

	sq. km	sq. mi	FIA Plots
Area of Region	21,749	8,397.5	350

**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	3			High	4	10	Increase	4	4	Very Good	3	3	Likely	0	0
Hickory	1			Medium	12	18	No Change	7	8	Good	2	2	Infill	8	8
Maple	0	Abundant	4	Low	15	5	Decrease	16	15	Fair	2	3	Migrate	0	0
Oak	8	Common	6	FIA	3		New	0	0	Poor	15	13		8	8
Pine	0	Rare	20				Unknown	7	7	Very Poor	5	6			
Other	18	Absent	3							FIA Only	3	3			
	<b>30</b>		<b>33</b>		<b>34</b>	<b>33</b>		<b>34</b>	<b>34</b>	Unknown	4	4			

**Potential Changes in Climate Variables**

**Temperature (°F)**

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	64.2	65.6	67.2	67.9	
	CCSM85	64.2	66.3	68.1	70.7	
	GFDL45	64.2	68.1	68.6	70.3	
	GFDL85	64.2	67.2	70.2	74.1	
	HAD45	64.2	66.4	68.9	69.8	
HAD85	64.2	66.8	70.7	73.7		
Growing Season (May—Sep)	CCSM45	78.8	80.0	81.7	82.4	
	CCSM85	78.8	81.0	82.7	85.9	
	GFDL45	78.8	83.8	84.1	86.9	
	GFDL85	78.8	83.0	86.5	91.5	
	HAD45	78.8	80.8	82.9	83.5	
HAD85	78.8	81.4	85.5	88.1		
Coldest Month (Average)	CCSM45	42.4	44.7	45.3	46.0	
	CCSM85	42.4	44.5	45.3	46.8	
	GFDL45	42.4	45.7	45.6	45.9	
	GFDL85	42.4	43.2	44.5	44.7	
	HAD45	42.4	43.0	45.0	45.3	
HAD85	42.4	45.8	47.5	49.0		
Warmest Month (Average)	CCSM45	84.5	85.5	86.7	86.9	
	CCSM85	84.5	86.5	87.2	89.0	
	GFDL45	84.5	89.8	90.0	92.1	
	GFDL85	84.5	90.1	91.9	96.0	
	HAD45	84.5	86.5	87.6	87.9	
HAD85	84.5	87.4	89.5	90.5		

**Precipitation (in)**

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	30.3	31.6	30.7	29.8	
	CCSM85	30.3	29.4	32.3	31.6	
	GFDL45	30.3	30.5	35.5	29.0	
	GFDL85	30.3	30.1	32.4	30.4	
	HAD45	30.3	31.2	30.3	32.1	
HAD85	30.3	30.8	27.6	30.8		
Growing Season (May—Sep)	CCSM45	15.1	16.3	14.5	14.8	
	CCSM85	15.1	15.3	15.5	14.4	
	GFDL45	15.1	15.5	18.1	14.6	
	GFDL85	15.1	15.7	16.4	15.1	
	HAD45	15.1	15.1	15.0	16.0	
HAD85	15.1	14.8	12.4	14.5		

**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 315G

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
post oak	Quercus stellata	WDH	High	61.9	1933.8	33.2	Sm. dec.	Sm. dec.	High	Abundant	Good	Good			1	1
ashe juniper	Juniperus ashei	NDH	High	37	953.0	23.9	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			0	2
live oak	Quercus virginiana	NDH	High	38	879.7	17.5	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			1	3
cedar elm	Ulmus crassifolia	NDH	Medium	47.7	548.1	14.1	Sm. inc.	Sm. inc.	Low	Abundant	Good	Good			1	4
blackjack oak	Quercus marilandica	NSL	Medium	29.2	301.1	12.0	Sm. dec.	Sm. dec.	High	Common	Fair	Fair			1	5
sugarberry	Celtis laevigata	NDH	Medium	20.4	90.6	3.6	Sm. dec.	No change	Medium	Common	Poor	Fair			1	6
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	22.5	88.8	4.9	Lg. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	7
Texas ash	Fraxinus texensis	NDH	FIA	15.7	86.4	8.9	Unknown	Unknown	NA	Common	FIA Only	FIA Only			0	8
pecan	Carya illinoensis	NSH	Low	11.1	61.3	8.4	Sm. dec.	No change	Low	Common	Poor	Poor	Infill +	Infill +	0	9
American elm	Ulmus americana	WDH	Medium	9.2	55.2	4.2	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	10
hackberry	Celtis occidentalis	WDH	Medium	10.7	50.0	2.5	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor	Infill +	Infill +	1	11
black willow	Salix nigra	NSH	Low	8.3	23.4	11.3	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	12
eastern redcedar	Juniperus virginiana	WDH	Medium	6.2	11.4	2.1	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	13
black oak	Quercus velutina	WDH	High	0.5	10.9	6.8	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	14
black walnut	Juglans nigra	WDH	Low	0.3	10.1	4.8	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	15
green ash	Fraxinus pennsylvanica	WSH	Low	2.7	6.9	3.1	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	16
durand oak	Quercus sinuata var. sinuata	NSL	FIA	1.7	5.9	1.4	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	17
common persimmon	Diospyros virginiana	NSL	Low	0.2	3.8	4.0	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor	Infill +	Infill +	2	18
eastern cottonwood	Populus deltoides	NSH	Low	0.5	3.1	6.4	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	19
wild plum	Prunus americana	NSLX	FIA	1	2.7	2.9	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	20
white ash	Fraxinus americana	WDL	Medium	1.4	2.7	1.9	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	21
Osage-orange	Maclura pomifera	NDH	Medium	1.3	2.2	1.5	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	22
winged elm	Ulmus alata	WDL	Medium	1.1	2.0	1.6	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	23
Shumard oak	Quercus shumardii	NSL	Low	0.3	1.8	0.9	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	24
honeylocust	Gleditsia triacanthos	NSH	Low	0.9	1.3	1.2	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	25
eastern redbud	Cercis canadensis	NSL	Low	0.5	0.8	1.8	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	26
bur oak	Quercus macrocarpa	NDH	Medium	0.5	0.6	1.4	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	27
red mulberry	Morus rubra	NSL	Low	1.2	0.4	0.6	No change	Sm. dec.	Medium	Rare	Poor	Very Poor			0	28
slippery elm	Ulmus rubra	WSL	Low	0.2	0.3	0.3	No change	No change	Medium	Rare	Poor	Poor			0	29
southern red oak	Quercus falcata	WDL	Medium	0.1	0.2	0.0	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	30
Atlantic white-cedar	Chamaecyparis thyoides	NSH	Low	0	0	0	Unknown	Unknown	Low	Modeled	Unknown	Unknown			0	31
pawpaw	Asimina triloba	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	32
shellbark hickory	Carya laciniosa	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	33
flowering dogwood	Cornus florida	WDL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	34

