

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 10,066 3,886.5 299

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	3					Increase	31	33	Very Good	14	15
Hickory	8			Medium	47	No Change	11	12	Good	16	19
Maple	5	Abundant	8	Low	12	Decrease	21	18	Fair	10	9
Oak	13	Common	19	FIA	2	New	11	12	Poor	10	8
Pine	2	Rare	38			Unknown	10	9	Very Poor	12	11
Other	34	Absent	18						FIA Only	2	2
	65		83				84	84	Unknown	8	7
										72	71

Potential Changes in Climate Variables

Temperature (°F)

Scenario	2009	2039	2069	2099	
Annual	59.4	61.2	63.1	63.4	
Average	59.4	61.5	63.9	66.7	
	59.4	62.4	64.3	65.3	
	59.4	62.3	65.2	68.9	
	59.4	61.9	64.9	66.3	
	59.4	62.2	66.8	70.5	
Growing Season	74.5	76.4	77.9	78.6	
	74.5	76.8	79.2	82.8	
May—Sep	74.5	78.2	80.3	82.2	
	74.5	78.3	81.6	86.3	
	74.5	77.6	80.4	81.8	
	74.5	78.0	84.1	87.4	
Coldest Month	36.1	38.4	39.6	39.8	
Average	36.1	38.6	39.6	41.2	
	36.1	40.1	40.4	40.5	
	36.1	37.4	38.9	39.6	
	36.1	37.0	39.1	39.3	
	36.1	38.4	40.2	41.9	
Warmest Month	80.5	82.3	83.2	83.4	
Average	80.5	82.8	83.7	85.5	
	80.5	85.2	86.2	87.4	
	80.5	84.9	86.5	89.8	
	80.5	84.2	86.0	86.5	
	80.5	85.3	88.8	90.1	

Precipitation (in)

Scenario	2009	2039	2069	2099	
Annual	49.9	48.9	53.5	51.6	
Total	49.9	51.0	53.7	54.5	
	49.9	54.0	58.2	55.6	
	49.9	54.4	59.9	60.2	
	49.9	48.1	53.0	54.2	
	49.9	54.0	47.5	51.5	
Growing Season	19.0	17.9	18.7	18.4	
May—Sep	19.0	18.6	17.6	18.2	
	19.0	20.4	20.7	20.9	
	19.0	21.0	22.8	22.3	
	19.0	17.7	18.2	17.6	
	19.0	19.1	14.4	14.7	

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
shortleaf pine	Pinus echinata	WDH	High	67.7	1512.4	15.7	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			1	1
white oak	Quercus alba	WDH	Medium	84.1	1413.4	12.3	Sm. dec.	Sm. dec.	High	Abundant	Good	Good			1	2
black hickory	Carya texana	NDL	High	87.9	998.4	8.4	No change	No change	Medium	Abundant	Good	Good			1	3
post oak	Quercus stellata	WDH	High	81.1	976.1	8.9	Sm. inc.	Sm. inc.	High	Abundant	Very Good	Very Good			1	4
eastern redcedar	Juniperus virginiana	WDH	Medium	77.6	702.4	6.7	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			1	5
northern red oak	Quercus rubra	WDH	Medium	60.1	529.6	6.4	Sm. dec.	Sm. dec.	High	Abundant	Good	Good			1	6
black oak	Quercus velutina	WDH	High	59.5	522.3	6.1	No change	No change	Medium	Abundant	Good	Good			1	7
sweetgum	Liquidambar styraciflua	WDH	High	66.7	510.6	6.3	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			1	8
mockernut hickory	Carya alba	WDL	Medium	66.9	414.4	4.7	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	9
loblolly pine	Pinus taeda	WDH	High	12.7	389.2	27.3	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	10
blackgum	Nyssa sylvatica	WDL	Medium	72.5	362.4	3.7	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	11
southern red oak	Quercus falcata	WDL	Medium	52.4	298.3	4.5	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	12
winged elm	Ulmus alata	WDL	Medium	75.2	272.2	2.6	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	13
red maple	Acer rubrum	WDH	High	61.4	241.4	3.1	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	14
willow oak	Quercus phellos	NSL	Low	11.6	238.6	15.1	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	15
black cherry	Prunus serotina	WDL	Medium	58.9	150.2	2.0	Sm. inc.	Lg. inc.	Low	Common	Fair	Good			1	16
American elm	Ulmus americana	WDH	Medium	22.9	134.8	4.7	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	17
blackjack oak	Quercus marilandica	NSL	Medium	34.9	119.2	3.1	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	18
common persimmon	Diospyros virginiana	NSL	Low	25.8	116.3	3.1	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	19
green ash	Fraxinus pennsylvanica	WSH	Low	37.2	105.9	2.0	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	20
white ash	Fraxinus americana	WDL	Medium	37.3	98.5	1.8	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	21
flowering dogwood	Cornus florida	WDL	Medium	46.1	93.1	1.3	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	22
sugarberry	Celtis laevigata	NDH	Medium	8.6	63.5	4.7	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good	Infill ++	Infill ++	1	23
bitternut hickory	Carya cordiformis	WSL	Low	13.8	60.4	2.6	Sm. dec.	No change	High	Common	Fair	Good			1	24
florida maple	Acer barbatum	NSL	Low	15.4	53.1	2.6	Sm. dec.	Sm. dec.	High	Common	Fair	Fair	Infill +	Infill +	1	25
overcup oak	Quercus lyrata	NSL	Medium	4	52.7	13.3	No change	No change	Low	Common	Poor	Poor	Infill +	Infill +	0	26
black walnut	Juglans nigra	WDH	Low	15.1	52.2	2.4	Sm. dec.	No change	Medium	Common	Poor	Fair			1	27
shagbark hickory	Carya ovata	WSL	Medium	12.3	49.5	3.4	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	28
black locust	Robinia pseudoacacia	NDH	Low	15.8	46.8	2.1	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	29
boxelder	Acer negundo	WSH	Low	4	46.1	11.6	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	1	30
black willow	Salix nigra	NSH	Low	3	44.3	14.9	No change	No change	Low	Rare	Very Poor	Very Poor			0	31
chinkapin oak	Quercus muehlenbergii	NSL	Medium	15.5	38.8	1.4	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	1	32
slippery elm	Ulmus rubra	WSL	Low	15.5	37.9	1.9	No change	Sm. inc.	Medium	Rare	Poor	Fair			1	33
water oak	Quercus nigra	WDH	High	14.3	36.7	3.0	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1	34
eastern redbud	Cercis canadensis	NSL	Low	20.7	35.4	1.0	Sm. dec.	No change	Medium	Rare	Very Poor	Poor			1	35
cherrybark oak; swamp red o	Quercus pagoda	NSL	Medium	10.5	35.1	3.4	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1	36
Osage-orange	Maclura pomifera	NDH	Medium	2	32.3	16.3	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	37
American hornbeam; musclev	Carpinus caroliniana	WSL	Low	17.5	32.1	1.9	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	38
sassafras	Sassafras albidum	WSL	Low	21	31.2	1.0	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	39
silver maple	Acer saccharinum	NSH	Low	2	29.9	15.1	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor	Infill +	Infill +	2	40
Shumard oak	Quercus shumardii	NSL	Low	2	27.0	13.6	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor		Infill +	2	41
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	24.9	26.2	0.8	Lg. inc.	Lg. inc.	High	Rare	Good	Good			1	42
sycamore	Platanus occidentalis	NSL	Low	8.9	23.6	1.8	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	1	43
nuttall oak	Quercus texana	NSH	Medium	3	19.1	6.4	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	44
serviceberry	Amelanchier spp.	NSL	Low	17.5	17.9	0.8	Lg. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	45
honeylocust	Gleditsia triacanthos	NSH	Low	6	17.1	2.9	Sm. inc.	Sm. inc.	High	Rare	Good	Good			1	46
pecan	Carya illinoensis	NSH	Low	1	14.9	15.0	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	2	47



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ashe juniper	Juniperus ashei	NDH	High	0.8	14.1	11.9	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			0	48
hackberry	Celtis occidentalis	WDH	Medium	6.2	13.8	1.6	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	1	49
red mulberry	Morus rubra	NSL	Low	11.8	9.2	0.9	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good			1	50
water hickory	Carya aquatica	NSL	Medium	3.8	9.1	2.2	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	51
swamp tupelo	Nyssa biflora	NDH	Medium	1	7.6	7.7	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	52
wild plum	Prunus americana	NSLX	FIA	2.3	7.5	0.9	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	53
river birch	Betula nigra	NSL	Low	3	7.2	2.4	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	54
pignut hickory	Carya glabra	WDL	Medium	4.7	7.0	1.4	No change	Lg. inc.	Medium	Rare	Poor	Good	Infill +	Infill ++	2	55
American basswood	Tilia americana	WDL	Medium	2	4.4	0.9	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	56
cedar elm	Ulmus crassifolia	NDH	Medium	1	3.2	3.2	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	2	57
blue ash	Fraxinus quadrangulata	NSL	Low	1	2.4	0.4	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	58
butternut	Juglans cinerea	NSLX	FIA	0.7	2.3	1.5	Unknown	Unknown	Low	Rare	FIA Only	FIA Only			0	59
American beech	Fagus grandifolia	WDH	High	0.2	2.1	0.4	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	60
shellbark hickory	Carya laciniosa	NSL	Low	1.3	1.9	0.2	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	61
pawpaw	Asimina triloba	NSL	Low	1.9	1.6	0.8	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	62
sugar maple	Acer saccharum	WDH	High	0.4	1.4	0.6	Very Lg. dec.	Very Lg. dec.	High	Rare	Lost	Lost			0	63
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	1.8	0.9	0.5	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	64
cucumbertree	Magnolia acuminata	NSL	Low	1	0.3	0.3	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	65
Atlantic white-cedar	Chamaecyparis thyoides	NSH	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	66
slash pine	Pinus elliotii	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate ++	3	67
longleaf pine	Pinus palustris	NSH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	68
striped maple	Acer pensylvanicum	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	69
yellow birch	Betula alleghaniensis	NDL	High	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	70
black ash	Fraxinus nigra	WSH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	71
silverbell	Halesia spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	72
American holly	Ilex opaca	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	73
yellow-poplar	Liriodendron tulipifera	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	74
sweetbay	Magnolia virginiana	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	75
mountain or Fraser magnolia	Magnolia fraseri	NSL	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	76
sourwood	Oxydendrum arboreum	NDL	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	77
eastern cottonwood	Populus deltoides	NSH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	78
pin cherry	Prunus pensylvanica	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	79
bur oak	Quercus macrocarpa	NDH	Medium	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	80
swamp chestnut oak	Quercus michauxii	NSL	Low	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat		Likely +	3	81
chestnut oak	Quercus prinus	NDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	82
live oak	Quercus virginiana	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	83
bluejack oak	Quercus incana	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	84