

**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	26

**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	1			High	5	8	Increase	3	3	Very Good	0	0	Likely	2	2
Hickory	0			Medium	8	18	No Change	1	1	Good	1	1	Infill	3	3
Maple	0	Abundant	0	Low	15	3	Decrease	12	12	Fair	2	2	Migrate	4	4
Oak	1	Common	2	FIA	5		New	8	8	Poor	7	7			
Pine	0	Rare	19				Unknown	9	9	Very Poor	4	4			
Other	19	Absent	11							FIA Only	1	1			
	<b>21</b>		<b>32</b>		<b>33</b>	<b>29</b>		<b>33</b>	<b>33</b>	Unknown	4	4			
											<b>19</b>	<b>19</b>			

**Potential Changes in Climate Variables**

**Temperature (°F)**

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	59.3	61.1	62.7	63.4	
	CCSM85	59.3	61.7	63.5	66.5	
	GFDL45	59.3	65.6	64.1	65.6	
	GFDL85	59.3	62.3	65.4	69.6	
	HAD45	59.3	61.5	64.3	65.3	
HAD85	59.3	61.9	66.4	69.3		
Growing Season (May—Sep)	CCSM45	75.7	77.6	79.5	80.2	
	CCSM85	75.7	78.3	80.2	83.9	
	GFDL45	75.7	84.3	81.7	84.3	
	GFDL85	75.7	79.8	83.6	88.9	
	HAD45	75.7	77.6	80.0	80.7	
HAD85	75.7	78.3	83.0	85.4		
Coldest Month Average	CCSM45	35.6	37.7	38.5	39.4	
	CCSM85	35.6	38.0	38.5	40.2	
	GFDL45	35.6	39.1	39.1	39.4	
	GFDL85	35.6	36.6	37.9	38.6	
	HAD45	35.6	36.5	38.7	38.7	
HAD85	35.6	38.6	40.7	42.3		
Warmest Month Average	CCSM45	82.2	84.2	85.8	86.2	
	CCSM85	82.2	85.1	86.0	88.2	
	GFDL45	82.2	87.3	88.1	90.2	
	GFDL85	82.2	87.4	89.5	94.1	
	HAD45	82.2	83.9	85.4	85.5	
HAD85	82.2	85.3	87.4	88.5		

**Precipitation (in)**

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	27.1	27.6	27.6	26.5	
	CCSM85	27.1	27.0	28.8	27.8	
	GFDL45	27.1	27.8	31.6	28.3	
	GFDL85	27.1	28.1	30.0	28.3	
	HAD45	27.1	30.0	28.2	29.2	
HAD85	27.1	27.8	24.5	29.1		
Growing Season (May—Sep)	CCSM45	15.5	14.7	14.6	14.4	
	CCSM85	15.5	15.3	15.6	14.8	
	GFDL45	15.5	15.7	18.4	16.1	
	GFDL85	15.5	16.9	17.9	16.4	
	HAD45	15.5	17.1	16.6	16.9	
HAD85	15.5	14.8	13.0	15.7		

**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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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
eastern redcedar	Juniperus virginiana	WDH	Medium	17.5	147.8	34.2	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	1
black locust	Robinia pseudoacacia	NDH	Low	26	79.0	29.8	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	2
black willow	Salix nigra	NSH	Low	17.5	40.9	17.3	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	3
black walnut	Juglans nigra	WDH	Low	19.9	37.5	30.2	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	4
American elm	Ulmus americana	WDH	Medium	26.8	36.1	14.2	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair			1	5
Siberian elm	Ulmus pumila	NDH	FIA	20.4	26.7	10.9	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	6
Osage-orange	Maclura pomifera	NDH	Medium	13.3	25.3	12.7	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			1	7
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	16.1	18.0	14.4	Lg. inc.	Lg. inc.	High	Rare	Good	Good			1	8
bur oak	Quercus macrocarpa	NDH	Medium	4.7	16.1	19.7	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	9
eastern cottonwood	Populus deltoides	NSH	Low	10.7	15.7	18.9	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	1	10
hackberry	Celtis occidentalis	WDH	Medium	11.9	14.3	19.1	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor	Infill +	Infill +	1	11
honeylocust	Gleditsia triacanthos	NSH	Low	2.6	7.9	5.0	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	12
red mulberry	Morus rubra	NSL	Low	4.9	6.8	7.2	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	13
sugarberry	Celtis laevigata	NDH	Medium	3.9	6.8	26.9	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	14
slippery elm	Ulmus rubra	WSL	Low	7.9	6.7	13.6	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	15
common persimmon	Diospyros virginiana	NSL	Low	4	5.8	23.2	Very Lg. dec.	Very Lg. dec.	High	Rare	Lost	Lost			0	16
paulownia	Paulownia tomentosa	NSL	FIA	4	5.3	21.2	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	17
white mulberry	Morus alba	NSL	FIA	4	3.4	13.6	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	18
green ash	Fraxinus pennsylvanica	WSH	Low	4.5	3.0	1.2	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	19
Kentucky coffeetree	Gymnocladus dioicus	NSLX	FIA	4	1.2	4.8	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	20
ailanthus	Ailanthus altissima	NSL	FIA	4	0.5	2.1	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	21
ashe juniper	Juniperus ashei	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	22
slash pine	Pinus elliottii	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	23
spruce pine	Pinus glabra	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	24
serviceberry	Amelanchier spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	25
pecan	Carya illinoensis	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Likely +	Likely +	3	26
shellbark hickory	Carya laciniosa	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	27
black hickory	Carya texana	NDL	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	28
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	29
blackjack oak	Quercus marilandica	NSL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Likely +	Likely +	3	30
post oak	Quercus stellata	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	31
live oak	Quercus virginiana	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	32
cedar elm	Ulmus crassifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	33