

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	10,300	3,976.8	384

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	20	RCP45	RCP85	RCP45	RCP85	RCP45	RCP85				
Ash	3					Increase	26	31	Very Good	9	10	Likely	0	0	
Hickory	5			Medium	35	54	No Change	16	14	Good	17	19	Infill	11	15
Maple	2	Abundant	5	Low	34	12	Decrease	22	19	Fair	7	8	Migrate	0	1
Oak	15	Common	18	FIA	4		New	7	8	Poor	17	14			
Pine	7	Rare	45				Unknown	17	16	Very Poor	10	9			
Other	36	Absent	19							FIA Only	4	4			
	68		87		88	86		88	88	Unknown	13	12			
											77	76			

Potential Changes in Climate Variables

Temperature (°F)

Scenario	2009	2039	2069	2099	
Annual	67.4	68.9	70.7	70.7	
Average	67.4	69.1	71.4	73.8	
GFDL45	67.4	70.1	71.9	72.6	
GFDL85	67.4	69.9	72.9	76.4	
HAD45	67.4	69.4	71.9	73.3	
HAD85	67.4	69.8	73.1	76.8	
Growing Season	78.8	80.0	81.4	81.8	
May—Sep	78.8	80.1	82.4	85.2	
GFDL45	78.8	81.4	83.2	84.3	
GFDL85	78.8	81.4	84.3	88.3	
HAD45	78.8	81.8	83.8	85.4	
HAD85	78.8	81.8	86.4	89.6	
Coldest Month	49.6	51.9	52.8	52.4	
Average	49.6	51.5	52.7	53.9	
GFDL45	49.6	52.5	52.8	53.2	
GFDL85	49.6	51.8	53.0	53.7	
HAD45	49.6	49.7	51.0	51.9	
HAD85	49.6	50.6	51.6	53.5	
Warmest Month	81.8	83.1	83.8	84.1	
Average	81.8	83.1	84.4	86.0	
GFDL45	81.8	84.2	84.9	85.6	
GFDL85	81.8	84.2	85.5	87.7	
HAD45	81.8	85.3	86.5	87.2	
HAD85	81.8	85.4	88.0	89.5	

Precipitation (in)

Scenario	2009	2039	2069	2099	
Annual	56.2	60.4	61.8	63.4	
Total	56.2	59.1	63.7	65.9	
GFDL45	56.2	62.4	65.2	67.6	
GFDL85	56.2	61.4	67.3	64.2	
HAD45	56.2	53.6	57.6	60.1	
HAD85	56.2	56.8	52.2	55.3	
Growing Season	27.1	30.3	30.9	31.4	
May—Sep	27.1	28.4	32.1	32.6	
GFDL45	27.1	32.8	34.1	34.5	
GFDL85	27.1	32.7	37.2	35.7	
HAD45	27.1	26.3	27.3	27.4	
HAD85	27.1	26.4	22.4	23.4	

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-DPC30 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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Current and Potential Future Habitat, Capability, and Migration

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	78	2447.1	29.8	No change	No change	Medium	Abundant	Good	Good			1	1
loblolly pine	Pinus taeda	WDH	High	67.1	1593.1	23.4	No change	No change	Medium	Abundant	Good	Good			1	2
longleaf pine	Pinus palustris	NSH	Medium	47.8	772.4	15.0	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			1	3
swamp tupelo	Nyssa biflora	NDH	Medium	55	540.9	9.1	No change	Sm. inc.	Low	Abundant	Fair	Good			1	4
laurel oak	Quercus laurifolia	NDH	Medium	61.7	536.4	8.5	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			1	5
water oak	Quercus nigra	WDH	High	71.9	498.6	6.7	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	6
sweetgum	Liquidambar styraciflua	WDH	High	60.1	419.4	6.9	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	7
sand pine	Pinus clausa	NDH	High	9.4	375.1	26.4	No change	No change	Low	Common	Poor	Poor			0	8
sweetbay	Magnolia virginiana	NSL	Medium	51.6	349.7	6.4	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	9
live oak	Quercus virginiana	NDH	High	46.7	293.1	6.0	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	10
pond cypress	Taxodium ascendens	NSH	Medium	26.7	224.6	7.6	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	11
shortleaf pine	Pinus echinata	WDH	High	18.5	208.7	12.8	No change	Sm. inc.	Medium	Common	Fair	Good			1	12
pond pine	Pinus serotina	NSH	Medium	21	189.0	8.8	Sm. dec.	Sm. dec.	Low	Common	Poor	Poor			0	13
black cherry	Prunus serotina	WDL	Medium	38	172.7	4.5	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	14
yellow-poplar	Liriodendron tulipifera	WDH	High	23.7	133.1	5.4	Sm. dec.	Sm. dec.	High	Common	Fair	Fair			1	15
red maple	Acer rubrum	WDH	High	38.5	127.5	3.1	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	16
bald cypress	Taxodium distichum	NSH	Medium	13.7	90.5	5.6	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good	Infill ++	Infill ++	1	17
turkey oak	Quercus laevis	NSH	Medium	19	77.5	3.6	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	18
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	3.8	65.4	16.8	Lg. dec.	Sm. dec.	High	Common	Fair	Fair			1	19
blackgum	Nyssa sylvatica	WDL	Medium	36.4	64.6	1.8	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	20
spruce pine	Pinus glabra	NSL	Low	16.1	59.5	3.6	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	21
loblolly-bay	Gordonia lasianthus	NSH	Medium	14.2	59.3	4.0	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	22
southern magnolia	Magnolia grandiflora	NSL	Low	21.5	53.9	2.3	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	23
black willow	Salix nigra	NSH	Low	5.6	46.5	7.9	Sm. dec.	No change	Low	Rare	Very Poor	Very Poor			0	24
southern red oak	Quercus falcata	WDL	Medium	15.1	40.2	2.6	Lg. inc.	Lg. inc.	High	Rare	Good	Good			1	25
white oak	Quercus alba	WDH	Medium	10.9	38.5	4.4	Sm. dec.	No change	High	Rare	Poor	Fair	Infill +	Infill +	1	26
water tupelo	Nyssa aquatica	NSH	Medium	14	38.2	2.4	No change	No change	Low	Rare	Very Poor	Very Poor			0	27
green ash	Fraxinus pennsylvanica	WSH	Low	10.1	38.1	3.4	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good			1	28
pignut hickory	Carya glabra	WDL	Medium	10.4	33.6	3.0	No change	Sm. inc.	Medium	Rare	Poor	Fair	Infill +	Infill +	1	29
flowering dogwood	Cornus florida	WDL	Medium	18.6	32.8	2.0	No change	No change	Medium	Rare	Poor	Poor			1	30
redbay	Persea borbonia	NSL	Low	22	32.5	1.4	Sm. inc.	Sm. inc.	High	Rare	Good	Good			1	31
bluejack oak	Quercus incana	NSL	Low	12.5	28.8	2.3	No change	Sm. inc.	Medium	Rare	Poor	Fair	Infill +	Infill +	1	32
Atlantic white-cedar	Chamaecyparis thyoides	NSH	Low	6.6	28.5	4.1	No change	No change	Low	Rare	Very Poor	Very Poor			0	33
American hornbeam; muscle	Carpinus caroliniana	WSL	Low	12.2	26.5	2.0	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	34
cabbage palmetto	Sabal palmetto	NDH	Medium	5.4	23.5	3.8	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			0	35
common persimmon	Diospyros virginiana	NSL	Low	17.5	21.6	1.1	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			1	36
mockernut hickory	Carya alba	WDL	Medium	16.6	19.5	1.4	Sm. inc.	Lg. inc.	High	Rare	Good	Good			1	37
post oak	Quercus stellata	WDH	High	5.8	19.3	3.3	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	38
swamp chestnut oak	Quercus michauxii	NSL	Low	9.7	18.7	1.9	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	39
pecan	Carya illinoensis	NSH	Low	5.6	18.0	2.9	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	40
American holly	Ilex opaca	NSL	Medium	17.9	17.2	0.9	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	41
American beech	Fagus grandifolia	WDH	High	3.9	13.8	3.6	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	42
willow oak	Quercus phellos	NSL	Low	2.9	9.5	3.3	Sm. dec.	No change	Medium	Rare	Very Poor	Poor		Infill +	2	43
slippery elm	Ulmus rubra	WSL	Low	1	8.6	8.7	No change	No change	Medium	Rare	Poor	Poor		Infill +	2	44
sugarberry	Celtis laevigata	NDH	Medium	4.2	8.5	4.8	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	45
eastern redbud	Cercis canadensis	NSL	Low	4.6	8.2	1.6	No change	Sm. dec.	Medium	Rare	Poor	Very Poor	Infill +		1	46
American elm	Ulmus americana	WDH	Medium	8.7	6.5	0.7	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	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
Carolina ash	Fraxinus caroliniana	NSL	FIA	4.7	5.8	1.2	Unknown	Unknown	NA	Rare	FIA Only	FIA Only			0	48
sourwood	Oxydendrum arboreum	NDL	High	3.9	4.8	1.2	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			0	49
sassafras	Sassafras albidum	WSL	Low	7	4.6	1.0	No change	No change	Medium	Rare	Poor	Poor		Infill +	1	50
florida maple	Acer barbatum	NSL	Low	3.9	4.4	1.1	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	51
eastern redcedar	Juniperus virginiana	WDH	Medium	1.9	3.2	1.7	No change	Sm. inc.	Medium	Rare	Poor	Fair	Infill +	Infill +	2	52
hackberry	Celtis occidentalis	WDH	Medium	1.9	3.1	1.6	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor		Infill +	2	53
river birch	Betula nigra	NSL	Low	2.7	2.7	0.9	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	54
red mulberry	Morus rubra	NSL	Low	1.9	2.2	1.1	Sm. dec.	No change	Medium	Rare	Very Poor	Poor		Infill +	2	55
black oak	Quercus velutina	WDH	High	1	2.0	2.0	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	56
water elm	Planera aquatica	NSL	Low	1.9	1.1	0.6	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	57
wild plum	Prunus americana	NSLX	FIA	1.9	1.1	0.5	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	58
sycamore	Platanus occidentalis	NSL	Low	1	0.9	1.0	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	59
pumpkin ash	Fraxinus profunda	NSH	FIA	0.8	0.9	0.7	Unknown	Unknown	NA	Rare	FIA Only	FIA Only			0	60
Shumard oak	Quercus shumardii	NSL	Low	0.8	0.8	0.6	No change	No change	High	Rare	Fair	Fair			0	61
cherrybark oak; swamp red o.	Quercus pagoda	NSL	Medium	1	0.6	0.6	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	62
overcup oak	Quercus lyrata	NSL	Medium	1	0.5	0.6	Very Lg. dec.	Very Lg. dec.	Low	Rare	Lost	Lost			0	63
waterlocust	Gleditsia aquatica	NSLX	FIA	1	0.5	0.5	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	64
water hickory	Carya aquatica	NSL	Medium	1	0.4	0.4	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	65
bitternut hickory	Carya cordiformis	WSL	Low	1	0.4	0.4	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			0	66
winged elm	Ulmus alata	WDL	Medium	1	0.3	0.3	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	67
blackjack oak	Quercus marilandica	NSL	Medium	1	0.2	0.2	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	68
Table Mountain pine	Pinus pungens	NSL	Low	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	69
Virginia pine	Pinus virginiana	NDH	High	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	70
silver maple	Acer saccharinum	NSH	Low	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	71
serviceberry	Amelanchier spp.	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	72
pawpaw	Asimina triloba	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	73
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	74
shellbark hickory	Carya laciniosa	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	75
shagbark hickory	Carya ovata	WSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	76
black hickory	Carya texana	NDL	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	77
white ash	Fraxinus americana	WDL	Medium	0	0	0	Unknown	Unknown	Low	Modeled	Unknown	Unknown			0	78
black ash	Fraxinus nigra	WSH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			0	79
silverbell	Halesia spp.	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	80
cucumbertree	Magnolia acuminata	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	81
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	82
pin cherry	Prunus pensylvanica	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	83
scarlet oak	Quercus coccinea	WDL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	84
chinkapin oak	Quercus muehlenbergii	NSL	Medium	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat			3	85
black locust	Robinia pseudoacacia	NDH	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	86
American basswood	Tilia americana	WSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	87
cedar elm	Ulmus crassifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat		Migrate ++	3	88