

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 10,188 3,933.4 326

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	21	Increase	RCP45	RCP85	Very Good	11	14	Likely	1	1	
Ash	4			Medium	34	49	No Change	15	13	Good	12	15	Infill	7	14
Hickory	5			Low	32	11	Decrease	31	24	Fair	6	6	Migrate	2	2
Maple	3	Abundant	6	FIA	3		New	4	5	Poor	15	17			
Oak	19	Common	18				Unknown	13	12	Very Poor	18	12			
Pine	6	Rare	46							FIA Only	2	2			
Other	33	Absent	11							Unknown	10	9			
	70		81		84	81		84	84		74	75		10	17

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	62.4	64.0	65.8	65.9	
	CCSM85	62.4	64.2	66.5	69.1	
	GFDL45	62.4	64.9	67.1	67.9	
	GFDL85	62.4	65.0	68.2	71.7	
	HAD45	62.4	64.2	66.8	68.2	
	HAD85	62.4	64.6	67.8	71.6	
Growing Season (May—Sep)	CCSM45	75.7	77.1	78.7	79.1	
	CCSM85	75.7	77.2	79.6	82.7	
	GFDL45	75.7	78.3	80.7	81.9	
	GFDL85	75.7	78.6	81.9	85.8	
	HAD45	75.7	78.1	80.4	81.9	
	HAD85	75.7	78.1	82.2	86.1	
Coldest Month Average	CCSM45	42.3	44.6	45.4	45.3	
	CCSM85	42.3	44.5	45.5	46.8	
	GFDL45	42.3	45.4	45.8	46.4	
	GFDL85	42.3	44.3	45.3	46.2	
	HAD45	42.3	42.6	44.3	44.8	
	HAD85	42.3	43.3	44.3	45.9	
Warmest Month Average	CCSM45	80.5	82.2	83.1	83.1	
	CCSM85	80.5	82.4	83.9	85.3	
	GFDL45	80.5	82.8	83.7	84.7	
	GFDL85	80.5	83.3	84.9	87.2	
	HAD45	80.5	83.1	84.5	85.1	
	HAD85	80.5	83.5	86.0	88.1	

Precipitation (in)

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	49.4	54.9	55.5	57.3	
	CCSM85	49.4	54.8	56.7	62.7	
	GFDL45	49.4	53.8	57.2	60.2	
	GFDL85	49.4	53.0	59.6	59.0	
	HAD45	49.4	51.5	53.1	52.2	
	HAD85	49.4	54.7	50.6	49.8	
Growing Season (May—Sep)	CCSM45	25.5	31.1	31.2	32.1	
	CCSM85	25.5	28.7	31.0	34.0	
	GFDL45	25.5	29.0	31.3	32.9	
	GFDL85	25.5	28.1	33.7	33.4	
	HAD45	25.5	26.0	26.6	25.7	
	HAD85	25.5	28.2	24.5	21.9	

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-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	96.5	4648.3	36.2	No change	No change	Medium	Abundant	Good	Good			1	1
red maple	Acer rubrum	WDH	High	88.2	1112.1	9.3	No change	No change	High	Abundant	Very Good	Very Good			1	2
sweetgum	Liquidambar styraciflua	WDH	High	85	1037.8	9.2	No change	Sm. inc.	Medium	Abundant	Good	Very Good			1	3
pond pine	Pinus serotina	NSH	Medium	38.5	601.3	11.3	Sm. dec.	Sm. dec.	Low	Abundant	Fair	Fair			0	4
water oak	Quercus nigra	WDH	High	74.3	556.0	5.7	Sm. inc.	Lg. inc.	Medium	Abundant	Very Good	Very Good			1	5
swamp tupelo	Nyssa biflora	NDH	Medium	64.9	543.7	5.3	Sm. inc.	Sm. inc.	Low	Abundant	Good	Good			1	6
longleaf pine	Pinus palustris	NSH	Medium	22.4	457.3	11.8	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	7
yellow-poplar	Liriodendron tulipifera	WDH	High	39.9	255.6	4.1	Lg. dec.	Lg. dec.	High	Common	Fair	Fair			1	8
sweetbay	Magnolia virginiana	NSL	Medium	50.6	176.2	2.4	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	9
laurel oak	Quercus laurifolia	NDH	Medium	44.5	175.9	3.0	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	10
loblolly-bay	Gordonia lasianthus	NSH	Medium	25.6	173.4	4.4	No change	No change	Medium	Common	Fair	Fair			1	11
slash pine	Pinus elliotii	NDH	High	8.3	157.1	13.6	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good	Infill ++	Infill ++	1	12
redbay	Persea borbonia	NSL	Low	52.4	156.1	2.1	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	13
American holly	Ilex opaca	NSL	Medium	53.6	120.0	1.7	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	14
southern red oak	Quercus falcata	WDL	Medium	29.3	114.0	3.6	Sm. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	15
white oak	Quercus alba	WDH	Medium	28.8	94.9	2.6	No change	No change	High	Common	Good	Good			1	16
green ash	Fraxinus pennsylvanica	WSH	Low	19.3	94.1	3.4	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	17
bald cypress	Taxodium distichum	NSH	Medium	22.7	79.1	2.8	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	18
black cherry	Prunus serotina	WDL	Medium	24.1	76.9	2.7	Sm. inc.	Lg. inc.	Low	Common	Fair	Good			1	19
blackgum	Nyssa sylvatica	WDL	Medium	43.2	75.9	1.1	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	20
willow oak	Quercus phellos	NSL	Low	19.2	74.4	3.6	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	21
turkey oak	Quercus laevis	NSH	Medium	12.3	71.7	2.7	Sm. dec.	Sm. dec.	High	Common	Fair	Fair			1	22
post oak	Quercus stellata	WDH	High	25.6	64.6	2.2	Sm. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	23
pond cypress	Taxodium ascendens	NSH	Medium	6.5	53.0	3.0	Sm. inc.	Sm. inc.	Medium	Common	Good	Good	Infill ++	Infill ++	2	24
water tupelo	Nyssa aquatica	NSH	Medium	7.9	46.3	5.9	No change	No change	Low	Rare	Very Poor	Very Poor			0	25
pumpkin ash	Fraxinus profunda	NSH	FIA	5.5	44.8	3.8	Unknown	Unknown	NA	Rare	FIA Only	FIA Only			0	26
American hornbeam; muscley	Carpinus caroliniana	WSL	Low	15.3	40.5	2.2	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	27
swamp chestnut oak	Quercus michauxii	NSL	Low	17.3	40.2	1.3	No change	No change	Medium	Rare	Poor	Poor			1	28
flowering dogwood	Cornus florida	WDL	Medium	15.9	35.9	2.0	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	29
American elm	Ulmus americana	WDH	Medium	9.2	25.5	1.3	No change	Sm. inc.	Medium	Rare	Poor	Fair	Infill +	Infill +	1	30
mockernut hickory	Carya alba	WDL	Medium	15.7	24.1	1.5	Lg. inc.	Lg. inc.	High	Rare	Good	Good			1	31
pignut hickory	Carya glabra	WDL	Medium	8.1	23.2	1.8	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	32
black willow	Salix nigra	NSH	Low	6.3	22.5	2.7	No change	Sm. inc.	Low	Rare	Very Poor	Poor		Infill +	1	33
Atlantic white-cedar	Chamaecyparis thyoides	NSH	Low	7.6	19.6	2.3	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	34
sourwood	Oxydendrum arboreum	NDL	High	6.5	19.2	1.4	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			1	35
sugarberry	Celtis laevigata	NDH	Medium	2.8	17.6	6.0	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good		Infill ++	2	36
live oak	Quercus virginiana	NDH	High	2.8	16.2	3.2	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	37
boxelder	Acer negundo	WSH	Low	3.9	14.3	3.6	Lg. dec.	Sm. dec.	High	Rare	Poor	Poor			0	38
sassafras	Sassafras albidum	WSL	Low	8.8	13.5	1.5	Sm. dec.	No change	Medium	Rare	Very Poor	Poor			1	39
river birch	Betula nigra	NSL	Low	6.9	11.3	1.6	No change	Sm. inc.	Medium	Rare	Poor	Fair	Infill +	Infill +	1	40
common persimmon	Diospyros virginiana	NSL	Low	6.9	8.2	0.9	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			1	41
Virginia pine	Pinus virginiana	NDH	High	5.5	8.2	0.9	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	42
Carolina ash	Fraxinus caroliniana	NSL	FIA	2.9	7.8	2.7	Unknown	Unknown	NA	Rare	FIA Only	FIA Only			0	43
overcup oak	Quercus lyrata	NSL	Medium	4.4	7.4	1.1	No change	Sm. inc.	Low	Rare	Very Poor	Poor		Infill +	2	44
scarlet oak	Quercus coccinea	WDL	Medium	3	6.9	1.3	Lg. dec.	Very Lg. dec.	Medium	Rare	Very Poor	Lost			0	45
sycamore	Platanus occidentalis	NSL	Low	3.3	5.2	1.2	Sm. dec.	No change	Medium	Rare	Very Poor	Poor		Infill +	2	46
shortleaf pine	Pinus echinata	WDH	High	2	5.1	2.6	No change	Lg. inc.	Medium	Rare	Poor	Good	Infill +	Infill ++	2	47



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bluejack oak	Quercus incana	NSL	Low	1.9	4.3	1.1	Very Lg. dec.	No change	Medium	Rare	Lost	Poor		Infill +	2	48	
slippery elm	Ulmus rubra	WSL	Low	4.1	4.3	0.8	Sm. dec.	No change	Medium	Rare	Very Poor	Poor		Infill +	2	49	
black locust	Robinia pseudoacacia	NDH	Low	1	4.1	4.2	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	50	
blackjack oak	Quercus marilandica	NSL	Medium	3.9	2.9	0.7	Very Lg. dec.	Sm. inc.	High	Rare	Lost	Good		Infill ++	2	51	
American beech	Fagus grandifolia	WDH	High	1.3	2.5	0.7	No change	No change	Medium	Rare	Poor	Poor		Infill +	2	52	
eastern cottonwood	Populus deltoides	NSH	Low	1	2.4	2.4	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	53	
winged elm	Ulmus alata	WDL	Medium	2	2.2	1.1	No change	Lg. inc.	Medium	Rare	Poor	Good			2	54	
Shumard oak	Quercus shumardii	NSL	Low	1.1	2.1	0.6	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	55	
southern magnolia	Magnolia grandiflora	NSL	Low	2.1	2.0	0.6	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	56	
florida maple	Acer barbatum	NSL	Low	1.3	2.0	0.7	Very Lg. dec.	Very Lg. dec.	High	Rare	Lost	Lost			0	57	
swamp white oak	Quercus bicolor	NSL	Low	2	2.0	1.0	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	58	
chinkapin oak	Quercus muehlenbergii	NSL	Medium	1.2	1.7	0.3	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	59	
water hickory	Carya aquatica	NSL	Medium	1	1.5	1.6	No change	No change	Medium	Rare	Poor	Poor		Infill +	Infill +	2	60
white mulberry	Morus alba	NSL	FIA	0.1	1.2	0.1	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	61	
eastern redcedar	Juniperus virginiana	WDH	Medium	1.1	0.8	0.2	Very Lg. dec.	No change	Medium	Rare	Lost	Poor		Infill +	2	62	
shellbark hickory	Carya laciniosa	NSL	Low	1	0.6	0.6	Lg. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	63	
chestnut oak	Quercus prinus	NDH	High	1	0.6	0.6	Sm. dec.	Lg. dec.	High	Rare	Poor	Poor			0	64	
northern red oak	Quercus rubra	WDH	Medium	2	0.6	0.3	Very Lg. dec.	Very Lg. dec.	High	Rare	Lost	Lost			0	65	
black oak	Quercus velutina	WDH	High	1	0.3	0.3	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	66	
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	1	0.2	0.2	Lg. dec.	Sm. inc.	High	Rare	Poor	Good			2	67	
white ash	Fraxinus americana	WDL	Medium	1	0.2	0.2	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	68	
bitternut hickory	Carya cordiformis	WDL	Low	1	0.1	0.1	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			0	69	
hackberry	Celtis occidentalis	WDH	Medium	1	0.1	0.1	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			0	70	
sand pine	Pinus clausa	NDH	High	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat		Migrate +	3	71	
serviceberry	Amelanchier spp.	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Likely +	Likely +	3	72
pawpaw	Asimina triloba	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	73	
pecan	Carya illinoensis	NSH	Low	0	0	0	Unknown	New Habitat	Low	Absent	Unknown	New Habitat		Migrate +	3	74	
silverbell	Halesia spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	75	
black walnut	Juglans nigra	WDH	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	76	
Osage-orange	Maclura pomifera	NDH	Medium	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	77	
cucumbertree	Magnolia acuminata	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	78	
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	79	
red mulberry	Morus rubra	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	80	
pin cherry	Prunus pensylvanica	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	81	
cherrybark oak; swamp red o.	Quercus pagoda	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	Migrate +	3	82
American basswood	Tilia americana	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	83	
cedar elm	Ulmus crassifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			0	84	