Poor	Very Poor			2	46
white ash	Fraxinus americana	WDL	Medium	0.6	0.4	0.1	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	47



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shortleaf pine	Pinus echinata	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	48
serviceberry	Amelanchier spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0 49
gray birch	Betula populifolia	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0 50
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat				0 51
pecan	Carya illinoensis	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat		Migrate +	3	52
shagbark hickory	Carya ovata	WSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0 53
flowering dogwood	Cornus florida	WDL	Medium	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown				0 54
silverbell	Halesia spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0 55
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0 56
mountain or Fraser magnolia	Magnolia fraseri	NSL	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown				0 57
red mulberry	Morus rubra	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown				0 58
scarlet oak	Quercus coccinea	WDL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0 59
cherrybark oak; swamp red o.	Quercus pagoda	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	60
bur oak	Quercus macrocarpa	NDH	Medium	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown				0 61
willow oak	Quercus phellos	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	62
black oak	Quercus velutina	WDH	High	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown				0 63
black locust	Robinia pseudoacacia	NDH	Low	0	0	0	New Habitat	Unknown	Medium	Absent	New Habitat	Unknown				3 64
sassafras	Sassafras albidum	WSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown				0 65
American mountain-ash	Sorbus americana	NSL	Low	0	0	0	Unknown	New Habitat	Low	Absent	Unknown	New Habitat				0 66
cedar elm	Ulmus crassifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat				3 67