

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 9,412.7 3,634.3 13

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	1	8	Increase	2	2	Very Good	0	0
Hickory	0			Medium	8	11	No Change	5	6	Good	2	2
Maple	0	Abundant	0	Low	12	3	Decrease	3	2	Fair	2	3
Oak	1	Common	3	FIA	2		New	9	9	Poor	6	5
Pine	0	Rare	9				Unknown	4	4	Very Poor	0	0
Other	10	Absent	10							FIA Only	1	1
	12		22		23	22		23	23	Unknown	2	2
											13	13

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	50.8	52.5	54.4	55.3	
	CCSM85	50.8	53.1	55.4	58.3	
	GFDL45	50.8	56.8	55.4	56.8	
	GFDL85	50.8	53.5	56.6	60.9	
	HAD45	50.8	53.5	56.9	57.8	
	HAD85	50.8	53.9	58.9	62.1	
Growing Season (May—Sep)	CCSM45	69.4	71.5	73.7	74.6	
	CCSM85	69.4	72.2	74.5	78.2	
	GFDL45	69.4	77.6	75.4	77.6	
	GFDL85	69.4	73.0	76.6	82.0	
	HAD45	69.4	71.8	74.5	75.4	
	HAD85	69.4	72.4	77.2	80.1	
Coldest Month Average	CCSM45	22.9	24.9	25.9	27.0	
	CCSM85	22.9	25.3	26.0	27.8	
	GFDL45	22.9	26.0	26.3	26.7	
	GFDL85	22.9	24.9	26.4	27.7	
	HAD45	22.9	25.3	28.3	27.9	
	HAD85	22.9	28.1	31.3	33.1	
Warmest Month Average	CCSM45	76.3	78.7	80.5	81.2	
	CCSM85	76.3	80.2	81.7	84.1	
	GFDL45	76.3	80.0	81.2	82.8	
	GFDL85	76.3	80.8	82.2	86.0	
	HAD45	76.3	78.6	80.4	81.1	
	HAD85	76.3	80.3	82.7	84.5	

Precipitation (in)

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	26.8	28.5	27.9	27.1	
	CCSM85	26.8	27.8	28.0	28.6	
	GFDL45	26.8	30.1	32.6	31.2	
	GFDL85	26.8	30.4	33.5	31.7	
	HAD45	26.8	30.2	29.5	30.6	
	HAD85	26.8	28.6	28.5	30.3	
Growing Season (May—Sep)	CCSM45	17.3	17.9	16.6	16.4	
	CCSM85	17.3	16.8	16.4	16.6	
	GFDL45	17.3	19.8	21.2	19.3	
	GFDL85	17.3	19.6	21.5	19.7	
	HAD45	17.3	18.5	18.8	18.8	
	HAD85	17.3	17.9	16.9	16.2	

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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Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIAiv	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
green ash	Fraxinus pennsylvanica	WSH	Low	21.2	96.0	44.6	Sm. dec.	Lg. dec.	Medium	Common	Poor	Poor	Infill +	Infill +	2	1
red mulberry	Morus rubra	NSL	Low	16.7	64.7	17.1	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor	Infill +	Infill +	2	2
American elm	Ulmus americana	WDH	Medium	29	60.5	19.4	Sm. dec.	No change	Medium	Common	Poor	Fair	Infill +	Infill +	2	3
hackberry	Celtis occidentalis	WDH	Medium	14.7	34.1	12.2	Sm. inc.	Sm. inc.	High	Rare	Good	Good			2	4
bur oak	Quercus macrocarpa	NDH	Medium	4.7	30.5	20.5	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	5
eastern cottonwood	Populus deltoides	NSH	Low	7	21.7	30.5	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	6
Siberian elm	Ulmus pumila	NDH	FIA	1.6	12.9	4.4	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	7
honeylocust	Gleditsia triacanthos	NSH	Low	3.1	7.4	20.3	No change	No change	High	Rare	Fair	Fair	Infill +		2	8
black walnut	Juglans nigra	WDH	Low	9.2	4.5	3.0	No change	No change	Medium	Rare	Poor	Poor		Infill +	2	9
eastern redcedar	Juniperus virginiana	WDH	Medium	8	3.8	2.9	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	10
peachleaf willow	Salix amygdaloides	NSLX	FIA	0.6	3.3	1.7	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	11
slippery elm	Ulmus rubra	WSL	Low	4.2	0.8	3.1	No change	No change	Medium	Rare	Poor	Poor		Infill +	2	12
boxelder	Acer negundo	WSH	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +		3	13
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	14
American hornbeam; musclev	Carpinus caroliniana	WSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	15
pecan	Carya illinoensis	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	16
sugarberry	Celtis laevigata	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	17
Osage-orange	Maclura pomifera	NDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	18
pin cherry	Prunus pensylvanica	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	19
blackjack oak	Quercus marilandica	NSL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	20
post oak	Quercus stellata	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	21
black willow	Salix nigra	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat		Migrate +	3	22
cedar elm	Ulmus crassifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			0	23