

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	1,224.5	472.8	44

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	3			High	11	12	Increase	17	17	Very Good	9	8	Likely	2	2
Hickory	3			Medium	25	35	No Change	8	10	Good	6	8	Infill	6	8
Maple	1	Abundant	5	Low	20	9	Decrease	12	10	Fair	5	6	Migrate	5	4
Oak	4	Common	16	FIA	2		New	7	8	Poor	9	8			
Pine	5	Rare	18				Unknown	14	13	Very Poor	7	5			
Other	23	Absent	17							FIA Only	2	2			
	39		56		58	56		58	58	Unknown	12	11			
											50	48			

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	68.1	69.5	71.1	71.1	
	CCSM85	68.1	69.6	71.8	73.9	
	GFDL45	68.1	70.9	72.6	73.3	
	GFDL85	68.1	70.5	73.5	77.0	
	HAD45	68.1	69.9	72.3	73.5	
	HAD85	68.1	70.3	73.2	76.6	
Growing Season (May—Sep)	CCSM45	79.1	80.1	81.3	81.6	
	CCSM85	79.1	80.1	82.3	84.6	
	GFDL45	79.1	81.8	83.2	84.4	
	GFDL85	79.1	81.5	84.4	88.2	
	HAD45	79.1	81.5	83.4	84.6	
	HAD85	79.1	81.6	85.2	88.1	
Coldest Month Average	CCSM45	51.2	53.4	54.3	54.0	
	CCSM85	51.2	53.1	54.4	55.4	
	GFDL45	51.2	54.2	54.6	55.1	
	GFDL85	51.2	53.4	54.6	55.4	
	HAD45	51.2	51.2	52.6	53.4	
	HAD85	51.2	52.3	53.4	55.1	
Warmest Month Average	CCSM45	81.9	83.0	83.6	83.8	
	CCSM85	81.9	83.0	84.2	85.3	
	GFDL45	81.9	84.1	84.9	85.6	
	GFDL85	81.9	84.0	85.4	87.4	
	HAD45	81.9	84.4	85.5	86.0	
	HAD85	81.9	84.7	86.6	87.9	

Precipitation (in)

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	59.0	63.2	65.6	66.1	
	CCSM85	59.0	61.6	65.4	65.3	
	GFDL45	59.0	65.8	68.2	70.0	
	GFDL85	59.0	65.0	70.9	67.3	
	HAD45	59.0	56.2	60.0	64.4	
	HAD85	59.0	59.7	55.2	59.3	
Growing Season (May—Sep)	CCSM45	30.2	33.4	34.9	34.2	
	CCSM85	30.2	31.3	34.2	32.9	
	GFDL45	30.2	36.2	36.7	36.5	
	GFDL85	30.2	36.4	40.4	38.2	
	HAD45	30.2	29.0	30.0	31.2	
	HAD85	30.2	29.2	24.9	26.2	

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.

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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	79.7	5933.7	39.7	Sm. dec.	Sm. dec.	Medium	Abundant	Fair	Fair			0	1
swamp tupelo	Nyssa biflora	NDH	Medium	62.6	950.9	9.1	No change	No change	Low	Abundant	Fair	Fair			0	2
water tupelo	Nyssa aquatica	NSH	Medium	34.3	841.3	10.1	Sm. dec.	Sm. dec.	Low	Abundant	Fair	Fair			0	3
pond cypress	Taxodium ascendens	NSH	Medium	69.1	604.5	5.5	Sm. inc.	Lg. inc.	Medium	Abundant	Very Good	Very Good			1	4
sweetbay	Magnolia virginiana	NSL	Medium	66.5	544.2	3.2	Sm. inc.	No change	Medium	Abundant	Very Good	Good			1	5
loblolly pine	Pinus taeda	WDH	High	11.8	495.1	2.9	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	6
laurel oak	Quercus laurifolia	NDH	Medium	18.2	426.0	5.2	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	7
longleaf pine	Pinus palustris	NSH	Medium	12.1	387.7	11.4	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	8
bald cypress	Taxodium distichum	NSH	Medium	49.6	332.8	4.0	Lg. inc.	Sm. inc.	Medium	Common	Very Good	Good			1	9
common persimmon	Diospyros virginiana	NSL	Low	13.1	275.3	16.8	Lg. dec.	Lg. dec.	High	Common	Fair	Fair			1	10
red maple	Acer rubrum	WDH	High	49.6	249.0	2.7	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	11
green ash	Fraxinus pennsylvanica	WSH	Low	37.5	190.0	2.1	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	12
cabbage palmetto	Sabal palmetto	NDH	Medium	19.9	163.7	5.2	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			0	13
sand pine	Pinus clausa	NDH	High	2.4	158.4	5.6	No change	No change	Low	Common	Poor	Poor	Infill +	Infill +	2	14
sweetgum	Liquidambar styraciflua	WDH	High	17	148.9	3.4	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	15
water oak	Quercus nigra	WDH	High	15.4	145.0	1.3	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	16
pignut hickory	Carya glabra	WDL	Medium	7.2	140.7	15.2	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	17
southern magnolia	Magnolia grandiflora	NSL	Low	14.9	132.1	1.5	Lg. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	18
American elm	Ulmus americana	WDH	Medium	17.8	123.6	3.0	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	19
pumpkin ash	Fraxinus profunda	NSH	FIA	17.5	67.6	1.2	Unknown	Unknown	NA	Common	FIA Only	FIA Only			0	20
black willow	Salix nigra	NSH	Low	8	61.3	7.3	No change	No change	Low	Common	Poor	Poor	Infill +	Infill +	0	21
pecan	Carya illinoensis	NSH	Low	1.2	42.5	0.8	Sm. dec.	No change	Low	Rare	Very Poor	Very Poor			2	22
water hickory	Carya aquatica	NSL	Medium	0.9	37.4	0.5	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	23
live oak	Quercus virginiana	NDH	High	7.2	28.6	3.1	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	24
Atlantic white-cedar	Chamaecyparis thyoides	NSH	Low	8.2	21.1	2.6	Sm. inc.	No change	Low	Rare	Poor	Very Poor			1	25
American hornbeam; musclev	Carpinus caroliniana	WSL	Low	1.2	20.4	0.4	No change	Sm. inc.	Medium	Rare	Poor	Fair	Infill +	Infill +	1	26
blackgum	Nyssa sylvatica	WDL	Medium	7.9	15.5	0.5	Lg. inc.	Lg. inc.	High	Rare	Good	Good			1	27
overcup oak	Quercus lyrata	NSL	Medium	0.9	14.2	0.2	No change	No change	Low	Rare	Very Poor	Very Poor			2	28
spruce pine	Pinus glabra	NSL	Low	1.5	14.1	0.3	Lg. dec.	Very Lg. dec.	Medium	Rare	Very Poor	Lost			0	29
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	8.1	13.2	0.7	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			1	30
American beech	Fagus grandifolia	WDH	High	1.2	11.4	0.2	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	31
river birch	Betula nigra	NSL	Low	2.1	11.4	0.1	No change	No change	Medium	Rare	Poor	Poor		Infill +	1	32
eastern redcedar	Juniperus virginiana	WDH	Medium	8.2	8.6	1.1	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	33
redbay	Persea borbonia	NSL	Low	8.2	7.4	0.9	Sm. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	1	34
sugarberry	Celtis laevigata	NDH	Medium	1.2	5.5	0.1	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good			2	35
cedar elm	Ulmus crassifolia	NDH	Medium	0.9	3.2	0.0	No change	Lg. inc.	Low	Rare	Very Poor	Fair		Infill +	2	36
Carolina ash	Fraxinus caroliniana	NSL	FIA	0.9	2.9	0.0	Unknown	Unknown	NA	Rare	FIA Only	FIA Only			0	37
water elm	Planera aquatica	NSL	Low	1.2	2.5	0.0	Lg. dec.	No change	Medium	Rare	Very Poor	Poor			0	38
slippery elm	Ulmus rubra	WSL	Low	0.9	1.6	0.0	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	39
silver maple	Acer saccharinum	NSH	Low	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	40
serviceberry	Amelanchier spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	41
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	Unknown	New Habitat	High	Absent	Unknown	New Habitat			0	42
shagbark hickory	Carya ovata	WSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	43
mockernut hickory	Carya alba	WDL	Medium	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	44
loblolly-bay	Gordonia lasianthus	NSH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	45
silverbell	Halesia spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	46
American holly	Ilex opaca	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	47



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yellow-poplar	Liriodendron tulipifera	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate ++		3	48
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	49
sycamore	Platanus occidentalis	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	50
black cherry	Prunus serotina	WDL	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	51
turkey oak	Quercus laevis	NSH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate ++	Migrate +	3	52
blackjack oak	Quercus marilandica	NSL	Medium	0	0	0	Unknown	Unknown	High	Modeled	Unknown	Unknown			0	53
chinkapin oak	Quercus muehlenbergii	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	54
willow oak	Quercus phellos	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	55
chestnut oak	Quercus prinus	NDH	High	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	56
black oak	Quercus velutina	WDH	High	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	57
American basswood	Tilia americana	WSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	58