

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

Area of Region sq. km sq. mi FIA Plots
 1,846.7 713.0 27

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	0			High	14	13	Increase	14	16	Very Good	2	3	Likely	3	3
Hickory	3			Medium	26	34	No Change	7	5	Good	12	13	Infill	4	8
Maple	1	Abundant	2	Low	15	8	Decrease	11	11	Fair	5	4	Migrate	5	11
Oak	11	Common	8	FIA	0		New	21	21	Poor	4	4		12	22
Pine	3	Rare	22				Unknown	2	2	Very Poor	7	4			
Other	14	Absent	23							FIA Only	0	0			
	32		55		55	55		55	55	Unknown	2	2			
											32	30			

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	58.4	59.8	61.5	61.7	
	CCSM85	58.4	60.1	62.2	64.6	
	GFDL45	58.4	62.7	63.3	64.3	
	GFDL85	58.4	61.2	64.5	68.1	
	HAD45	58.4	60.2	62.9	64.0	
HAD85	58.4	60.4	63.4	67.0		
Growing Season May—Sep	CCSM45	72.9	74.2	75.6	75.9	
	CCSM85	72.9	74.3	76.5	79.2	
	GFDL45	72.9	77.8	78.4	79.8	
	GFDL85	72.9	76.3	79.8	83.8	
	HAD45	72.9	74.9	77.2	78.3	
HAD85	72.9	74.8	77.9	81.3		
Coldest Month Average	CCSM45	36.9	39.1	40.1	40.5	
	CCSM85	36.9	39.6	40.6	41.9	
	GFDL45	36.9	39.7	40.3	41.0	
	GFDL85	36.9	39.0	40.2	41.5	
	HAD45	36.9	37.5	39.3	39.6	
HAD85	36.9	38.2	39.5	41.3		
Warmest Month Average	CCSM45	78.7	80.0	80.8	80.8	
	CCSM85	78.7	80.0	81.5	82.5	
	GFDL45	78.7	81.4	82.6	83.7	
	GFDL85	78.7	82.3	84.1	86.4	
	HAD45	78.7	80.9	82.1	82.5	
HAD85	78.7	81.0	82.6	84.4		

Precipitation (in)

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	43.3	46.8	48.1	47.3	
	CCSM85	43.3	47.5	48.0	52.7	
	GFDL45	43.3	47.6	50.6	52.0	
	GFDL85	43.3	46.4	50.6	51.7	
	HAD45	43.3	46.9	46.8	45.2	
HAD85	43.3	50.3	45.5	45.0		
Growing Season May—Sep	CCSM45	19.4	23.8	23.6	23.5	
	CCSM85	19.4	23.0	23.1	25.0	
	GFDL45	19.4	20.9	22.9	24.1	
	GFDL85	19.4	20.6	23.1	23.8	
	HAD45	19.4	21.9	20.7	18.2	
HAD85	19.4	22.5	19.1	17.2		

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
loblolly pine	Pinus taeda	WDH	High	75.3	2911.6	33.7	No change	No change	Medium	Abundant	Good	Good			1	1
red maple	Acer rubrum	WDH	High	75.3	592.9	7.7	No change	No change	High	Abundant	Very Good	Very Good			1	2
sweetgum	Liquidambar styraciflua	WDH	High	65.2	406.3	6.1	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	3
white oak	Quercus alba	WDH	Medium	32.4	199.3	5.8	No change	No change	High	Common	Good	Good			1	4
American holly	Ilex opaca	NSL	Medium	65.1	131.2	2.6	No change	No change	Medium	Common	Fair	Fair			1	5
southern red oak	Quercus falcata	WDL	Medium	36.7	76.1	2.3	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	6
black oak	Quercus velutina	WDH	High	26.9	74.2	3.6	Sm. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	7
black cherry	Prunus serotina	WDL	Medium	44.2	71.1	3.5	Sm. inc.	Lg. inc.	Low	Common	Fair	Good			1	8
swamp tupelo	Nyssa biflora	NDH	Medium	29.3	57.7	4.6	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	9
willow oak	Quercus phellos	NSL	Low	20.7	56.8	2.5	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good	Infill ++	Infill ++	1	10
mockernut hickory	Carya alba	WDL	Medium	16.3	44.0	2.7	Sm. inc.	Lg. inc.	High	Rare	Good	Good			1	11
yellow-poplar	Liriodendron tulipifera	WDH	High	11	37.0	3.4	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	1	12
water oak	Quercus nigra	WDH	High	38.6	33.7	1.0	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	13
scarlet oak	Quercus coccinea	WDL	Medium	16.3	33.4	2.0	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	14
blackgum	Nyssa sylvatica	WDL	Medium	38.3	32.2	1.2	Lg. inc.	Lg. inc.	High	Rare	Good	Good			1	15
swamp chestnut oak	Quercus michauxii	NSL	Low	10.8	29.9	2.7	Lg. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	16
eastern redcedar	Juniperus virginiana	WDH	Medium	28.1	26.9	0.6	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	17
shortleaf pine	Pinus echinata	WDH	High	5.5	26.9	4.9	No change	No change	Medium	Rare	Poor	Poor		Infill +	2	18
American beech	Fagus grandifolia	WDH	High	11.6	25.2	2.4	Lg. inc.	Sm. inc.	Medium	Rare	Good	Fair	Infill ++	Infill +	1	19
northern red oak	Quercus rubra	WDH	Medium	4.5	23.3	3.5	Very Lg. dec.	Very Lg. dec.	High	Rare	Lost	Lost			0	20
cherrybark oak; swamp red o.	Quercus pagoda	NSL	Medium	11	21.0	1.9	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good		Infill ++	1	21
pecan	Carya illinoensis	NSH	Low	12.9	19.7	8.6	Sm. dec.	Lg. inc.	Low	Rare	Very Poor	Fair		Infill +	1	22
Virginia pine	Pinus virginiana	NDH	High	11	13.7	1.3	Sm. dec.	Very Lg. dec.	Medium	Rare	Very Poor	Lost			0	23
black walnut	Juglans nigra	WDH	Low	5.5	8.8	1.6	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	24
sassafras	Sassafras albidum	WSL	Low	16.5	8.7	0.5	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	25
American hornbeam; musclev	Carpinus caroliniana	WSL	Low	5.5	7.6	1.4	No change	Sm. inc.	Medium	Rare	Poor	Fair		Infill +	1	26
flowering dogwood	Cornus florida	WDL	Medium	15.9	6.8	0.9	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good		Infill ++	1	27
sourwood	Oxydendrum arboreum	NDL	High	5.5	6.1	1.1	No change	Sm. dec.	High	Rare	Fair	Poor	Infill +		2	28
red mulberry	Morus rubra	NSL	Low	11	5.6	0.5	Lg. dec.	Very Lg. dec.	Medium	Rare	Very Poor	Lost			0	29
post oak	Quercus stellata	WDH	High	5.5	5.6	1.0	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	30
pignut hickory	Carya glabra	WDL	Medium	11.6	3.3	0.3	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	31
turkey oak	Quercus laevis	NSH	Medium	7.2	3.3	0.8	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	32
slash pine	Pinus elliottii	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate ++	3	33
longleaf pine	Pinus palustris	NSH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	34
pond pine	Pinus serotina	NSH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	35
bald cypress	Taxodium distichum	NSH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	36
serviceberry	Amelanchier spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	37
river birch	Betula nigra	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	38
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			0	39
water hickory	Carya aquatica	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	40
black hickory	Carya texana	NDL	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	41
sugarberry	Celtis laevigata	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	42
green ash	Fraxinus pennsylvanica	WSH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	43
sweetbay	Magnolia virginiana	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	44
water tupelo	Nyssa aquatica	NSH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat		Migrate +	3	45
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	46
redbay	Persea borbonia	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate ++	Migrate +	3	47



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sycamore	Platanus occidentalis	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	48
laurel oak	Quercus laurifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	49
overcup oak	Quercus lyrata	NSL	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat		Migrate +	3	50
live oak	Quercus virginiana	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	51
black willow	Salix nigra	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat		Migrate +	3	52
winged elm	Ulmus alata	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	53
American elm	Ulmus americana	WDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	54
cedar elm	Ulmus crassifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			0	55