

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 10,421 4,023.6 199

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	RCP45	RCP85	RCP45	RCP85	RCP45	RCP85	
Ash	2					Increase	18	22	Very Good	7	7	
Hickory	7			Medium	30	No Change	18	18	Good	13	14	
Maple	3	Abundant	6	Low	30	Decrease	20	16	Fair	9	13	
Oak	13	Common	20	FIA	2	New	8	8	Poor	14	12	
Pine	3	Rare	32			Unknown	10	10	Very Poor	13	10	
Other	30	Absent	13					FIA Only	2	2		
58		71		74		74		66		66		

Potential Changes in Climate Variables

Temperature (°F)

Scenario	2009	2039	2069	2099	
Annual	64.8	66.3	67.8	68.2	
Average	64.8	67.0	69.2	71.6	
GFDL45	64.8	68.3	69.0	70.4	
GFDL85	64.8	67.5	70.4	73.9	
HAD45	64.8	67.0	69.7	70.7	
HAD85	64.8	67.4	71.3	74.7	
Growing Season	78.6	80.0	81.1	81.7	
May—Sep	78.6	81.1	83.0	86.0	
GFDL45	78.6	83.0	83.4	85.9	
GFDL85	78.6	82.2	85.4	89.8	
HAD45	78.6	81.2	83.8	84.3	
HAD85	78.6	81.8	86.4	89.4	
Coldest Month	44.0	46.3	47.2	47.3	
Average	44.0	46.5	47.5	48.8	
GFDL45	44.0	47.6	47.7	47.8	
GFDL85	44.0	45.1	46.4	46.9	
HAD45	44.0	44.4	46.2	46.6	
HAD85	44.0	46.3	47.9	49.7	
Warmest Month	83.8	84.7	85.2	85.5	
Average	83.8	85.7	86.4	88.0	
GFDL45	83.8	88.6	88.7	90.5	
GFDL85	83.8	88.3	89.8	93.2	
HAD45	83.8	86.7	88.0	88.1	
HAD85	83.8	87.4	89.8	90.8	

Precipitation (in)

Scenario	2009	2039	2069	2099	
Annual	43.8	43.6	46.9	45.4	
Total	43.8	43.7	47.6	46.9	
GFDL45	43.8	45.2	51.8	44.6	
GFDL85	43.8	44.7	47.7	47.5	
HAD45	43.8	44.3	43.9	47.2	
HAD85	43.8	46.7	40.5	43.4	
Growing Season	16.6	17.7	17.2	17.4	
May—Sep	16.6	16.0	16.4	15.8	
GFDL45	16.6	18.0	21.7	17.7	
GFDL85	16.6	18.4	19.6	19.2	
HAD45	16.6	15.8	15.1	16.3	
HAD85	16.6	16.5	12.7	13.7	

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	FAIav	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
loblolly pine	Pinus taeda	WDH	High	45.2	1136.8	18.8	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			1	1
sweetgum	Liquidambar styraciflua	WDH	High	64.5	1118.5	13.8	No change	No change	Medium	Abundant	Good	Good			1	2
post oak	Quercus stellata	WDH	High	66.7	861.3	13.3	Sm. inc.	Sm. inc.	High	Abundant	Very Good	Very Good			1	3
water oak	Quercus nigra	WDH	High	67.2	728.2	9.1	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			1	4
winged elm	Ulmus alata	WDL	Medium	81.1	712.7	8.0	No change	No change	Medium	Abundant	Good	Good			1	5
shortleaf pine	Pinus echinata	WDH	High	44.4	583.2	10.2	No change	No change	Medium	Abundant	Good	Good			1	6
southern red oak	Quercus falcata	WDL	Medium	58.6	473.4	7.5	No change	No change	High	Common	Good	Good			1	7
eastern redcedar	Juniperus virginiana	WDH	Medium	70	380.9	5.6	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	8
sugarberry	Celtis laevigata	NDH	Medium	44.2	293.3	6.6	No change	No change	Medium	Common	Fair	Fair			1	9
American elm	Ulmus americana	WDH	Medium	26.4	189.6	6.0	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	10
green ash	Fraxinus pennsylvanica	WSH	Low	30.3	150.4	6.2	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	11
river birch	Betula nigra	NSL	Low	14.7	112.6	5.8	No change	No change	Medium	Common	Fair	Fair			1	12
black hickory	Carya texana	NDL	High	38.5	111.6	4.1	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	13
black willow	Salix nigra	NSH	Low	17.7	105.2	6.8	No change	Sm. inc.	Low	Common	Poor	Fair			1	14
honeylocust	Gleditsia triacanthos	NSH	Low	17.9	103.1	6.7	Lg. dec.	Lg. dec.	High	Common	Fair	Fair			1	15
blackjack oak	Quercus marilandica	NSL	Medium	30.7	101.3	4.4	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	16
blackgum	Nyssa sylvatica	WDL	Medium	26.9	94.4	3.6	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	17
mockernut hickory	Carya alba	WDL	Medium	34.6	91.3	3.3	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	18
willow oak	Quercus phellos	NSL	Low	16.1	90.6	6.3	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	19
cedar elm	Ulmus crassifolia	NDH	Medium	25.5	82.3	4.9	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	20
overcup oak	Quercus lyrata	NSL	Medium	11.3	81.2	9.6	Lg. dec.	Sm. dec.	Low	Common	Very Poor	Poor			0	21
red maple	Acer rubrum	WDH	High	25.4	60.6	2.3	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	22
Osage-orange	Maclura pomifera	NDH	Medium	14	53.0	8.8	Sm. dec.	Sm. dec.	High	Common	Fair	Fair			1	23
slash pine	Pinus elliottii	NDH	High	9.4	51.3	10.6	No change	Sm. inc.	Medium	Common	Fair	Good	Infill +	Infill ++	2	24
bluejack oak	Quercus incana	NSL	Low	17.5	51.0	3.0	No change	No change	Medium	Common	Fair	Fair			1	25
pecan	Carya illinoensis	NSH	Low	9.9	50.5	5.8	No change	No change	Low	Common	Poor	Poor	Infill +	Infill +	0	26
white oak	Quercus alba	WDH	Medium	10.8	48.5	2.9	Sm. inc.	Sm. inc.	High	Rare	Good	Good	Infill ++	Infill ++	1	27
black walnut	Juglans nigra	WDH	Low	2.9	47.5	16.5	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	28
black cherry	Prunus serotina	WDL	Medium	23.1	44.6	1.5	Sm. inc.	Lg. inc.	Low	Rare	Poor	Fair			1	29
common persimmon	Diospyros virginiana	NSL	Low	13.2	43.1	2.1	Sm. dec.	No change	High	Rare	Poor	Fair			1	30
white ash	Fraxinus americana	WDL	Medium	12.7	42.4	2.4	Sm. dec.	No change	Low	Rare	Very Poor	Very Poor			0	31
black oak	Quercus velutina	WDH	High	5.8	40.8	7.1	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	32
flowering dogwood	Cornus florida	WDL	Medium	20.2	40.4	2.0	No change	Sm. inc.	Medium	Rare	Poor	Fair			1	33
sassafras	Sassafras albidum	WSL	Low	18.4	39.5	2.3	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair			1	34
American holly	Ilex opaca	NSL	Medium	13.7	32.9	2.9	Sm. dec.	No change	Medium	Rare	Very Poor	Poor			1	35
bald cypress	Taxodium distichum	NSH	Medium	1	32.6	34.0	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	36
American hornbeam; muscley	Carpinus caroliniana	WSL	Low	7	28.2	1.6	No change	No change	Medium	Rare	Poor	Poor			1	37
bitternut hickory	Carya cordiformis	WSL	Low	4.8	27.3	5.4	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			1	38
cherrybark oak; swamp red o	Quercus pagoda	NSL	Medium	5.3	25.5	3.0	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	1	39
eastern redbud	Cercis canadensis	NSL	Low	6.8	20.6	2.4	No change	No change	Medium	Rare	Poor	Poor			1	40
red mulberry	Morus rubra	NSL	Low	15.2	15.0	1.9	No change	Sm. inc.	Medium	Rare	Poor	Fair			1	41
boxelder	Acer negundo	WSH	Low	3.8	14.9	3.0	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			1	42
sycamore	Platanus occidentalis	NSL	Low	1	11.7	12.2	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			2	43
slippery elm	Ulmus rubra	WSL	Low	3	11.2	3.9	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	44
florida maple	Acer barbatum	NSL	Low	1.8	9.8	1.4	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	45
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	4.1	9.5	1.3	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	1	46
bur oak	Quercus macrocarpa	NDH	Medium	2.1	8.0	4.4	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	47



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wild plum	Prunus americana	NSLX	FIA	2.7	7.7	2.3	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only				0 48
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	6.3	7.3	2.1	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++		1 49
water hickory	Carya aquatica	NSL	Medium	4.8	6.0	1.3	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor				0 50
American basswood	Tilia americana	WSL	Medium	1	5.3	5.6	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor				2 51
water elm	Planera aquatica	NSL	Low	1.6	4.2	1.9	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor				0 52
eastern cottonwood	Populus deltoides	NSH	Low	1	3.7	3.9	Sm. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor				2 53
pignut hickory	Carya glabra	WDL	Medium	5	3.0	1.6	Sm. dec.	No change	Medium	Rare	Very Poor	Poor		Infill +		2 54
peachleaf willow	Salix amygdaloides	NSLX	FIA	1	2.0	2.1	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only				0 55
live oak	Quercus virginiana	NDH	High	1	0.8	0.9	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good				2 56
shagbark hickory	Carya ovata	WSL	Medium	3.2	0.4	1.4	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor				0 57
Shumard oak	Quercus shumardii	NSL	Low	3.2	0.2	0.6	No change	No change	High	Rare	Fair	Fair				0 58
longleaf pine	Pinus palustris	NSH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++		3 59
serviceberry	Amelanchier spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0 60
shellbark hickory	Carya laciniosa	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				3 61
hackberry	Celtis occidentalis	WDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Likely +	Likely +		3 62
southern magnolia	Magnolia grandiflora	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +		3 63
sweetbay	Magnolia virginiana	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +		3 64
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown				0 65
swamp tupelo	Nyssa biflora	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate +	Migrate +		3 66
sourwood	Oxydendrum arboreum	NDL	High	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown				0 67
redbay	Persea borbonia	NSL	Low	0	0	0	Unknown	Unknown	High	Modeled	Unknown	Unknown				0 68
pin cherry	Prunus pensylvanica	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0 69
turkey oak	Quercus laevis	NSH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat				3 70
laurel oak	Quercus laurifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +		3 71
chestnut oak	Quercus prinus	NDH	High	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown				0 72
northern red oak	Quercus rubra	WDH	Medium	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown				0 73
black locust	Robinia pseudoacacia	NDH	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown				0 74