

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
 10,188 3,933.4 285

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	22	23	Increase	29	36	Very Good	12	14	Likely	3	1
Hickory	6		Medium	30	52	No Change	17	12	Good	15	20	Infill	13	14
Maple	5	Abundant	Low	35	14	Decrease	19	17	Fair	12	10	Migrate	4	5
Oak	14	Common	FIA	5		New	15	14	Poor	12	8			
Pine	6	Rare				Unknown	12	13	Very Poor	12	10			
Other	37	Absent							FIA Only	3	3			
	70	88		92	89		92	92	Unknown	7	8		20	20
										73	73			

Potential Changes in Climate Variables

Temperature (°F)

Scenario	2009	2039	2069	2099	
Annual	60.8	62.6	64.7	64.7	
Average	60.8	63.0	65.4	68.1	
GFDL45	60.8	63.8	65.7	66.5	
GFDL85	60.8	63.6	66.9	70.5	
HAD45	60.8	63.1	66.0	67.4	
HAD85	60.8	63.4	67.4	71.5	
Growing Season	74.7	76.5	78.3	78.7	
May—Sep	74.7	78.1	80.0	81.4	
GFDL45	74.7	78.0	81.6	85.8	
GFDL85	74.7	77.8	80.4	82.1	
HAD45	74.7	77.7	83.4	87.5	
HAD85	74.7	77.7	83.4	87.5	
Coldest Month	40.5	43.0	43.7	43.7	
Average	40.5	43.1	44.1	45.2	
GFDL45	40.5	43.7	43.9	44.4	
GFDL85	40.5	42.4	43.4	44.0	
HAD45	40.5	40.7	42.5	42.9	
HAD85	40.5	41.6	42.7	44.3	
Warmest Month	79.7	81.7	82.7	82.6	
Average	79.7	81.9	83.4	85.2	
GFDL45	79.7	82.6	83.5	84.5	
GFDL85	79.7	83.1	84.9	87.2	
HAD45	79.7	83.3	85.1	85.8	
HAD85	79.7	83.8	87.4	89.6	

Precipitation (in)

Scenario	2009	2039	2069	2099	
Annual	47.4	50.8	53.8	54.5	
Total	47.4	51.0	54.3	60.3	
GFDL45	47.4	53.2	56.8	60.2	
GFDL85	47.4	52.2	58.3	58.4	
HAD45	47.4	47.1	50.7	52.2	
HAD85	47.4	53.0	48.3	51.1	
Growing Season	19.1	21.3	23.4	23.9	
May—Sep	19.1	23.6	26.3	27.0	
GFDL45	19.1	22.4	27.1	27.4	
GFDL85	19.1	18.9	19.4	20.3	
HAD45	19.1	22.1	17.7	18.0	
HAD85	19.1	22.1	17.7	18.0	

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	75.6	2582.5	24.8	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			1	1
sweetgum	Liquidambar styraciflua	WDH	High	86.3	1083.6	9.8	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			1	2
water oak	Quercus nigra	WDH	High	74.7	715.9	8.3	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			1	3
white oak	Quercus alba	WDH	Medium	74.1	629.7	6.8	No change	No change	High	Abundant	Very Good	Very Good			1	4
yellow-poplar	Liriodendron tulipifera	WDH	High	74.1	580.6	7.4	Sm. dec.	Sm. dec.	High	Abundant	Good	Good			1	5
shortleaf pine	Pinus echinata	WDH	High	65.2	487.8	6.2	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	6
red maple	Acer rubrum	WDH	High	73.3	433.7	4.6	No change	No change	High	Common	Good	Good			1	7
southern red oak	Quercus falcata	WDL	Medium	63	344.2	5.4	Sm. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	8
Virginia pine	Pinus virginiana	NDH	High	38.1	340.7	7.2	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	9
eastern redcedar	Juniperus virginiana	WDH	Medium	56	275.3	3.8	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	10
winged elm	Ulmus alata	WDL	Medium	40.6	258.1	3.6	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	11
black cherry	Prunus serotina	WDL	Medium	69	216.8	2.7	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	12
scarlet oak	Quercus coccinea	WDL	Medium	42.1	189.1	3.6	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	13
sourwood	Oxydendrum arboreum	NDL	High	43.2	182.6	3.0	Sm. dec.	Sm. dec.	High	Common	Fair	Fair			1	14
mockernut hickory	Carya alba	WDL	Medium	53.5	175.7	2.8	Sm. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	15
pignut hickory	Carya glabra	WDL	Medium	49.1	152.8	2.5	No change	No change	Medium	Common	Fair	Fair			1	16
post oak	Quercus stellata	WDH	High	34.5	138.0	2.7	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	17
blackgum	Nyssa sylvatica	WDL	Medium	49	124.5	1.8	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	18
northern red oak	Quercus rubra	WDH	Medium	36.9	116.5	2.3	No change	No change	High	Common	Good	Good			1	19
black oak	Quercus velutina	WDH	High	41.8	113.6	2.3	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	20
flowering dogwood	Cornus florida	WDL	Medium	61.3	107.1	1.4	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	21
green ash	Fraxinus pennsylvanica	WSH	Low	26.2	104.3	3.0	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	22
river birch	Betula nigra	NSL	Low	9.4	86.7	6.2	No change	No change	Medium	Common	Fair	Fair			1	23
willow oak	Quercus phellos	NSL	Low	21.4	64.1	2.0	No change	Sm. inc.	Medium	Common	Fair	Good			1	24
American hornbeam; muscley	Carpinus caroliniana	WSL	Low	29.9	63.7	1.6	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	25
black willow	Salix nigra	NSH	Low	4.9	63.6	8.0	No change	No change	Low	Common	Poor	Poor			0	26
sycamore	Platanus occidentalis	NSL	Low	10.8	60.3	5.6	No change	Sm. inc.	Medium	Common	Fair	Good			1	27
chestnut oak	Quercus prinus	NDH	High	9.3	59.1	3.7	No change	No change	High	Common	Good	Good	Infill ++	Infill ++	2	28
American beech	Fagus grandifolia	WDH	High	34.6	58.7	1.5	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	29
American holly	Ilex opaca	NSL	Medium	26.5	55.0	1.9	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	30
shagbark hickory	Carya ovata	WSL	Medium	19.1	47.2	2.1	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	31
common persimmon	Diospyros virginiana	NSL	Low	23.7	42.4	1.6	Sm. dec.	Sm. inc.	High	Rare	Poor	Good			1	32
black locust	Robinia pseudoacacia	NDH	Low	3.5	37.1	3.5	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	33
eastern white pine	Pinus strobus	WDH	High	7.3	36.7	3.7	No change	No change	Low	Rare	Very Poor	Very Poor			2	34
florida maple	Acer barbatum	NSL	Low	12	34.2	1.7	No change	Lg. inc.	High	Rare	Fair	Good	Infill +	Infill ++	1	35
white ash	Fraxinus americana	WDL	Medium	15	23.8	1.4	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair			1	36
American elm	Ulmus americana	WDH	Medium	4.1	19.3	1.5	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good	Infill +	Infill ++	2	37
red mulberry	Morus rubra	NSL	Low	10.3	19.1	0.6	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good			1	38
cherrybark oak; swamp red o	Quercus pagoda	NSL	Medium	9.6	18.6	1.2	No change	Sm. inc.	Medium	Rare	Poor	Fair	Infill +	Infill +	1	39
sand hickory	Carya pallida	NSL	FIA	6	18.0	2.0	Unknown	Unknown	NA	Rare	FIA Only	FIA Only			0	40
pecan	Carya illinoensis	NSH	Low	4.4	17.9	2.0	No change	Lg. inc.	Low	Rare	Very Poor	Fair		Infill +	2	41
boxelder	Acer negundo	WSH	Low	11.1	16.5	2.9	Sm. dec.	No change	High	Rare	Poor	Fair			1	42
ailanthus	Ailanthus altissima	NSL	FIA	1.9	16.0	2.5	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	43
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	6.3	15.9	2.2	Sm. inc.	Sm. inc.	High	Rare	Good	Good	Infill ++	Infill ++	1	44
slippery elm	Ulmus rubra	WSL	Low	5.9	15.6	1.8	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	45
black walnut	Juglans nigra	WDH	Low	6.2	12.5	1.6	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	46
bitternut hickory	Carya cordiformis	WSL	Low	4.7	11.6	1.8	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			0	47



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sugarberry	Celtis laevigata	NDH	Medium	5.8	11.6	1.0	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	48
blackjack oak	Quercus marilandica	NSL	Medium	3.8	11.2	1.2	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	49
slash pine	Pinus elliottii	NDH	High	1.3	9.8	2.9	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	50
swamp chestnut oak	Quercus michauxii	NSL	Low	1.4	8.1	3.0	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			2	51
eastern redbud	Cercis canadensis	NSL	Low	9.6	8.0	0.5	Lg. dec.	No change	Medium	Rare	Very Poor	Poor			1	52
honeylocust	Gleditsia triacanthos	NSH	Low	3.3	8.0	2.0	No change	Sm. inc.	High	Rare	Fair	Good		Infill ++	2	53
sassafras	Sassafras albidum	WSL	Low	6.1	7.1	0.6	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1	54
swamp tupelo	Nyssa biflora	NDH	Medium	2	6.5	3.3	Sm. inc.	Lg. inc.	Low	Rare	Poor	Fair	Infill +	Infill +	2	55
laurel oak	Quercus laurifolia	NDH	Medium	4	5.4	0.5	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	56
paulownia	Paulownia tomentosa	NSL	FIA	2.9	4.8	1.6	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	57
eastern hemlock	Tsuga canadensis	NSH	High	1.6	2.7	1.0	No change	No change	Low	Rare	Very Poor	Very Poor			2	58
overcup oak	Quercus lyrata	NSL	Medium	1	2.7	2.7	Lg. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	59
cucumbertree	Magnolia acuminata	NSL	Low	2	2.1	1.1	No change	Sm. dec.	Medium	Rare	Poor	Very Poor	Infill +		2	60
wild plum	Prunus americana	NSLX	FIA	5.7	2.1	1.1	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	61
hackberry	Celtis occidentalis	WDH	Medium	0.4	1.8	0.7	Very Lg. dec.	Very Lg. dec.	High	Rare	Lost	Lost			0	62
butternut	Juglans cinerea	NSLX	FIA	1	1.5	1.5	Unknown	Unknown	Low	Rare	FIA Only	FIA Only			0	63
silverbell	Halesia spp.	NSL	Low	1	1.1	1.1	No change	Sm. dec.	Medium	Rare	Poor	Very Poor			0	64
pawpaw	Asimina triloba	NSL	Low	1	0.5	0.6	Lg. dec.	Very Lg. dec.	Medium	Rare	Very Poor	Lost			0	65
sugar maple	Acer saccharum	WDH	High	0.3	0.5	0.2	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			0	66
pitch pine	Pinus rigida	NSH	High	3.9	0.4	1.8	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	1	67
sweet birch	Betula lenta	NDH	High	0.7	0.4	0.3	Sm. inc.	Sm. inc.	Low	Rare	Poor	Poor	Infill +	Infill +	2	68
yellow birch	Betula alleghaniensis	NDL	High	0.7	0.3	0.2	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	69
striped maple	Acer pensylvanicum	NSL	Medium	1	0.2	0.2	Sm. dec.	No change	Medium	Rare	Very Poor	Poor			0	70
ashe juniper	Juniperus ashei	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	71
spruce pine	Pinus glabra	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	72
longleaf pine	Pinus palustris	NSH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	73
silver maple	Acer saccharinum	NSH	Low	0	0	0	Unknown	Unknown	High	Modeled	Unknown	Unknown			0	74
yellow buckeye	Aesculus flava	NSL	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	75
serviceberry	Amelanchier spp.	NSL	Low	0	0	0	New Habitat	Unknown	Medium	Absent	New Habitat	Unknown	Likely +		3	76
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	77
shellbark hickory	Carya laciniosa	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	78
black hickory	Carya texana	NDL	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	79
black ash	Fraxinus nigra	WSH	Medium	0	0	0	Unknown	New Habitat	Low	Absent	Unknown	New Habitat			3	80
southern magnolia	Magnolia grandiflora	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	81
sweetbay	Magnolia virginiana	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	82
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	83
mountain or Fraser magnolia	Magnolia fraseri	NSL	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			0	84
pin cherry	Prunus pensylvanica	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	85
turkey oak	Quercus laevis	NSH	Medium	0	0	0	Unknown	Unknown	High	Modeled	Unknown	Unknown			0	86
chinkapin oak	Quercus muehlenbergii	NSL	Medium	0	0	0	New Habitat	Unknown	Medium	Absent	New Habitat	Unknown	Likely +		3	87
Shumard oak	Quercus shumardii	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	88
live oak	Quercus virginiana	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	89
bluejack oak	Quercus incana	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	90
American basswood	Tilia americana	WSL	Medium	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	91
cedar elm	Ulmus crassifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			0	92