

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 4,108.5 1,586.3 4

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				Increase	3	3	Very Good	0	0	Likely	1	1		
Hickory	0				No Change	3	4	Good	1	2	Infill	4	3		
Maple	0	Abundant	0	High	8	9	Decrease	2	1	Fair	2	1	Migrate	13	19
Oak	1	Common	0	Medium	18	27	New	21	22	Poor	2	2		18	23
Pine	0	Rare	8	Low	14	4	Unknown	11	10	Very Poor	3	3			
Other	6	Absent	32	FIA	0					FIA Only	0	0			
	8		40		40	40				Unknown	11	10			
							40	40			19	18			

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	68.1	69.5	71.1	71.3	
	CCSM85	68.1	69.8	71.9	74.0	
	GFDL45	68.1	73.1	72.2	73.1	
	GFDL85	68.1	70.5	73.4	76.6	
	HAD45	68.1	70.2	72.5	73.6	
HAD85	68.1	70.4	73.4	76.7		
Growing Season (May—Sep)	CCSM45	79.8	80.9	82.0	82.3	
	CCSM85	79.8	81.1	83.1	85.2	
	GFDL45	79.8	85.6	84.0	85.6	
	GFDL85	79.8	82.5	85.5	89.2	
	HAD45	79.8	82.1	84.2	84.8	
HAD85	79.8	82.2	85.8	88.5		
Coldest Month Average	CCSM45	50.0	52.1	53.1	53.0	
	CCSM85	50.0	52.6	53.7	54.9	
	GFDL45	50.0	53.1	53.2	53.3	
	GFDL85	50.0	51.3	52.2	53.0	
	HAD45	50.0	50.9	52.5	53.3	
HAD85	50.0	52.3	53.4	55.3		
Warmest Month Average	CCSM45	82.8	83.7	84.1	84.3	
	CCSM85	82.8	84.0	84.8	85.9	
	GFDL45	82.8	85.9	86.1	87.3	
	GFDL85	82.8	85.7	87.1	89.3	
	HAD45	82.8	85.3	86.3	86.5	
HAD85	82.8	85.5	87.5	88.5		

Precipitation (in)

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	60.4	62.1	68.0	65.6	
	CCSM85	60.4	62.4	64.7	63.8	
	GFDL45	60.4	65.4	72.8	63.9	
	GFDL85	60.4	63.2	64.6	62.9	
	HAD45	60.4	58.8	60.3	65.4	
HAD85	60.4	64.9	59.1	62.8		
Growing Season (May—Sep)	CCSM45	28.8	30.3	32.2	31.1	
	CCSM85	28.8	29.4	30.0	28.6	
	GFDL45	28.8	32.7	38.0	31.4	
	GFDL85	28.8	31.4	32.8	33.5	
	HAD45	28.8	28.6	28.4	31.3	
HAD85	28.8	29.0	26.2	26.5		

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
black willow	Salix nigra	NSH	Low	11.2	40.1	19.0	Sm. dec.	No change	Low	Rare	Very Poor	Very Poor			2	1
water oak	Quercus nigra	WDH	High	17.8	40.0	30.6	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			2	2
sweetgum	Liquidambar styraciflua	WDH	High	17.8	30.3	23.1	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	3
bald cypress	Taxodium distichum	NSH	Medium	3.1	19.3	10.0	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	4
green ash	Fraxinus pennsylvanica	WSH	Low	12.8	14.7	9.3	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good	Infill +		2	5
sugarberry	Celtis laevigata	NDH	Medium	17.8	8.2	6.3	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	6
water tupelo	Nyssa aquatica	NSH	Medium	3.1	6.1	3.2	No change	No change	Low	Rare	Very Poor	Very Poor			2	7
American elm	Ulmus americana	WDH	Medium	8.1	2.0	2.8	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	2	8
loblolly pine	Pinus taeda	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	9
boxelder	Acer negundo	WSH	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	10
striped maple	Acer pensylvanicum	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	11
red maple	Acer rubrum	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Likely +	Likely +	3	12
serviceberry	Amelanchier spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	13
pawpaw	Asimina triloba	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	14
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	15
American hornbeam; muscle	Carpinus caroliniana	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	16
water hickory	Carya aquatica	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	17
bitternut hickory	Carya cordiformis	WSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	18
black hickory	Carya texana	NDL	High	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	19
mockernut hickory	Carya alba	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	20
silverbell	Halesia spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	21
American holly	Ilex opaca	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate ++	3	22
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	23
blackgum	Nyssa sylvatica	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	24
pin cherry	Prunus pensylvanica	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	25
scarlet oak	Quercus coccinea	WDL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	26
southern red oak	Quercus falcata	WDL	Medium	0	0	0	Unknown	New Habitat	High	Absent	Unknown	New Habitat		Migrate +	3	27
cherrybark oak; swamp red o.	Quercus pagoda	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	28
overcup oak	Quercus lyrata	NSL	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	29
swamp chestnut oak	Quercus michauxii	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	30
nuttall oak	Quercus texana	NSH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			0	31
willow oak	Quercus phellos	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	32
post oak	Quercus stellata	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	33
black oak	Quercus velutina	WDH	High	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	34
live oak	Quercus virginiana	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate ++	3	35
cabbage palmetto	Sabal palmetto	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	36
American basswood	Tilia americana	WSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	37
winged elm	Ulmus alata	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	38
cedar elm	Ulmus crassifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	39
slippery elm	Ulmus rubra	WSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	40