

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 3,979.1 375

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	25	RCP45	RCP85	RCP45	RCP85	RCP45	RCP85	
Ash	2			19	25	Increase	28	36	Very Good	14	15	
Hickory	7			33	53	No Change	16	11	Good	17	16	
Maple	5	Abundant	3	Low	37	12	Decrease	24	21	Fair	8	11
Oak	16	Common	23	FIA	3		New	12	12	Poor	10	16
Pine	5	Rare	45			Unknown	12	12	Very Poor	15	8	
Other	36	Absent	18					FIA Only	2	2		
								Unknown	9	9		
									75	77	11	21

Potential Changes in Climate Variables

Temperature (°F)

Scenario	2009	2039	2069	2099	
Annual	62.1	63.9	66.0	66.1	
Average	62.1	64.2	66.8	69.4	
GFDL45	62.1	65.0	66.8	67.6	
GFDL85	62.1	64.7	67.9	71.3	
HAD45	62.1	64.5	67.4	68.8	
HAD85	62.1	64.8	69.2	72.9	
Growing Season	76.0	77.7	79.4	79.9	
May—Sep	76.0	77.9	80.5	83.8	
GFDL45	76.0	79.0	80.9	82.4	
GFDL85	76.0	78.7	82.3	86.2	
HAD45	76.0	79.4	82.1	83.5	
HAD85	76.0	79.5	85.8	89.1	
Coldest Month	41.4	43.6	44.4	44.4	
Average	41.4	43.9	45.2	46.4	
GFDL45	41.4	45.1	45.2	45.4	
GFDL85	41.4	43.2	44.3	44.7	
HAD45	41.4	41.2	43.1	43.7	
HAD85	41.4	42.6	43.9	45.5	
Warmest Month	80.7	82.3	83.1	83.2	
Average	80.7	82.4	83.8	85.7	
GFDL45	80.7	83.7	84.5	85.4	
GFDL85	80.7	83.2	84.9	87.0	
HAD45	80.7	85.2	87.2	87.6	
HAD85	80.7	85.6	89.8	91.0	

Precipitation (in)

Scenario	2009	2039	2069	2099	
Annual	55.6	57.4	62.5	61.0	
Total	55.6	58.3	60.0	66.3	
GFDL45	55.6	63.0	66.4	68.7	
GFDL85	55.6	62.8	65.7	68.1	
HAD45	55.6	53.8	60.6	60.4	
HAD85	55.6	58.6	52.5	56.9	
Growing Season	21.4	21.3	22.3	22.7	
May—Sep	21.4	20.4	20.6	22.6	
GFDL45	21.4	26.0	27.4	27.4	
GFDL85	21.4	26.5	28.4	29.5	
HAD45	21.4	20.0	22.5	20.8	
HAD85	21.4	22.3	16.2	17.8	

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	98.9	4065.8	31.4	No change	No change	Medium	Abundant	Good	Good			1	1
sweetgum	Liquidambar styraciflua	WDH	High	96.2	1002.4	8.3	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			1	2
Virginia pine	Pinus virginiana	NDH	High	56.7	694.7	9.9	Sm. dec.	Sm. dec.	Medium	Abundant	Fair	Fair			0	3
yellow-poplar	Liriodendron tulipifera	WDH	High	79.4	485.1	4.7	Sm. dec.	Sm. dec.	High	Common	Fair	Fair			1	4
white oak	Quercus alba	WDH	Medium	81.6	458.4	4.6	No change	No change	High	Common	Good	Good			1	5
red maple	Acer rubrum	WDH	High	88.3	449.6	4.1	No change	Sm. inc.	High	Common	Good	Very Good			1	6
southern red oak	Quercus falcata	WDL	Medium	73.8	416.0	4.1	Sm. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	7
water oak	Quercus nigra	WDH	High	69.3	392.4	4.5	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	8
blackgum	Nyssa sylvatica	WDL	Medium	84	273.0	2.4	Sm. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	9
mockernut hickory	Carya alba	WDL	Medium	66	265.9	3.0	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	10
pignut hickory	Carya glabra	WDL	Medium	68.6	209.8	2.3	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	11
chestnut oak	Quercus prinus	NDH	High	46.3	195.9	3.6	No change	Sm. dec.	High	Common	Good	Fair			1	12
sourwood	Oxydendrum arboreum	NDL	High	65.5	171.6	2.0	Sm. dec.	Sm. dec.	High	Common	Fair	Fair			1	13
post oak	Quercus stellata	WDH	High	53.5	158.5	2.3	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	14
shortleaf pine	Pinus echinata	WDH	High	49	148.2	2.2	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	15
black cherry	Prunus serotina	WDL	Medium	71.3	136.5	1.4	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	16
flowering dogwood	Cornus florida	WDL	Medium	67	120.7	1.3	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	17
black oak	Quercus velutina	WDH	High	41.6	108.7	1.9	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	18
northern red oak	Quercus rubra	WDH	Medium	37.7	80.5	1.7	Sm. dec.	Lg. dec.	High	Common	Fair	Fair			1	19
eastern redcedar	Juniperus virginiana	WDH	Medium	26.6	79.5	2.3	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	20
sweetbay	Magnolia virginiana	NSL	Medium	19.1	77.6	3.1	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	21
winged elm	Ulmus alata	WDL	Medium	46.8	73.6	1.4	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	22
American hornbeam; muscle	Carpinus caroliniana	WSL	Low	33	69.1	1.8	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	23
American beech	Fagus grandifolia	WDH	High	34	68.0	1.8	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	24
green ash	Fraxinus pennsylvanica	WSH	Low	26	64.2	2.5	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	25
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	33.8	62.0	1.7	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	26
longleaf pine	Pinus palustris	NSH	Medium	12.3	46.6	2.5	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1	27
scarlet oak	Quercus coccinea	WDL	Medium	22.4	41.7	1.2	Sm. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	28
common persimmon	Diospyros virginiana	NSL	Low	26.6	41.7	1.2	No change	Sm. inc.	High	Rare	Fair	Good			1	29
florida maple	Acer barbatum	NSL	Low	27.6	39.3	1.5	No change	No change	High	Rare	Fair	Fair			1	30
river birch	Betula nigra	NSL	Low	7.4	36.0	4.0	No change	Sm. inc.	Medium	Rare	Poor	Fair			1	31
willow oak	Quercus phellos	NSL	Low	12.4	35.7	4.0	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	32
cherrybark oak; swamp red o	Quercus pagoda	NSL	Medium	10.3	34.0	2.7	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	33
laurel oak	Quercus laurifolia	NDH	Medium	17	29.5	1.9	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	34
bigleaf magnolia	Magnolia macrophylla	NSL	Low	10.2	29.3	2.2	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	35
blackjack oak	Quercus marilandica	NSL	Medium	13.3	28.2	1.7	Lg. inc.	Lg. inc.	High	Rare	Good	Good			1	36
American elm	Ulmus americana	WDH	Medium	14.6	24.8	1.5	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	37
black willow	Salix nigra	NSH	Low	8.6	24.7	2.5	No change	Sm. inc.	Low	Rare	Very Poor	Poor			1	38
swamp tupelo	Nyssa biflora	NDH	Medium	3.6	23.7	5.6	No change	Sm. inc.	Low	Rare	Very Poor	Poor	Infill +		1	39
sassafras	Sassafras albidum	WSL	Low	22.8	23.2	0.7	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	40
American holly	Ilex opaca	NSL	Medium	15.6	18.8	0.9	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	41
red mulberry	Morus rubra	NSL	Low	12.8	17.9	1.2	Sm. dec.	Sm. inc.	Medium	Rare	Very Poor	Fair			1	42
overcup oak	Quercus lyrata	NSL	Medium	3.8	16.1	2.1	No change	Sm. inc.	Low	Rare	Very Poor	Poor	Infill +		2	43
shagbark hickory	Carya ovata	WSL	Medium	7.4	16.0	1.6	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	44
sugarberry	Celtis laevigata	NDH	Medium	10.2	15.5	2.7	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	45
water tupelo	Nyssa aquatica	NSH	Medium	4	14.5	2.6	No change	No change	Low	Rare	Very Poor	Very Poor			2	46
hackberry	Celtis occidentalis	WDH	Medium	1.1	13.9	2.1	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor	Infill +		2	47



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slash pine	Pinus elliottii	NDH	High	1	13.2	13.6	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	48
Shumard oak	Quercus shumardii	NSL	Low	2.3	12.2	3.9	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	49
sycamore	Platanus occidentalis	NSL	Low	7	11.5	1.2	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	1	50
white ash	Fraxinus americana	WDL	Medium	12.3	11.2	0.9	No change	Lg. inc.	Low	Rare	Very Poor	Fair		Infill +	1	51
bald cypress	Taxodium distichum	NSH	Medium	0.7	9.2	6.8	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	52
paulownia	Paulownia tomentosa	NSL	FIA	3.9	9.1	2.3	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	53
swamp chestnut oak	Quercus michauxii	NSL	Low	6.9	7.1	1.8	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	1	54
sugar maple	Acer saccharum	WDH	High	1.9	6.2	3.2	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	55
boxelder	Acer negundo	WSH	Low	6.8	5.9	1.7	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	1	56
wild plum	Prunus americana	NSLX	FIA	4.3	5.8	1.2	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	57
American basswood	Tilia americana	WSL	Medium	4.7	5.4	1.1	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	58
serviceberry	Amelanchier spp.	NSL	Low	9.1	5.3	0.5	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	59
eastern redbud	Cercis canadensis	NSL	Low	8.9	4.0	0.4	Lg. dec.	No change	Medium	Rare	Very Poor	Poor			1	60
sand hickory	Carya pallida	NSL	FIA	1	3.6	3.8	Unknown	Unknown	NA	Rare	FIA Only	FIA Only			0	61
bitternut hickory	Carya cordiformis	WSL	Low	3.4	3.5	0.8	Very Lg. dec.	Lg. dec.	High	Rare	Lost	Poor			0	62
water elm	Planera aquatica	NSL	Low	1	3.1	3.1	Sm. dec.	No change	Medium	Rare	Very Poor	Poor		Infill +	2	63
black hickory	Carya texana	NDL	High	1.9	2.8	1.4	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	64
cucumbertree	Magnolia acuminata	NSL	Low	2.9	2.6	0.9	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	65
slippery elm	Ulmus rubra	WSL	Low	1	1.3	1.4	Very Lg. dec.	No change	Medium	Rare	Lost	Poor		Infill +	2	66
silver maple	Acer saccharinum	NSH	Low	1	1.0	1.0	Sm. dec.	Lg. dec.	High	Rare	Poor	Poor			0	67
eastern hemlock	Tsuga canadensis	NSH	High	1	0.5	0.6	Very Lg. dec.	Very Lg. dec.	Low	Rare	Lost	Lost			0	68
black locust	Robinia pseudoacacia	NDH	Low	0.6	0.5	0.3	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	69
chinkapin oak	Quercus muehlenbergii	NSL	Medium	1	0.4	0.4	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	70
pecan	Carya illinoensis	NSH	Low	1	0.2	0.2	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair		Infill +	2	71
ashe juniper	Juniperus ashei	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	72
spruce pine	Pinus glabra	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	73
Table Mountain pine	Pinus pungens	NSL	Low	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	74
striped maple	Acer pensylvanicum	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	75
yellow buckeye	Aesculus flava	NSL	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	76
pawpaw	Asimina triloba	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	77
sweet birch	Betula lenta	NDH	High	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	78
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	79
water hickory	Carya aquatica	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	80
shellbark hickory	Carya laciniosa	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	81
black ash	Fraxinus nigra	WSH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			0	82
honeylocust	Gleditsia triacanthos	NSH	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	83
silverbell	Halesia spp.	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	84
black walnut	Juglans nigra	WDH	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	85
southern magnolia	Magnolia grandiflora	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	86
redbay	Persea borbonia	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Likely +	Likely +	3	87
pin cherry	Prunus pensylvanica	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	88
nuttall oak	Quercus texana	NSH	Medium	0	0	0	Unknown	Unknown	High	Modeled	Unknown	Unknown			0	89
live oak	Quercus virginiana	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	90
bluejack oak	Quercus incana	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	91
cedar elm	Ulmus crassifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat		Migrate ++	3	92