

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
 7,010.7 2,706.8 195

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	2			High	15	18	Increase	22	25	Very Good	4	6	Likely	0	0
Hickory	4			Medium	32	44	No Change	10	11	Good	20	20	Infill	15	17
Maple	2	Abundant	5	Low	23	8	Decrease	26	22	Fair	4	9	Migrate	3	3
Oak	16	Common	13	FIA	1		New	7	7	Poor	12	8			
Pine	5	Rare	41				Unknown	6	6	Very Poor	10	10			
Other	30	Absent	9							FIA Only	1	1			
	59		68		71	70		71	71	Unknown	5	5			
											56	59			

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	61.8	63.4	65.2	65.3	
	CCSM85	61.8	63.7	65.9	68.5	
	GFDL45	61.8	64.8	66.5	67.5	
	GFDL85	61.8	64.5	67.7	71.1	
	HAD45	61.8	63.5	66.1	67.3	
HAD85	61.8	63.8	66.7	70.3		
Growing Season (May—Sep)	CCSM45	75.3	76.7	78.2	78.6	
	CCSM85	75.3	76.8	79.1	82.1	
	GFDL45	75.3	78.4	80.3	81.6	
	GFDL85	75.3	78.3	81.7	85.4	
	HAD45	75.3	77.3	79.4	80.8	
HAD85	75.3	77.3	80.7	84.2		
Coldest Month Average	CCSM45	41.6	43.9	44.7	44.9	
	CCSM85	41.6	44.0	44.9	46.2	
	GFDL45	41.6	44.9	45.3	46.0	
	GFDL85	41.6	43.6	44.6	45.7	
	HAD45	41.6	42.0	43.8	44.2	
HAD85	41.6	42.3	43.6	45.1		
Warmest Month Average	CCSM45	80.1	81.5	82.3	82.4	
	CCSM85	80.1	81.7	83.2	84.4	
	GFDL45	80.1	82.6	83.6	84.5	
	GFDL85	80.1	83.3	84.9	87.0	
	HAD45	80.1	82.3	83.6	84.1	
HAD85	80.1	82.6	84.5	86.5		

Precipitation (in)

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	51.1	56.3	58.0	57.6	
	CCSM85	51.1	56.5	58.3	64.7	
	GFDL45	51.1	54.4	57.5	60.3	
	GFDL85	51.1	53.5	58.0	58.2	
	HAD45	51.1	54.2	53.3	52.0	
HAD85	51.1	56.2	51.6	48.6		
Growing Season (May—Sep)	CCSM45	26.2	31.8	32.5	32.5	
	CCSM85	26.2	30.0	32.0	35.7	
	GFDL45	26.2	27.8	30.0	31.9	
	GFDL85	26.2	27.0	30.8	31.6	
	HAD45	26.2	28.1	26.8	24.7	
HAD85	26.2	29.1	25.2	21.7		

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	80.1	4159.8	31.4	No change	No change	Medium	Abundant	Good	Good			1	1
red maple	Acer rubrum	WDH	High	83.4	1340.4	10.5	Sm. dec.	Sm. dec.	High	Abundant	Good	Good			1	2
sweetgum	Liquidambar styraciflua	WDH	High	78.6	1170.0	10.6	No change	No change	Medium	Abundant	Good	Good			1	3
pond pine	Pinus serotina	NSH	Medium	34.8	800.5	16.6	No change	No change	Low	Abundant	Fair	Fair			0	4
swamp tupelo	Nyssa biflora	NDH	Medium	53.9	616.9	6.5	Sm. inc.	No change	Low	Abundant	Good	Fair			1	5
redbay	Persea borbonia	NSL	Low	66.3	332.1	2.9	No change	No change	High	Common	Good	Good			1	6
yellow-poplar	Liriodendron tulipifera	WDH	High	37.5	213.5	4.6	Sm. dec.	Sm. dec.	High	Common	Fair	Fair			1	7
pond cypress	Taxodium ascendens	NSH	Medium	12.6	192.5	13.5	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor	Infill +	Infill +	2	8
loblolly-bay	Gordonia lasianthus	NSH	Medium	18	184.8	8.9	No change	No change	Medium	Common	Fair	Fair			1	9
green ash	Fraxinus pennsylvanica	WSH	Low	24	170.5	5.5	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	10
sweetbay	Magnolia virginiana	NSL	Medium	50.4	153.7	2.1	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	11
bald cypress	Taxodium distichum	NSH	Medium	18.5	146.5	3.1	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good	Infill ++	Infill ++	1	12
water oak	Quercus nigra	WDH	High	48.7	130.8	1.7	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	13
water tupelo	Nyssa aquatica	NSH	Medium	6.5	125.2	9.0	No change	No change	Low	Common	Poor	Poor	Infill +	Infill +	2	14
Atlantic white-cedar	Chamaecyparis thyoides	NSH	Low	11.9	76.3	4.8	Lg. dec.	Lg. dec.	Low	Common	Very Poor	Very Poor			2	15
black willow	Salix nigra	NSH	Low	13.3	66.8	6.7	No change	Lg. inc.	Low	Common	Poor	Good	Infill +	Infill ++	1	16
white oak	Quercus alba	WDH	Medium	16.4	59.0	1.7	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good	Infill ++	Infill ++	1	17
blackgum	Nyssa sylvatica	WDL	Medium	21.7	50.9	1.8	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	18
laurel oak	Quercus laurifolia	NDH	Medium	20.5	48.6	2.2	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	19
American elm	Ulmus americana	WDH	Medium	19.6	48.1	1.6	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1	20
American holly	Ilex opaca	NSL	Medium	29.5	47.9	0.9	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	21
willow oak	Quercus phellos	NSL	Low	15.8	44.4	2.5	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1	22
American hornbeam; muscle	Carpinus caroliniana	WSL	Low	15.5	43.4	2.0	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	23
black cherry	Prunus serotina	WDL	Medium	17.7	40.0	1.7	Sm. inc.	Lg. inc.	Low	Rare	Poor	Fair			1	24
slippery elm	Ulmus rubra	WSL	Low	3.5	30.4	7.1	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			2	25
sourwood	Oxydendrum arboreum	NDL	High	7.9	29.0	1.0	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor	Infill +		1	26
southern red oak	Quercus falcata	WDL	Medium	11.7	29.0	1.6	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	1	27
eastern redcedar	Juniperus virginiana	WDH	Medium	3.1	28.6	3.3	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	28
slash pine	Pinus elliotii	NDH	High	2.2	25.5	8.7	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	29
post oak	Quercus stellata	WDH	High	3.3	18.1	1.0	Sm. dec.	Lg. inc.	High	Rare	Poor	Good	Infill +		2	30
swamp chestnut oak	Quercus michauxii	NSL	Low	12.3	16.6	1.0	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1	31
flowering dogwood	Cornus florida	WDL	Medium	6.1	8.1	0.7	No change	No change	Medium	Rare	Poor	Poor	Infill +		1	32
Virginia pine	Pinus virginiana	NDH	High	2.9	7.9	2.8	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	33
Shumard oak	Quercus shumardii	NSL	Low	2.4	7.6	2.2	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	34
black walnut	Juglans nigra	WDH	Low	0.7	7.5	2.6	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	35
black oak	Quercus velutina	WDH	High	5.3	6.9	0.6	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	36
American beech	Fagus grandifolia	WDH	High	3.7	6.3	0.3	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			2	37
cucumbertree	Magnolia acuminata	NSL	Low	2.1	6.1	1.5	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	38
cherrybark oak; swamp red o	Quercus pagoda	NSL	Medium	2.8	5.8	0.5	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good		Infill ++	2	39
eastern cottonwood	Populus deltoides	NSH	Low	2.2	5.5	1.2	Sm. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	40
live oak	Quercus virginiana	NDH	High	1.1	4.8	2.5	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	41
common persimmon	Diospyros virginiana	NSL	Low	4.6	4.5	0.4	Very Lg. dec.	Lg. dec.	High	Rare	Lost	Poor		Infill +	1	42
longleaf pine	Pinus palustris	NSH	Medium	2.2	4.5	0.6	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	43
overcup oak	Quercus lyrata	NSL	Medium	1.4	4.3	0.8	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	2	44
sycamore	Platanus occidentalis	NSL	Low	0.7	3.9	1.3	No change	Sm. inc.	Medium	Rare	Poor	Fair		Infill +	2	45
mockernut hickory	Carya alba	WDL	Medium	4.2	3.3	0.4	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	46
northern red oak	Quercus rubra	WDH	Medium	1.9	2.6	0.2	Very Lg. dec.	Very Lg. dec.	High	Rare	Lost	Lost			0	47



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shagbark hickory	<i>Carya ovata</i>	WSL	Medium	0.6	1.9	0.5	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost				0	48
water hickory	<i>Carya aquatica</i>	NSL	Medium	1.3	1.8	0.3	No change	Lg. inc.	Medium	Rare	Poor	Good	Infill +			2	49
pumpkin ash	<i>Fraxinus profunda</i>	NSH	FIA	5.6	1.2	0.4	Unknown	Unknown	NA	Rare	FIA Only	FIA Only				0	50
pignut hickory	<i>Carya glabra</i>	WDL	Medium	1.7	1.2	0.3	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost				0	51
sassafras	<i>Sassafras albidum</i>	WSL	Low	1.4	1.1	0.8	Very Lg. dec.	No change	Medium	Rare	Lost	Poor	Infill +			2	52
boxelder	<i>Acer negundo</i>	WSH	Low	1.6	1.1	0.1	Sm. dec.	No change	High	Rare	Poor	Fair	Infill +			2	53
eastern hophornbeam; ironw	<i>Ostrya virginiana</i>	WSL	Low	1.4	1.0	0.7	Very Lg. dec.	No change	High	Rare	Lost	Fair	Infill +			2	54
scarlet oak	<i>Quercus coccinea</i>	WDL	Medium	0.8	0.9	0.4	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost				0	55
blackjack oak	<i>Quercus marilandica</i>	NSL	Medium	0.4	0.8	0.2	Very Lg. dec.	Very Lg. dec.	High	Rare	Lost	Lost				0	56
chestnut oak	<i>Quercus prinus</i>	NDH	High	1.4	0.6	0.4	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor				0	57
bigleaf magnolia	<i>Magnolia macrophylla</i>	NSL	Low	1.1	0.5	0.3	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor				0	58
winged elm	<i>Ulmus alata</i>	WDL	Medium	1.4	0.2	0.2	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good				2	59
shortleaf pine	<i>Pinus echinata</i>	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++			3	60
spruce pine	<i>Pinus glabra</i>	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				3	61
striped maple	<i>Acer pensylvanicum</i>	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0	62
sugar maple	<i>Acer saccharum</i>	WDH	High	0	0	0	Unknown	Unknown	High	Modeled	Unknown	Unknown				0	63
serviceberry	<i>Amelanchier spp.</i>	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				3	64
sugarberry	<i>Celtis laevigata</i>	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++		3	65
southern magnolia	<i>Magnolia grandiflora</i>	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +		3	66
red mulberry	<i>Morus rubra</i>	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown				0	67
pin cherry	<i>Prunus pensylvanica</i>	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0	68
turkey oak	<i>Quercus laevis</i>	NSH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +			3	69
chinkapin oak	<i>Quercus muehlenbergii</i>	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown				0	70
cedar elm	<i>Ulmus crassifolia</i>	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat				0	71