

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 10,306 3,979.1 362

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	23	Increase	RCP45	RCP85	Very Good	12	17	Likely	3	2
Ash	2			Medium	33	No Change	13	12	Good	19	20	Infill	13	17
Hickory	8			Low	36	Decrease	22	17	Fair	10	9	Migrate	3	3
Maple	4	Abundant	4	FIA	3	New	12	12	Poor	14	10			
Oak	18	Common	23			Unknown	5	5	Very Poor	12	11			
Pine	4	Rare	45						FIA Only	1	1			
Other	36	Absent	13						Unknown	2	2			
	72		85				86	86					19	22

Potential Changes in Climate Variables

Temperature (°F)

Scenario	2009	2039	2069	2099	
Annual	62.1	63.7	65.7	66.0	
Average	62.1	64.2	66.7	69.2	
GFDL45	62.1	65.0	66.7	67.5	
GFDL85	62.1	64.7	67.8	71.2	
HAD45	62.1	64.6	67.5	68.7	
HAD85	62.1	64.8	69.2	72.9	
Growing Season	75.9	77.5	79.1	79.6	
May—Sep	75.9	79.2	81.0	82.7	
GFDL45	75.9	78.9	82.4	86.5	
GFDL85	75.9	79.4	82.1	83.2	
HAD45	75.9	79.4	82.1	83.2	
HAD85	75.9	79.5	85.9	89.1	
Coldest Month	41.1	43.3	44.5	44.5	
Average	41.1	43.9	45.2	46.5	
GFDL45	41.1	45.1	45.0	45.1	
GFDL85	41.1	42.8	43.9	44.3	
HAD45	41.1	41.5	43.5	44.1	
HAD85	41.1	42.8	44.3	46.0	
Warmest Month	80.6	81.9	82.6	82.8	
Average	80.6	82.5	83.6	85.4	
GFDL45	80.6	84.7	85.1	86.1	
GFDL85	80.6	83.7	85.4	87.8	
HAD45	80.6	85.3	87.4	87.5	
HAD85	80.6	85.8	89.9	90.9	

Precipitation (in)

Scenario	2009	2039	2069	2099	
Annual	56.1	58.9	64.3	61.9	
Total	56.1	59.2	60.3	65.6	
GFDL45	56.1	63.0	67.7	68.1	
GFDL85	56.1	62.8	65.8	68.8	
HAD45	56.1	53.7	59.3	61.5	
HAD85	56.1	58.1	51.9	56.6	
Growing Season	21.1	21.0	21.5	21.6	
May—Sep	21.1	19.7	19.6	20.5	
GFDL45	21.1	24.5	26.4	26.0	
GFDL85	21.1	25.7	27.3	28.2	
HAD45	21.1	19.1	20.9	19.8	
HAD85	21.1	21.4	16.4	16.9	

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-DGP30 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	97.1	4227.7	31.3	No change	No change	Medium	Abundant	Good	Good			1	1
sweetgum	Liquidambar styraciflua	WDH	High	97	1741.5	12.6	No change	No change	Medium	Abundant	Good	Good			1	2
shortleaf pine	Pinus echinata	WDH	High	75.1	626.8	6.0	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			1	3
southern red oak	Quercus falcata	WDL	Medium	87.5	529.5	4.5	Sm. inc.	Lg. inc.	High	Abundant	Very Good	Very Good			1	4
water oak	Quercus nigra	WDH	High	82.4	488.6	4.1	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	5
post oak	Quercus stellata	WDH	High	67.2	403.9	4.0	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	6
red maple	Acer rubrum	WDH	High	82.2	309.8	2.8	No change	Sm. inc.	High	Common	Good	Very Good			1	7
winged elm	Ulmus alata	WDL	Medium	89.4	304.8	2.3	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	8
white oak	Quercus alba	WDH	Medium	67.1	300.8	2.9	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	9
cherrybark oak; swamp red o	Quercus pagoda	NSL	Medium	49.5	225.3	3.1	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	10
eastern redcedar	Juniperus virginiana	WDH	Medium	62.7	217.5	2.5	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	11
yellow-poplar	Liriodendron tulipifera	WDH	High	53.6	185.6	2.6	Sm. dec.	No change	High	Common	Fair	Good			1	12
blackgum	Nyssa sylvatica	WDL	Medium	73.9	179.9	1.7	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	13
black cherry	Prunus serotina	WDL	Medium	74.5	179.1	1.8	No change	Sm. inc.	Low	Common	Poor	Fair			1	14
mockernut hickory	Carya alba	WDL	Medium	54.1	173.2	2.2	Sm. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	15
green ash	Fraxinus pennsylvanica	WSH	Low	40.9	139.9	2.1	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	16
pignut hickory	Carya glabra	WDL	Medium	52.5	124.2	1.7	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	17
black willow	Salix nigra	NSH	Low	20.5	122.9	4.1	Sm. inc.	Lg. inc.	Low	Common	Fair	Good			1	18
black oak	Quercus velutina	WDH	High	28.6	109.9	2.5	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	19
sycamore	Platanus occidentalis	NSL	Low	22.5	104.5	3.3	Sm. dec.	No change	Medium	Common	Poor	Fair			1	20
American hornbeam; muscle	Carpinus caroliniana	WSL	Low	32.4	93.0	2.3	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	21
American elm	Ulmus americana	WDH	Medium	37.8	87.8	1.5	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	22
flowering dogwood	Cornus florida	WDL	Medium	55.5	82.4	1.1	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	23
willow oak	Quercus phellos	NSL	Low	24.8	81.9	2.4	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	24
boxelder	Acer negundo	WSH	Low	16.2	78.3	2.4	Sm. dec.	No change	High	Common	Fair	Good			1	25
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	30.5	75.4	1.9	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	26
common persimmon	Diospyros virginiana	NSL	Low	46.3	63.5	1.0	No change	Sm. inc.	High	Common	Good	Very Good			1	27
American beech	Fagus grandifolia	WDH	High	20	48.3	1.4	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1	28
Shumard oak	Quercus shumardii	NSL	Low	17	42.9	1.8	Sm. inc.	Sm. inc.	High	Rare	Good	Good			1	29
white ash	Fraxinus americana	WDL	Medium	23.3	37.4	1.0	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair			1	30
slippery elm	Ulmus rubra	WSL	Low	19.8	35.5	1.1	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good			1	31
shagbark hickory	Carya ovata	WSL	Medium	12.9	35.4	1.1	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	32
sugarberry	Celtis laevigata	NDH	Medium	4.5	34.0	2.4	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1	33
blackjack oak	Quercus marilandica	NSL	Medium	15.5	30.9	1.2	Lg. inc.	Lg. inc.	High	Rare	Good	Good			1	34
northern red oak	Quercus rubra	WDH	Medium	14.4	29.2	1.4	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			1	35
swamp tupelo	Nyssa biflora	NDH	Medium	3.9	29.2	7.5	No change	No change	Low	Rare	Very Poor	Very Poor			0	36
eastern cottonwood	Populus deltoides	NSH	Low	3.1	27.1	1.5	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			2	37
sassafras	Sassafras albidum	WSL	Low	20.4	26.9	1.2	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	38
bald cypress	Taxodium distichum	NSH	Medium	4.1	25.8	4.4	Sm. dec.	No change	Medium	Rare	Very Poor	Poor		Infill +	2	39
laurel oak	Quercus laurifolia	NDH	Medium	4.5	20.1	4.1	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	1	40
scarlet oak	Quercus coccinea	WDL	Medium	10.9	19.4	1.5	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	41
sourwood	Oxydendrum arboreum	NDH	High	11.9	17.3	1.1	Sm. inc.	Sm. inc.	High	Rare	Good	Good	Infill ++		1	42
nuttall oak	Quercus texana	NSL	Medium	3.6	15.8	1.9	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	43
river birch	Betula nigra	NSL	Low	4.7	15.6	2.1	No change	No change	Medium	Rare	Poor	Poor		Infill +	1	44
swamp chestnut oak	Quercus michauxii	NSL	Low	8.5	14.3	1.4	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	1	45
overcup oak	Quercus lyrata	NSL	Medium	5	14.1	2.0	Sm. inc.	Lg. inc.	Low	Rare	Poor	Fair	Infill +	Infill +	1	46
eastern redbud	Cercis canadensis	NSL	Low	10	11.5	0.9	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	47



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bitternut hickory	<i>Carya cordiformis</i>	WSL	Low	7.9	11.5	0.8	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor		Infill +	2	48
chinkapin oak	<i>Quercus muehlenbergii</i>	NSL	Medium	3.4	11.2	2.3	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			2	49
florida maple	<i>Acer barbatum</i>	NSL	Low	6.9	10.5	0.9	Sm. dec.	No change	High	Rare	Poor	Fair	Infill +	Infill +	1	50
sweetbay	<i>Magnolia virginiana</i>	NSL	Medium	4.3	10.3	1.5	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	51
red mulberry	<i>Morus rubra</i>	NSL	Low	11	9.9	0.5	Lg. dec.	No change	Medium	Rare	Very Poor	Poor			1	52
water elm	<i>Planera aquatica</i>	NSL	Low	1.9	7.8	4.0	No change	No change	Medium	Rare	Poor	Poor		Infill +	1	53
shellbark hickory	<i>Carya laciniosa</i>	NSL	Low	3.9	6.2	1.6	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	54
honeylocust	<i>Gleditsia triacanthos</i>	NSH	Low	3.2	5.9	0.7	No change	Sm. inc.	High	Rare	Fair	Good	Infill +	Infill ++	2	55
American holly	<i>Ilex opaca</i>	NSL	Medium	10	4.9	0.5	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1	56
durand oak	<i>Quercus sinuata</i> var. <i>sinuata</i>	NSL	FIA	0.9	4.5	4.5	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	57
pecan	<i>Carya illinoensis</i>	NSH	Low	1	4.4	1.5	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	2	58
water hickory	<i>Carya aquatica</i>	NSL	Medium	3.6	3.9	0.9	No change	Sm. inc.	Medium	Rare	Poor	Fair		Infill +	2	59
black hickory	<i>Carya texana</i>	NDL	High	4.6	3.8	0.8	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	60
bigleaf magnolia	<i>Magnolia macrophylla</i>	NSL	Low	1.9	3.5	1.8	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	61
Osage-orange	<i>Maclura pomifera</i>	NDH	Medium	0.6	3.1	1.9	No change	Sm. inc.	High	Rare	Fair	Good	Infill +		2	62
slash pine	<i>Pinus elliotii</i>	NDH	High	0.3	2.9	0.9	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	63
black walnut	<i>Juglans nigra</i>	WDH	Low	1.9	2.7	1.4	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	64
silver maple	<i>Acer saccharinum</i>	NSH	Low	1.9	2.0	1.0	Very Lg. dec.	Very Lg. dec.	High	Rare	Lost	Lost			0	65
serviceberry	<i>Amelanchier</i> spp.	NSL	Low	0.9	2.0	0.5	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	66
black locust	<i>Robinia pseudoacacia</i>	NDH	Low	1.3	1.7	0.4	No change	Sm. dec.	Medium	Rare	Poor	Very Poor			0	67
cucumbertree	<i>Magnolia acuminata</i>	NSL	Low	0.7	1.5	1.0	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	68
longleaf pine	<i>Pinus palustris</i>	NSH	Medium	0.1	0.7	0.1	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	69
paulownia	<i>Paulownia tomentosa</i>	NSL	FIA	1	0.5	0.5	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	70
ailanthus	<i>Ailanthus altissima</i>	NSL	FIA	0.4	0.4	0.2	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	71
bluejack oak	<i>Quercus incana</i>	NSL	Low	1	0.3	0.3	No change	No change	Medium	Rare	Poor	Poor		Infill +	2	72
ashe juniper	<i>Juniperus ashei</i>	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	73
spruce pine	<i>Pinus glabra</i>	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +		3	74
striped maple	<i>Acer pensylvanicum</i>	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	75
pawpaw	<i>Asimina triloba</i>	NSL	Low	0	0	0	New Habitat	Unknown	Medium	Absent	New Habitat	Unknown	Likely +		3	76
cittamwood/gum bumelia	<i>Sideroxylon lanuginosum</i> ssp.	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Likely +	Likely +	3	77
hackberry	<i>Celtis occidentalis</i>	WDH	Medium	0	0	0	Unknown	Unknown	High	Modeled	Unknown	Unknown			0	78
black ash	<i>Fraxinus nigra</i>	WSH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	79
silverbell	<i>Halesia</i> spp.	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	80
southern magnolia	<i>Magnolia grandiflora</i>	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	81
water tupelo	<i>Nyssa aquatica</i>	NSH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Likely +	Likely +	3	82
redbay	<i>Persea borbonia</i>	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	83
pin cherry	<i>Prunus pensylvanica</i>	NSL	Low	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat			3	84
live oak	<i>Quercus virginiana</i>	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate ++	3	85
cedar elm	<i>Ulmus crassifolia</i>	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	86