

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	9,549.4	3,687.0	30

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	5	6	Very Good	0	0
Hickory	0			Medium	9	19	No Change	4	5	Good	2	4
Maple	1	Abundant	0	Low	15	4	Decrease	10	8	Fair	7	5
Oak	2	Common	5	FIA	2		New	8	8	Poor	4	6
Pine	2	Rare	16				Unknown	4	4	Very Poor	6	4
Other	15	Absent	10							FIA Only	2	2
	21		31		31	31		31	31	Unknown	2	2
											23	23

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	54.3	56.0	57.9	58.7	
	CCSM85	54.3	56.5	58.9	61.6	
	GFDL45	54.3	60.4	59.1	60.4	
	GFDL85	54.3	57.0	60.1	64.3	
	HAD45	54.3	56.8	59.9	60.8	
HAD85	54.3	57.2	62.2	65.1		
Growing Season (May—Sep)	CCSM45	72.6	74.8	76.8	77.7	
	CCSM85	72.6	75.4	77.9	81.1	
	GFDL45	72.6	81.0	78.7	81.0	
	GFDL85	72.6	76.3	79.8	85.2	
	HAD45	72.6	74.7	77.2	78.0	
HAD85	72.6	75.4	80.4	83.0		
Coldest Month Average	CCSM45	26.4	28.4	29.5	30.4	
	CCSM85	26.4	28.7	29.6	31.3	
	GFDL45	26.4	29.9	30.3	30.5	
	GFDL85	26.4	28.5	29.9	31.0	
	HAD45	26.4	28.6	31.4	31.1	
HAD85	26.4	30.8	33.7	35.5		
Warmest Month Average	CCSM45	79.8	82.3	83.9	84.5	
	CCSM85	79.8	83.6	85.0	87.0	
	GFDL45	79.8	83.7	85.0	86.6	
	GFDL85	79.8	84.2	85.5	89.6	
	HAD45	79.8	82.0	83.6	84.3	
HAD85	79.8	83.8	86.3	87.8		

Precipitation (in)

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	29.9	30.4	30.8	29.6	
	CCSM85	29.9	30.8	30.2	32.0	
	GFDL45	29.9	33.1	35.4	33.8	
	GFDL85	29.9	33.7	38.3	35.8	
	HAD45	29.9	33.6	33.0	34.0	
HAD85	29.9	31.8	30.8	33.9		
Growing Season (May—Sep)	CCSM45	19.1	18.6	18.5	17.8	
	CCSM85	19.1	18.8	17.8	19.1	
	GFDL45	19.1	21.5	22.3	20.8	
	GFDL85	19.1	21.6	24.2	22.1	
	HAD45	19.1	20.3	21.3	21.0	
HAD85	19.1	19.6	18.3	18.8		

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
hackberry	Celtis occidentalis	WDH	Medium	55.9	153.7	25.7	Sm. dec.	Sm. dec.	High	Common	Fair	Fair	Infill +	Infill +	2	1
red mulberry	Morus rubra	NSL	Low	52.3	146.4	20.1	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor	Infill +	Infill +	2	2
green ash	Fraxinus pennsylvanica	WSH	Low	58	113.3	12.9	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor	Infill +	Infill +	2	3
American elm	Ulmus americana	WDH	Medium	50.5	67.9	9.4	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	2	4
eastern redcedar	Juniperus virginiana	WDH	Medium	23.2	53.2	10.5	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			2	5
bur oak	Quercus macrocarpa	NDH	Medium	6.4	39.9	5.6	No change	Sm. dec.	High	Rare	Fair	Poor	Infill +	Infill +	2	6
eastern cottonwood	Populus deltoides	NSH	Low	18.2	36.1	16.0	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	2	7
honeylocust	Gleditsia triacanthos	NSH	Low	23.8	34.1	8.9	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	8
Osage-orange	Maclura pomifera	NDH	Medium	17.3	32.0	17.9	Sm. inc.	Sm. inc.	High	Rare	Good	Good			2	9
black walnut	Juglans nigra	WDH	Low	10.4	10.7	9.0	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good	Infill +		2	10
slippery elm	Ulmus rubra	WSL	Low	18.4	8.7	4.5	Lg. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			2	11
chinkapin oak	Quercus muehlenbergii	NSL	Medium	0.2	7.8	1.1	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	12
boxelder	Acer negundo	WSH	Low	17.2	7.0	3.9	Sm. dec.	Sm. inc.	High	Rare	Poor	Good	Infill +		2	13
black locust	Robinia pseudoacacia	NDH	Low	4.2	6.5	25.0	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	14
eastern white pine	Pinus strobus	WDH	High	0.8	2.5	1.9	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	15
wild plum	Prunus americana	NSLX	FIA	4.9	2.3	3.5	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	16
black willow	Salix nigra	NSH	Low	4.7	1.7	1.4	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	2	17
eastern redbud	Cercis canadensis	NSL	Low	1.2	1.1	1.3	Sm. dec.	No change	Medium	Rare	Very Poor	Poor		Infill +	2	18
shortleaf pine	Pinus echinata	WDH	High	0.8	0.8	0.6	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	19
sycamore	Platanus occidentalis	NSL	Low	0.8	0.7	0.6	Sm. dec.	No change	Medium	Rare	Very Poor	Poor			0	20
northern catalpa	Catalpa speciosa	NSHX	FIA	4.2	0.7	2.7	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	21
ashe juniper	Juniperus ashei	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	22
serviceberry	Amelanchier spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	23
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	24
pecan	Carya illinoensis	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	25
sugarberry	Celtis laevigata	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	26
pin cherry	Prunus pensylvanica	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	27
blackjack oak	Quercus marilandica	NSL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	28
post oak	Quercus stellata	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	29
live oak	Quercus virginiana	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	30
cedar elm	Ulmus crassifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	31