

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	1,126.0	434.7	22

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	16	RCP45	RCP85	RCP45	RCP85	RCP45	RCP85			
Ash	0			Medium	22	Increase	13	12	Very Good	4	4	Likely	1	1
Hickory	2			Low	16	No Change	3	3	Good	11	9	Infill	6	6
Maple	1	Abundant	3	FIA	1	Decrease	5	6	Fair	2	3	Migrate	11	15
Oak	7	Common	11			New	28	28	Poor	1	2		18	22
Pine	3	Rare	8			Unknown	7	7	Very Poor	2	3			
Other	9	Absent	29						FIA Only	1	1			
	22		51				56	56	Unknown	6	6			
										27	28			

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	52.1	53.8	55.6	55.8	
	CCSM85	52.1	54.1	56.4	59.1	
	GFDL45	52.1	56.1	57.3	58.4	
	GFDL85	52.1	55.0	58.5	62.3	
	HAD45	52.1	54.1	57.4	59.0	
	HAD85	52.1	54.0	58.1	62.3	
Growing Season (May—Sep)	CCSM45	67.3	69.0	70.5	70.8	
	CCSM85	67.3	69.1	71.4	74.4	
	GFDL45	67.3	71.6	73.1	74.2	
	GFDL85	67.3	70.5	74.3	78.2	
	HAD45	67.3	69.4	72.4	74.2	
	HAD85	67.3	68.6	73.1	77.3	
Coldest Month Average	CCSM45	29.7	31.3	32.8	33.4	
	CCSM85	29.7	32.2	33.2	35.0	
	GFDL45	29.7	32.9	34.0	34.8	
	GFDL85	29.7	32.7	34.2	36.2	
	HAD45	29.7	30.4	32.8	33.1	
	HAD85	29.7	31.5	33.4	36.1	
Warmest Month Average	CCSM45	73.7	75.3	76.1	76.0	
	CCSM85	73.7	75.3	76.8	78.2	
	GFDL45	73.7	76.4	77.9	78.8	
	GFDL85	73.7	77.1	79.3	81.7	
	HAD45	73.7	76.0	77.2	78.1	
	HAD85	73.7	75.1	77.1	79.7	

Precipitation (in)

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	47.9	48.5	49.2	53.5	
	CCSM85	47.9	50.3	52.0	54.7	
	GFDL45	47.9	52.4	55.8	54.0	
	GFDL85	47.9	51.6	54.6	57.2	
	HAD45	47.9	49.3	52.8	52.4	
	HAD85	47.9	54.2	52.4	55.1	
Growing Season (May—Sep)	CCSM45	19.0	21.7	21.0	22.6	
	CCSM85	19.0	21.2	21.9	21.2	
	GFDL45	19.0	19.5	19.7	20.7	
	GFDL85	19.0	20.1	20.0	21.1	
	HAD45	19.0	19.9	19.5	18.5	
	HAD85	19.0	21.0	19.1	19.7	

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
pitch pine	Pinus rigida	NSH	High	70.7	3452.9	36.7	Lg. dec.	Lg. dec.	Medium	Abundant	Fair	Fair			0	1
scarlet oak	Quercus coccinea	WDL	Medium	73.6	1641.4	11.8	No change	Sm. dec.	Medium	Abundant	Good	Fair			1	2
white oak	Quercus alba	WDH	Medium	66.3	760.0	5.1	No change	No change	High	Abundant	Very Good	Very Good			1	3
eastern redcedar	Juniperus virginiana	WDH	Medium	12.3	452.1	20.7	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	4
black cherry	Prunus serotina	WDL	Medium	45.4	334.0	5.7	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	5
black oak	Quercus velutina	WDH	High	45.8	270.8	2.5	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	6
red maple	Acer rubrum	WDH	High	48.5	237.2	3.4	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	7
chestnut oak	Quercus prinus	NDH	High	5.1	121.1	7.8	No change	No change	High	Common	Good	Good	Infill ++	Infill ++	2	8
sassafras	Sassafras albidum	WSL	Low	51.2	115.7	1.4	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	9
black walnut	Juglans nigra	WDH	Low	3.4	111.0	4.8	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	10
American beech	Fagus grandifolia	WDH	High	14.5	88.1	4.6	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good	Infill ++	Infill ++	1	11
pignut hickory	Carya glabra	WDL	Medium	33.6	87.0	1.3	Sm. inc.	Sm. inc.	Medium	Common	Good	Good	Infill ++	Infill ++	1	12
eastern white pine	Pinus strobus	WDH	High	20.9	62.4	3.4	Lg. inc.	Lg. dec.	Low	Common	Good	Very Poor	Infill ++		1	13
bear oak; scrub oak	Quercus ilicifolia	NSLX	FIA	28.9	61.3	1.7	Unknown	Unknown	Medium	Common	FIA Only	FIA Only			0	14
black locust	Robinia pseudoacacia	NDH	Low	20.9	41.1	2.0	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	15
northern red oak	Quercus rubra	WDH	Medium	10.9	40.2	1.5	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	1	16
serviceberry	Amelanchier spp.	NSL	Low	8.7	23.1	2.6	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	17
blackgum	Nyssa sylvatica	WDL	Medium	5.9	12.0	0.9	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	18
flowering dogwood	Cornus florida	WDL	Medium	20.9	9.4	0.5	Very Lg. dec.	No change	Medium	Rare	Lost	Poor		Infill +	1	19
mockernut hickory	Carya alba	WDL	Medium	5.8	6.2	0.5	Sm. inc.	Lg. inc.	High	Rare	Good	Good			2	20
red pine	Pinus resinosa	NSH	Medium	15.1	3.4	0.6	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	21
post oak	Quercus stellata	WDH	High	5.1	3.3	0.2	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	22
Atlantic white-cedar	Chamaecyparis thyoides	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	23
shortleaf pine	Pinus echinata	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	24
longleaf pine	Pinus palustris	NSH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	25
Table Mountain pine	Pinus pungens	NSL	Low	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	26
loblolly pine	Pinus taeda	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	27
Virginia pine	Pinus virginiana	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	28
bald cypress	Taxodium distichum	NSH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	29
striped maple	Acer pensylvanicum	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	30
silver maple	Acer saccharinum	NSH	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	31
sugar maple	Acer saccharum	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate ++	3	32
sweet birch	Betula lenta	NDH	High	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Likely +	Likely +	3	33
American hornbeam; muscle	Carpinus caroliniana	WSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	34
black hickory	Carya texana	NDL	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	35
sugarberry	Celtis laevigata	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	36
hackberry	Celtis occidentalis	WDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	37
eastern redbud	Cercis canadensis	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	38
common persimmon	Diospyros virginiana	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	39
white ash	Fraxinus americana	WDL	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	40
green ash	Fraxinus pennsylvanica	WSH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	41
American holly	Ilex opaca	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	42
sweetgum	Liquidambar styraciflua	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	43
yellow-poplar	Liriodendron tulipifera	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	44
cucumbertree	Magnolia acuminata	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	45
swamp tupelo	Nyssa biflora	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	46
sourwood	Oxydendrum arboreum	NDL	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	47



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sycamore	Platanus occidentalis	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	48
bigtooth aspen	Populus grandidentata	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate +	3	49
southern red oak	Quercus falcata	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	50
blackjack oak	Quercus marilandica	NSL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	51
water oak	Quercus nigra	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	52
willow oak	Quercus phellos	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	53
bluejack oak	Quercus incana	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	54
winged elm	Ulmus alata	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	55
slippery elm	Ulmus rubra	WSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	56