

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	8,985.5	3,469.3	7

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									
Hickory	1									
Maple	2	Abundant 0	High 1	8	Increase 0	1	Very Good 0	0	Likely 0	0
Oak	1	Common 0	Medium 6	10	No Change 8	9	Good 0	0	Infill 6	8
Pine	0	Rare 16	Low 9	0	Decrease 5	3	Fair 3	5	Migrate 1	2
Other	11	Absent 3	FIA 3		New 3	3	Poor 8	7		
	16	19	19	18	19	19	Very Poor 2	1		
							FIA Only 2	2		
							Unknown 0	0		
								15	15	

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	45.2	47.2	49.8	50.4	
	CCSM85	45.2	47.9	50.7	54.2	
	GFDL45	45.2	51.5	50.3	51.5	
	GFDL85	45.2	48.2	51.4	56.1	
	HAD45	45.2	48.1	51.7	53.4	
	HAD85	45.2	48.7	53.3	57.8	
Growing Season May—Sep	CCSM45	65.8	68.0	70.6	71.2	
	CCSM85	65.8	68.8	71.6	75.7	
	GFDL45	65.8	73.8	71.9	73.8	
	GFDL85	65.8	69.5	73.1	78.7	
	HAD45	65.8	68.3	71.2	73.1	
	HAD85	65.8	69.0	73.3	77.4	
Coldest Month Average	CCSM45	12.6	15.1	17.1	17.9	
	CCSM85	12.6	15.0	16.9	19.1	
	GFDL45	12.6	15.9	17.1	17.4	
	GFDL85	12.6	15.7	17.3	19.5	
	HAD45	12.6	14.8	18.6	18.4	
	HAD85	12.6	17.8	22.0	24.9	
Warmest Month Average	CCSM45	72.2	74.9	76.5	77.4	
	CCSM85	72.2	76.5	78.2	80.9	
	GFDL45	72.2	75.4	76.9	78.2	
	GFDL85	72.2	76.2	77.8	81.5	
	HAD45	72.2	74.6	76.5	77.5	
	HAD85	72.2	76.3	78.5	81.6	

Precipitation (in)

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	29.3	29.9	29.1	29.2	
	CCSM85	29.3	29.8	30.4	30.6	
	GFDL45	29.3	32.7	35.8	33.8	
	GFDL85	29.3	33.3	35.8	35.0	
	HAD45	29.3	32.6	31.1	31.1	
	HAD85	29.3	29.9	30.9	34.4	
Growing Season May—Sep	CCSM45	18.6	18.3	17.3	17.4	
	CCSM85	18.6	17.8	17.2	16.7	
	GFDL45	18.6	20.9	22.5	20.3	
	GFDL85	18.6	21.6	21.8	20.3	
	HAD45	18.6	19.7	18.1	17.8	
	HAD85	18.6	17.6	17.2	17.0	

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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USDA Forest Service
Northern Research Station
Landscape Change Research Group
Iverson, Peters, Prasad, Matthews

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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	9.8	47.1	34.6	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	1
bur oak	Quercus macrocarpa	NDH	Medium	5.4	25.8	15.2	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	2
red mulberry	Morus rubra	NSL	Low	3.3	13.0	34.4	Lg. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	3
eastern cottonwood	Populus deltoides	NSH	Low	3.3	11.6	8.2	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	4
boxelder	Acer negundo	WSH	Low	3.5	11.3	1.9	Sm. dec.	No change	High	Rare	Poor	Fair		Infill +	2	5
American basswood	Tilia americana	WSL	Medium	3.3	11.2	7.4	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	6
hackberry	Celtis occidentalis	WDH	Medium	1.5	10.0	0.7	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	7
American elm	Ulmus americana	WDH	Medium	5.9	9.5	7.1	No change	Sm. inc.	Medium	Rare	Poor	Fair	Infill +	Infill +	2	8
black walnut	Juglans nigra	WDH	Low	3.3	4.7	3.1	No change	No change	Medium	Rare	Poor	Poor		Infill +	2	9
peachleaf willow	Salix amygdaloides	NSLX	FIA	1.3	3.5	3.8	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	10
slippery elm	Ulmus rubra	WSL	Low	1.3	2.9	3.2	Sm. dec.	No change	Medium	Rare	Very Poor	Poor			0	11
white mulberry	Morus alba	NSL	FIA	2	2.8	4.4	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	12
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	1.3	1.1	1.2	No change	No change	High	Rare	Fair	Fair			0	13
wild plum	Prunus americana	NSLX	FIA	2	0.9	1.4	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	14
red maple	Acer rubrum	WDH	High	1.3	0.5	0.5	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			0	15
bitternut hickory	Carya cordiformis	WSL	Low	1.3	0.1	0.2	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			0	16
eastern redcedar	Juniperus virginiana	WDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	17
honeylocust	Gleditsia triacanthos	NSH	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	18
Osage-orange	Maclura pomifera	NDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	19