

	sq. km	sq. mi	FIA Plots
Area of Region	20,861	8,054.3	131

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	10	14	Increase	6	5	Very Good	2	1
Hickory	0			Medium	23	35	No Change	5	6	Good	5	6
Maple	1	Abundant	3	Low	25	9	Decrease	5	5	Fair	3	3
Oak	3	Common	3	FIA	1		New	20	20	Poor	2	2
Pine	1	Rare	11				Unknown	23	23	Very Poor	1	1
Other	10	Absent	33							FIA Only	1	1
	17		50		59	58		59	59	Unknown	22	22
											36	36

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099
Annual Average	CCSM45	75.0	76.2	77.3	77.4
	CCSM85	75.0	76.2	78.1	80.1
	GFDL45	75.0	79.2	78.8	79.7
	GFDL85	75.0	77.1	79.8	82.8
	HAD45	75.0	76.3	78.1	79.2
HAD85	75.0	76.8	78.9	81.9	
Growing Season May—Sep	CCSM45	81.3	82.3	83.3	83.5
	CCSM85	81.3	82.3	84.3	86.3
	GFDL45	81.3	85.6	85.1	86.1
	GFDL85	81.3	83.4	86.1	89.2
	HAD45	81.3	82.9	84.4	85.5
HAD85	81.3	83.2	85.6	88.2	
Coldest Month Average	CCSM45	64.3	65.8	66.6	66.5
	CCSM85	64.3	65.3	66.1	67.5
	GFDL45	64.3	66.5	66.9	67.4
	GFDL85	64.3	66.5	67.6	68.7
	HAD45	64.3	64.7	65.8	66.2
HAD85	64.3	65.1	65.9	67.7	
Warmest Month Average	CCSM45	83.1	84.1	84.6	84.6
	CCSM85	83.1	84.3	85.3	86.5
	GFDL45	83.1	85.1	86.1	86.7
	GFDL85	83.1	85.3	86.8	88.5
	HAD45	83.1	84.8	85.5	85.9
HAD85	83.1	84.9	86.1	87.4	

Precipitation (in)

	Scenario	2009	2039	2069	2099
Annual Total	CCSM45	51.8	51.7	50.3	55.2
	CCSM85	51.8	53.0	50.5	45.3
	GFDL45	51.8	58.2	58.3	58.8
	GFDL85	51.8	55.2	61.6	54.1
	HAD45	51.8	54.5	54.8	52.5
HAD85	51.8	49.5	51.0	47.7	
Growing Season May—Sep	CCSM45	35.4	35.3	33.9	37.3
	CCSM85	35.4	36.3	34.8	29.8
	GFDL45	35.4	37.9	36.7	34.6
	GFDL85	35.4	36.4	37.4	31.9
	HAD45	35.4	36.1	36.0	31.4
HAD85	35.4	32.6	31.3	28.2	

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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Section 411A

EcoMap 2007

Climate Change Atlas Tree Species

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

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
pond cypress	Taxodium ascendens	NSH	Medium	24	676.1	35.5	Sm. inc.	No change	Medium	Abundant	Very Good	Good	Infill ++	Infill ++	1	1
cabbage palmetto	Sabal palmetto	NDH	Medium	24.4	555.9	20.5	No change	No change	Medium	Abundant	Good	Good			0	2
slash pine	Pinus elliotii	NDH	High	25.9	518.8	23.9	No change	No change	Medium	Abundant	Good	Good	Infill ++	Infill ++	1	3
live oak	Quercus virginiana	NDH	High	14.3	107.1	5.9	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good	Infill ++	Infill ++	2	4
bald cypress	Taxodium distichum	NSH	Medium	9.4	93.4	11.0	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	2	5
red maple	Acer rubrum	WDH	High	9.2	57.0	7.4	No change	No change	High	Common	Good	Good	Infill ++	Infill ++	2	6
laurel oak	Quercus laurifolia	NDH	Medium	12	42.9	3.1	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	1	7
redbay	Persea borbonia	NSL	Low	15.8	37.6	4.4	Sm. inc.	Sm. inc.	High	Rare	Good	Good	Infill ++	Infill ++	1	8
Carolina ash	Fraxinus caroliniana	NSL	FIA	4.8	24.7	6.1	Unknown	Unknown	NA	Rare	FIA Only	FIA Only			0	9
sweetbay	Magnolia virginiana	NSL	Medium	2.3	6.9	2.2	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	10
green ash	Fraxinus pennsylvanica	WSH	Low	0.8	4.3	3.8	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	2	11
hackberry	Celtis occidentalis	WDH	Medium	0.1	1.3	0.5	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	12
red mulberry	Morus rubra	NSL	Low	0.1	1.2	0.5	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	13
common persimmon	Diospyros virginiana	NSL	Low	2.4	0.8	1.1	Very Lg. dec.	Very Lg. dec.	High	Rare	Lost	Lost			0	14
swamp tupelo	Nyssa biflora	NDH	Medium	0.5	0.8	1.6	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			2	15
water oak	Quercus nigra	WDH	High	0.3	0.3	0.4	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	16
sugarberry	Celtis laevigata	NDH	Medium	0	0.1	0.0	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	17
ashe juniper	Juniperus ashei	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	18
eastern redcedar	Juniperus virginiana	WDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	19
sand pine	Pinus clausa	NDH	High	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	20
loblolly pine	Pinus taeda	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate ++	3	21
boxelder	Acer negundo	WSH	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			0	22
mountain maple	Acer spicatum	NSL	Low	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	23
serviceberry	Amelanchier spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	24
pawpaw	Asimina triloba	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	25
river birch	Betula nigra	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	26
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			0	27
pecan	Carya illinoensis	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	28
eastern redbud	Cercis canadensis	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	29
flowering dogwood	Cornus florida	WDL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	30
American beech	Fagus grandifolia	WDH	High	0	0	0	New Habitat	Unknown	Medium	Absent	New Habitat	Unknown			0	31
loblolly-bay	Gordonia lasianthus	NSH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	32
silverbell	Halesia spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	33
American holly	Ilex opaca	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	34
sweetgum	Liquidambar styraciflua	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	35
cucumbertree	Magnolia acuminata	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	36
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	37
mountain or Fraser magnolia	Magnolia fraseri	NSL	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	38
water tupelo	Nyssa aquatica	NSH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	39
blackgum	Nyssa sylvatica	WDL	Medium	0	0	0	Unknown	Unknown	High	Modeled	Unknown	Unknown			0	40
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	41
water elm	Planera aquatica	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	42
pin cherry	Prunus pensylvanica	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	43
white oak	Quercus alba	WDH	Medium	0	0	0	Unknown	Unknown	High	Modeled	Unknown	Unknown			0	44
cherrybark oak; swamp red o.	Quercus pagoda	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	45
overcup oak	Quercus lyrata	NSL	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	46
bur oak	Quercus macrocarpa	NDH	Medium	0	0	0	Unknown	New Habitat	High	Absent	Unknown	New Habitat			0	47



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Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIAiv	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
swamp chestnut oak	Quercus michauxii	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	48
Nuttall oak	Quercus texana	NSH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			0	49
willow oak	Quercus phellos	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	50
Shumard oak	Quercus shumardii	NSL	Low	0	0	0	Unknown	Unknown	High	Modeled	Unknown	Unknown			0	51
post oak	Quercus stellata	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	52
black willow	Salix nigra	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	53
sassafras	Sassafras albidum	WSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	54
American mountain-ash	Sorbus americana	NSL	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	55
American basswood	Tilia americana	WSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	56
winged elm	Ulmus alata	WDL	Medium	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	57
American elm	Ulmus americana	WDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	58
cedar elm	Ulmus crassifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			0	59