

One x One Degree
Climate Change Atlas Tree Species
 Current and Potential Future Habitat, Capability, and Migration

Area of Region sq. km sq. mi FIA Plots
 8,837.4 3,412.1 8

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	7	Increase	0	0	Very Good	0	0
Hickory	0		Medium	8	No Change	2	5	Good	0	0
Maple	1	Abundant	Low	0	Decrease	6	3	Fair	1	2
Oak	1	Common	FIA	2	New	4	3	Poor	4	5
Pine	0	Rare			Unknown	4	5	Very Poor	3	1
Other	7	Absent						FIA Only	1	1
	10	16				16	16	Unknown	2	3
									11	12

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099
Annual Average	CCSM45	45.4	47.3	49.8	50.5
	CCSM85	45.4	48.0	50.8	54.2
	GFDL45	45.4	51.4	50.0	51.4
	GFDL85	45.4	48.2	51.3	55.9
	HAD45	45.4	48.5	52.4	54.0
HAD85	45.4	49.0	54.3	58.8	
Growing Season May—Sep	CCSM45	66.2	68.4	71.0	71.7
	CCSM85	66.2	69.3	72.0	76.2
	GFDL45	66.2	73.9	72.2	73.9
	GFDL85	66.2	69.6	73.3	78.9
	HAD45	66.2	68.9	72.0	73.8
HAD85	66.2	69.1	73.5	78.1	
Coldest Month Average	CCSM45	13.0	15.2	16.9	17.6
	CCSM85	13.0	14.3	16.1	18.3
	GFDL45	13.0	16.7	17.4	17.9
	GFDL85	13.0	16.4	17.8	20.1
	HAD45	13.0	15.8	19.6	19.0
HAD85	13.0	18.8	23.8	25.9	
Warmest Month Average	CCSM45	73.6	76.3	78.0	78.9
	CCSM85	73.6	77.7	79.6	82.4
	GFDL45	73.6	77.3	78.7	79.8
	GFDL85	73.6	77.8	79.5	83.2
	HAD45	73.6	76.8	78.4	79.7
HAD85	73.6	77.2	79.8	82.9	

Precipitation (in)

	Scenario	2009	2039	2069	2099
Annual Total	CCSM45	22.2	22.5	22.4	21.7
	CCSM85	22.2	22.0	22.0	22.8
	GFDL45	22.2	25.8	28.2	26.7
	GFDL85	22.2	25.6	28.9	28.2
	HAD45	22.2	24.9	23.8	24.7
HAD85	22.2	24.0	24.7	26.6	
Growing Season May—Sep	CCSM45	14.5	13.8	13.5	12.8
	CCSM85	14.5	13.2	13.3	12.7
	GFDL45	14.5	17.0	18.5	16.9
	GFDL85	14.5	16.7	18.1	17.1
	HAD45	14.5	15.0	14.0	13.9
HAD85	14.5	14.3	13.8	12.9	

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	13.6	37.1	43.7	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			2	1
Siberian elm	Ulmus pumila	NDH	FIA	11	33.2	19.8	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	2
American elm	Ulmus americana	WDH	Medium	5.7	32.4	20.7	Sm. dec.	No change	Medium	Rare	Very Poor	Poor			2	3
hackberry	Celtis occidentalis	WDH	Medium	13.1	31.3	35.1	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor	Infill +	Infill +	2	4
eastern cottonwood	Populus deltoides	NSH	Low	4.5	28.3	100.0	Sm. dec.	No change	Medium	Rare	Very Poor	Poor			2	5
honeylocust	Gleditsia triacanthos	NSH	Low	6	19.2	17.1	Sm. dec.	No change	High	Rare	Poor	Fair	Infill +	Infill +	2	6
bur oak	Quercus macrocarpa	NDH	Medium	4.5	15.5	54.8	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	7
eastern redcedar	Juniperus virginiana	WDH	Medium	4	14.1	44.7	No change	No change	Medium	Rare	Poor	Poor				8
boxelder	Acer negundo	WSH	Low	1.5	14.1	16.3	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor	Infill +		2	9
chokecherry	Prunus virginiana	NSLX	FIA	4.5	1.0	3.4	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	10
ashe juniper	Juniperus ashei	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	11
mountain maple	Acer spicatum	NSL	Low	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	12
flowering dogwood	Cornus florida	WDL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	13
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	0	0	0	New Habitat	Unknown	High	Absent	New Habitat	Unknown			3	14
northern red oak	Quercus rubra	WDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	15
American basswood	Tilia americana	WSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +		3	16