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USDA Forest Service
Northern Research Station
Landscape Change Research Group
Iverson, Peters, Prasad, Matthews

	sq. km	sq. mi	FIA Plots
Area of Region	8,361.8	3,228.5	255

Species Information

The columns below provide breif 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			Model		Potential Change in Habitat Suitability			Capability to Cope or Persist			Migration Potential	
							Scenario	Scenario		Scenario	Scenario		SHIFT	SHIFT
Ash	2						RCP45	RCP85		RCP45	RCP85		RCP45	RCP85
Hickory	5	Abundance		Reliability	Adaptability									
Maple	1	Abundant	5	High	15	16	Increase	22	30	Very Good	8	9	Likely	0	0
Oak	11	Common	15	Medium	30	47	No Change	13	11	Good	11	14	Infill	12	16
Pine	6	Rare	33	Low	27	9	Decrease	16	10	Fair	11	13	Migrate	1	3
Other	28	Absent	15	FIA	2		New	6	8	Poor	8	7		**13**	**19**
	53		**68**		**74**	**72**	Unknown	17	15	Very Poor	9	7			
								74	**74**	FIA Only	2	2			
										Unknown	15	13			
											64	**65**			

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099	
Annual	CCSM45	66.9	68.3	70.0	70.1	
Average	CCSM85	66.9	68.5	70.8	73.0	
	GFDL45	66.9	69.6	71.2	72.0	
	GFDL85	66.9	69.2	72.2	75.6	
	HAD45	66.9	68.8	71.2	72.5	
	HAD85	66.9	69.1	72.2	75.7	
Growing	CCSM45	78.7	79.9	81.2	81.6	
Season	CCSM85	78.7	79.9	82.2	84.7	
May—Sep	GFDL45	78.7	81.4	82.9	84.2	
	GFDL85	78.7	81.1	84.0	87.9	
	HAD45	78.7	81.3	83.2	84.4	
	HAD85	78.7	81.2	85.3	88.3	
Coldest	CCSM45	48.9	51.1	51.8	51.6	
Month	CCSM85	48.9	51.0	52.2	53.3	
Average	GFDL45	48.9	52.1	52.4	52.6	
	GFDL85	48.9	50.6	51.8	52.4	
	HAD45	48.9	48.9	50.4	51.2	
	HAD85	48.9	50.2	51.4	53.0	
Warmest	CCSM45	81.9	83.0	83.5	83.7	
Month	CCSM85	81.9	82.8	84.0	85.5	
Average	GFDL45	81.9	84.4	85.0	85.8	
	GFDL85	81.9	83.8	85.2	87.2	
	HAD45	81.9	84.8	85.9	86.5	
	HAD85	81.9	85.0	87.3	88.7	

Precipitation (in)

	Scenario	2009	2039	2069	2099	
Annual	CCSM45	66.4	69.1	71.6	73.4	
Total	CCSM85	66.4	70.7	72.6	76.1	
	GFDL45	66.4	74.2	78.3	78.3	
	GFDL85	66.4	73.4	77.2	75.8	
	HAD45	66.4	63.4	69.3	72.5	
	HAD85	66.4	71.4	63.5	67.2	
Growing	CCSM45	31.2	33.5	33.5	34.6	
Season	CCSM85	31.2	32.1	33.5	34.2	
May—Sep	GFDL45	31.2	37.3	39.8	37.8	
	GFDL85	31.2	37.6	40.9	40.9	
	HAD45	31.2	29.9	31.4	32.5	
	HAD85	31.2	32.3	25.5	27.0	

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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ua 68482

U.S. Census Bureau Urban Areas
Climate Change Atlas Tree Species
Current and Potential Future Habitat, Capability, and Migration

Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIAiv	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
slash pine	Pinus elliottii	NDH	High	71	2151.3	23.6	No change	No change	Medium	Abundant	Good	Good			1	1
longleaf pine	Pinus palustris	NSH	Medium	70.2	1873.6	24.4	No change	No change	Medium	Abundant	Good	Good			1	2
loblolly pine	Pinus taeda	WDH	High	50.3	1707.6	30.1	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			1	3
water oak	Quercus nigra	WDH	High	58.8	552.1	8.4	Lg. inc.	Lg. inc.	Medium	Abundant	Very Good	Very Good			1	4
laurel oak	Quercus laurifolia	NDH	Medium	50.7	537.4	9.4	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			1	5
sweetbay	Magnolia virginiana	NSL	Medium	55.9	489.3	7.2	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	6
swamp tupelo	Nyssa biflora	NDH	Medium	45.9	459.1	7.9	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	7
sand pine	Pinus clausa	NDH	High	12.5	225.4	15.7	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair	Infill +	Infill +	1	8
live oak	Quercus virginiana	NDH	High	31.9	205.3	6.0	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	9
southern red oak	Quercus falcata	WDL	Medium	29.8	202.1	6.4	No change	Sm. inc.	High	Common	Good	Very Good			1	10
turkey oak	Quercus laevis	NSH	Medium	29.1	193.6	6.0	No change	No change	High	Common	Good	Good			1	11
yellow-poplar	Liriodendron tulipifera	WDH	High	26.3	178.6	6.4	No change	No change	High	Common	Good	Good			1	12
Atlantic white-cedar	Chamaecyparis thyoides	NSH	Low	15.5	152.9	9.3	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	13
pond cypress	Taxodium ascendens	NSH	Medium	7.3	144.0	11.4	No change	Sm. inc.	Medium	Common	Fair	Good	Infill +	Infill ++	2	14
sweetgum	Liquidambar styraciflua	WDH	High	20.3	139.7	6.5	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	15
water tupelo	Nyssa aquatica	NSH	Medium	10.8	131.4	11.6	Sm. dec.	Sm. dec.	Low	Common	Poor	Poor	Infill +	Infill +	0	16
red maple	Acer rubrum	WDH	High	43.5	114.1	2.4	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	17
southern magnolia	Magnolia grandiflora	NSL	Low	15.8	99.8	5.6	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	18
blackgum	Nyssa sylvatica	WDL	Medium	32.8	98.3	2.7	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	19
bald cypress	Taxodium distichum	NSH	Medium	14.4	80.3	5.3	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good	Infill ++	Infill ++	1	20
redbay	Persea borbonia	NSL	Low	20.8	47.6	1.8	Sm. inc.	Sm. inc.	High	Rare	Good	Good			1	21
post oak	Quercus stellata	WDH	High	6	45.3	7.2	No change	Sm. inc.	High	Rare	Fair	Good	Infill +	Infill ++	2	22
American holly	Ilex opaca	NSL	Medium	25.1	41.3	1.6	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair			1	23
flowering dogwood	Cornus florida	WDL	Medium	20.3	34.6	1.6	No change	No change	Medium	Rare	Poor	Poor			1	24
pecan	Carya illinoinensis	NSH	Low	4.8	27.6	5.5	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			2	25
black cherry	Prunus serotina	WDL	Medium	14.4	23.4	1.5	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair			1	26
American hornbeam; muscle	Carpinus caroliniana	WSL	Low	6	18.9	3.0	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	1	27
green ash	Fraxinus pennsylvanica	WSH	Low	7.2	18.2	2.4	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	1	28
common persimmon	Diospyros virginiana	NSL	Low	9.5	17.1	1.7	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			1	29
bluejack oak	Quercus incana	NSL	Low	10.7	14.0	1.2	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair			1	30
spruce pine	Pinus glabra	NSL	Low	3.6	12.1	3.2	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	31
overcup oak	Quercus lyrata	NSL	Medium	3.6	11.4	3.0	No change	No change	Low	Rare	Very Poor	Very Poor			2	32
blackjack oak	Quercus marilandica	NSL	Medium	4.8	10.7	2.1	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	33
mockernut hickory	Carya alba	WDL	Medium	1.2	9.2	7.3	Sm. dec.	No change	High	Rare	Poor	Fair		Infill +	2	34
shortleaf pine	Pinus echinata	WDH	High	3.6	7.6	2.0	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	35
black oak	Quercus velutina	WDH	High	1.2	5.8	4.6	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	36
sycamore	Platanus occidentalis	NSL	Low	2.4	5.7	2.3	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	37
pignut hickory	Carya glabra	WDL	Medium	2.4	4.6	1.8	No change	Sm. inc.	Medium	Rare	Poor	Fair	Infill +	Infill +	2	38
river birch	Betula nigra	NSL	Low	1.2	3.4	2.7	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	39
sugarberry	Celtis laevigata	NDH	Medium	1.2	3.4	2.7	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good	Infill +		2	40
loblolly-bay	Gordonia lasianthus	NSH	Medium	2.4	2.4	0.9	No change	Sm. inc.	Medium	Rare	Poor	Fair	Infill +	Infill +	2	41
slippery elm	Ulmus rubra	WSL	Low	1.2	2.2	1.8	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	42
sourwood	Oxydendrum arboreum	NDL	High	1.2	2.2	1.7	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	43
sassafras	Sassafras albidum	WSL	Low	1.2	2.1	1.7	Sm. dec.	No change	Medium	Rare	Very Poor	Poor		Infill +	2	44
Carolina ash	Fraxinus caroliniana	NSL	FIA	1.2	1.9	1.5	Unknown	Unknown	NA	Rare	FIA Only	FIA Only			0	45
American elm	Ulmus americana	WDH	Medium	2.4	1.5	0.6	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	46
willow oak	Quercus phellos	NSL	Low	1.2	1.1	0.9	Very Lg. dec.	No change	Medium	Rare	Lost	Poor		Infill +	2	47

Sep 2022

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Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIAiv	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
eastern redcedar	Juniperus virginiana	WDH	Medium	2.4	0.9	0.4	Very Lg. dec.	Sm. inc.	Medium	Rare	Lost	Fair		Infill +	2	48
bitternut hickory	Carya cordiformis	WSL	Low	1.2	0.8	0.6	Very Lg. dec.	Very Lg. dec.	High	Rare	Lost	Lost			0	49
winged elm	Ulmus alata	WDL	Medium	1.2	0.8	0.6	Very Lg. dec.	Lg. inc.	Medium	Rare	Lost	Good			2	50
water elm	Planera aquatica	NSL	Low	1.2	0.5	0.4	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	51
American beech	Fagus grandifolia	WDH	High	1.2	0.4	0.4	Lg. dec.	Sm. inc.	Medium	Rare	Very Poor	Fair		Infill +	2	52
sand hickory	Carya pallida	NSL	FIA	1.3	0.1	0.1	Unknown	Unknown	NA	Rare	FIA Only	FIA Only			0	53
Table Mountain pine	Pinus pungens	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	54
pond pine	Pinus serotina	NSH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	55
Virginia pine	Pinus virginiana	NDH	High	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	56
florida maple	Acer barbatum	NSL	Low	0	0	0	Unknown	Unknown	High	Modeled	Unknown	Unknown			0	57
striped maple	Acer pensylvanicum	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	58
silver maple	Acer saccharinum	NSH	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	59
serviceberry	Amelanchier spp.	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	60
shellbark hickory	Carya laciniosa	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	61
shagbark hickory	Carya ovata	WSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	62
eastern redbud	Cercis canadensis	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	63
white ash	Fraxinus americana	WDL	Medium	0	0	0	Unknown	Unknown	Low	Modeled	Unknown	Unknown			0	64
silverbell	Halesia spp.	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	65
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	66
red mulberry	Morus rubra	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	67
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	0	0	0	Unknown	New Habitat	High	Absent	Unknown	New Habitat		Migrate ++	3	68
quaking aspen	Populus tremuloides	WDH	High	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	69
cherrybark oak; swamp red o	Quercus pagoda	NSL	Medium	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat		Migrate +	3	70
chinkapin oak	Quercus muehlenbergii	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	71
black locust	Robinia pseudoacacia	NDH	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	72
cabbage palmetto	Sabal palmetto	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	73
American basswood	Tilia americana	WSL	Medium	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	74

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