

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 10,358 3,999.2 262

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				
						RCP45	RCP85	RCP45	RCP85	RCP45	RCP85				
Ash	4			High	12	20	Increase	15	19	Very Good	8	9	Likely	0	0
Hickory	4			Medium	36	47	No Change	13	10	Good	8	9	Infill	6	11
Maple	2	Abundant	5	Low	32	13	Decrease	26	25	Fair	8	8	Migrate	1	5
Oak	11	Common	18	FIA	2		New	7	10	Poor	14	14		7	16
Pine	6	Rare	33				Unknown	21	18	Very Poor	16	14			
Other	29	Absent	25					82	82	FIA Only	2	2			
	56		81		82	80				Unknown	19	16			
											75	72			

Potential Changes in Climate Variables

Temperature (°F)

Scenario	2009	2039	2069	2099		
Annual	CCSM45	69.3	70.8	72.5	72.4	
Average	CCSM85	69.3	70.9	73.1	75.4	
	GFDL45	69.3	71.8	73.6	74.3	
	GFDL85	69.3	71.7	74.6	78.0	
	HAD45	69.3	71.2	73.6	75.0	
	HAD85	69.3	71.8	74.6	78.4	
Growing Season	CCSM45	79.2	80.5	81.7	82.0	
	CCSM85	79.2	80.5	82.7	85.2	
May—Sep	GFDL45	79.2	81.6	83.3	84.3	
	GFDL85	79.2	81.6	84.5	88.2	
	HAD45	79.2	81.9	84.0	85.4	
	HAD85	79.2	82.3	86.1	89.5	
Coldest Month	CCSM45	53.5	55.9	56.8	56.5	
Average	CCSM85	53.5	55.5	56.5	57.9	
	GFDL45	53.5	56.2	56.6	57.2	
	GFDL85	53.5	55.8	56.9	57.9	
	HAD45	53.5	53.3	54.6	55.4	
	HAD85	53.5	54.1	54.9	56.8	
Warmest Month	CCSM45	81.5	82.9	83.7	83.9	
Average	CCSM85	81.5	83.0	84.3	85.7	
	GFDL45	81.5	83.8	84.7	85.4	
	GFDL85	81.5	84.0	85.4	87.4	
	HAD45	81.5	84.7	85.6	86.3	
	HAD85	81.5	84.8	87.1	88.5	

Precipitation (in)

Scenario	2009	2039	2069	2099		
Annual	CCSM45	52.2	56.1	58.3	58.8	
Total	CCSM85	52.2	55.0	57.3	57.8	
	GFDL45	52.2	60.2	61.9	64.5	
	GFDL85	52.2	56.8	64.3	61.8	
	HAD45	52.2	50.8	50.8	53.6	
	HAD85	52.2	50.2	49.1	48.6	
Growing Season	CCSM45	30.4	32.8	33.4	33.2	
	CCSM85	30.4	31.5	33.7	33.3	
May—Sep	GFDL45	30.4	35.9	36.6	37.4	
	GFDL85	30.4	34.6	38.8	37.7	
	HAD45	30.4	29.7	29.4	28.5	
	HAD85	30.4	28.2	25.2	24.8	

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	58.5	2980.6	33.6	No change	No change	Medium	Abundant	Good	Good			1	1
laurel oak	Quercus laurifolia	NDH	Medium	72	1354.3	13.3	No change	Sm. dec.	Medium	Abundant	Good	Fair			1	2
loblolly pine	Pinus taeda	WDH	High	50.6	1032.8	16.8	No change	No change	Medium	Abundant	Good	Good			1	3
live oak	Quercus virginiana	NDH	High	57.2	789.2	10.5	Sm. inc.	Lg. inc.	Medium	Abundant	Very Good	Very Good			1	4
longleaf pine	Pinus palustris	NSH	Medium	29	727.3	16.2	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			1	5
turkey oak	Quercus laevis	NSH	Medium	23.2	463.9	16.0	Sm. dec.	Sm. dec.	High	Common	Fair	Fair			1	6
sweetgum	Liquidambar styraciflua	WDH	High	45.1	437.9	7.7	No change	No change	Medium	Common	Fair	Fair			1	7
water oak	Quercus nigra	WDH	High	47.8	406.9	6.7	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	8
pond cypress	Taxodium ascendens	NSH	Medium	25.8	394.7	10.5	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	9
red maple	Acer rubrum	WDH	High	30.5	194.6	3.5	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	10
cabbage palmetto	Sabal palmetto	NDH	Medium	16.5	188.5	5.9	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			0	11
sand pine	Pinus clausa	NDH	High	5.6	187.8	6.5	No change	No change	Low	Common	Poor	Poor	Infill +	Infill +	0	12
swamp tupelo	Nyssa biflora	NDH	Medium	26.4	185.1	3.9	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	13
black cherry	Prunus serotina	WDL	Medium	30.5	155.2	4.1	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	14
bald cypress	Taxodium distichum	NSH	Medium	13.7	132.6	5.1	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	15
bluejack oak	Quercus incana	NSL	Low	9.3	94.8	7.1	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	16
redbay	Persea borbonia	NSL	Low	25.1	91.4	2.4	No change	Sm. inc.	High	Common	Good	Very Good			1	17
loblolly-bay	Gordonia lasianthus	NSH	Medium	11.4	90.5	5.9	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	18
American hornbeam; musclev	Carpinus caroliniana	WSL	Low	19	82.8	4.0	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	19
pignut hickory	Carya glabra	WDL	Medium	12.9	81.6	4.8	Lg. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	20
sweetbay	Magnolia virginiana	NSL	Medium	16.7	56.7	2.4	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	21
common persimmon	Diospyros virginiana	NSL	Low	7.4	51.3	3.9	Sm. dec.	Sm. dec.	High	Common	Fair	Fair			1	22
American elm	Ulmus americana	WDH	Medium	20.2	50.6	1.7	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	23
pumpkin ash	Fraxinus profunda	NSH	FIA	6.6	46.9	5.2	Unknown	Unknown	NA	Rare	FIA Only	FIA Only			0	24
water tupelo	Nyssa aquatica	NSH	Medium	1	35.8	9.7	No change	Sm. dec.	Low	Rare	Very Poor	Very Poor			2	25
southern magnolia	Magnolia grandiflora	NSL	Low	7.9	34.9	3.0	No change	No change	Medium	Rare	Poor	Poor			1	26
blackgum	Nyssa sylvatica	WDL	Medium	10.1	29.6	1.9	Lg. inc.	Lg. inc.	High	Rare	Good	Good			1	27
florida maple	Acer barbatum	NSL	Low	3.9	24.8	6.4	Sm. dec.	Lg. dec.	High	Rare	Poor	Poor			0	28
post oak	Quercus stellata	WDH	High	6.9	23.5	2.9	No change	Lg. inc.	High	Rare	Fair	Good	Infill +	Infill ++	2	29
river birch	Betula nigra	NSL	Low	2.1	18.5	5.0	No change	No change	Medium	Rare	Poor	Poor		Infill +	2	30
mockernut hickory	Carya alba	WDL	Medium	4.3	18.3	3.8	Sm. dec.	No change	High	Rare	Poor	Fair	Infill +	Infill +	1	31
Carolina ash	Fraxinus caroliniana	NSL	FIA	6.2	18.3	2.4	Unknown	Unknown	NA	Rare	FIA Only	FIA Only			0	32
sugarberry	Celtis laevigata	NDH	Medium	8.7	16.8	1.2	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good		Infill ++	1	33
southern red oak	Quercus falcata	WDL	Medium	3.4	15.4	3.8	No change	Sm. inc.	High	Rare	Fair	Good	Infill +	Infill ++	2	34
green ash	Fraxinus pennsylvanica	WSH	Low	4.3	14.7	1.3	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	35
swamp chestnut oak	Quercus michauxii	NSL	Low	4.7	13.9	2.2	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	36
eastern redcedar	Juniperus virginiana	WDH	Medium	9.4	13.9	1.8	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	37
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	3.4	13.1	2.4	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			1	38
flowering dogwood	Cornus florida	WDL	Medium	8.2	12.7	1.4	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	39
American holly	Ilex opaca	NSL	Medium	4.9	9.9	1.5	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	40
blackjack oak	Quercus marilandica	NSL	Medium	1	8.4	8.7	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor		Infill +	2	41
winged elm	Ulmus alata	WDL	Medium	6.3	7.5	0.9	Sm. dec.	No change	Medium	Rare	Very Poor	Poor		Infill +	1	42
American beech	Fagus grandifolia	WDH	High	1.9	5.8	3.0	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	43
spruce pine	Pinus glabra	NSL	Low	2.9	5.5	1.9	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	44
overcup oak	Quercus lyrata	NSL	Medium	1	4.6	4.8	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	45
red mulberry	Morus rubra	NSL	Low	0.5	4.5	2.4	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	46
pond pine	Pinus serotina	NSH	Medium	0.6	4.2	0.7	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	2	47



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Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIaiv	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
white ash	Fraxinus americana	WDL	Medium	0.3	4.1	1.3	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	48
water hickory	Carya aquatica	NSL	Medium	1	4.0	4.1	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	49
hackberry	Celtis occidentalis	WDH	Medium	2.6	3.6	1.9	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	50
honeylocust	Gleditsia triacanthos	NSH	Low	1	3.1	3.2	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	51
pecan	Carya illinoensis	NSH	Low	1	2.8	2.9	Sm. dec.	No change	Low	Rare	Very Poor	Very Poor			2	52
Shumard oak	Quercus shumardii	NSL	Low	1	2.6	2.7	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	53
cedar elm	Ulmus crassifolia	NDH	Medium	1	1.0	1.0	No change	Lg. inc.	Low	Rare	Very Poor	Fair	Infill +		2	54
cucumbertree	Magnolia acuminata	NSL	Low	0.6	0.7	0.4	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	55
eastern redbud	Cercis canadensis	NSL	Low	1	0.2	0.2	Sm. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	56
Atlantic white-cedar	Chamaecyparis thyoides	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	57
shortleaf pine	Pinus echinata	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	58
silver maple	Acer saccharinum	NSH	Low	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	59
serviceberry	Amelanchier spp.	NSL	Low	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat			3	60
pawpaw	Asimina triloba	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	61
gray birch	Betula populifolia	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	62
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			0	63
shagbark hickory	Carya ovata	WSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	64
black hickory	Carya texana	NDL	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	65
black ash	Fraxinus nigra	WSH	Medium	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	66
silverbell	Halesia spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	67
Osage-orange	Maclura pomifera	NDH	Medium	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	68
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	69
sourwood	Oxydendrum arboreum	NDL	High	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	70
water elm	Planera aquatica	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	71
pin cherry	Prunus pensylvanica	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	72
white oak	Quercus alba	WDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +		3	73
scarlet oak	Quercus coccinea	WDL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	74
cherrybark oak; swamp red o.	Quercus pagoda	NSL	Medium	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat			3	75
nuttall oak	Quercus texana	NSH	Medium	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	76
willow oak	Quercus phellos	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +		3	77
black locust	Robinia pseudoacacia	NDH	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	78
black willow	Salix nigra	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate +		3	79
sassafras	Sassafras albidum	WSL	Low	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat	Migrate +		3	80
American mountain-ash	Sorbus americana	NSL	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	81
American basswood	Tilia americana	WSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	82