

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	14

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	Scenario	Scenario	Scenario	SHIFT	SHIFT
				High		RCP45	RCP85	RCP45	RCP85	RCP45	RCP85
Ash	2			3	7	Increase	1	3	Very Good	0	0
Hickory	0			8	15	No Change	4	3	Good	0	2
Maple	1	Abundant	0	Low	4	Decrease	9	8	Fair	4	3
Oak	1	Common	3	FIA	2	New	8	8	Poor	6	5
Pine	0	Rare	13			Unknown	5	5	Very Poor	4	4
Other	12	Absent	10				27	27	FIA Only	1	1
	16		26						Unknown	3	3
										18	18

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	53.2	55.0	56.8	57.6	
	CCSM85	53.2	55.5	57.7	60.6	
	GFDL45	53.2	59.3	58.0	59.3	
	GFDL85	53.2	55.9	59.0	63.3	
	HAD45	53.2	55.9	59.0	60.0	
HAD85	53.2	56.2	61.2	64.2		
Growing Season (May—Sep)	CCSM45	71.8	73.9	76.0	76.9	
	CCSM85	71.8	74.5	76.8	80.3	
	GFDL45	71.8	80.1	77.9	80.1	
	GFDL85	71.8	75.4	79.0	84.4	
	HAD45	71.8	74.0	76.5	77.4	
HAD85	71.8	74.6	79.6	82.2		
Coldest Month Average	CCSM45	25.7	27.6	28.6	29.6	
	CCSM85	25.7	28.1	28.7	30.5	
	GFDL45	25.7	29.1	29.4	29.7	
	GFDL85	25.7	27.6	29.0	30.1	
	HAD45	25.7	27.9	30.6	30.3	
HAD85	25.7	30.2	33.1	34.8		
Warmest Month Average	CCSM45	79.3	81.6	83.3	84.0	
	CCSM85	79.3	83.0	84.4	86.6	
	GFDL45	79.3	83.1	84.3	85.9	
	GFDL85	79.3	83.7	85.0	89.0	
	HAD45	79.3	81.5	83.1	83.7	
HAD85	79.3	83.2	85.5	87.0		

Precipitation (in)

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	26.7	27.8	27.6	26.8	
	CCSM85	26.7	27.8	27.7	28.9	
	GFDL45	26.7	29.5	31.9	30.6	
	GFDL85	26.7	30.4	34.2	31.9	
	HAD45	26.7	30.0	29.2	30.2	
HAD85	26.7	28.3	27.7	30.1		
Growing Season (May—Sep)	CCSM45	17.2	17.2	16.4	16.1	
	CCSM85	17.2	17.1	16.4	17.0	
	GFDL45	17.2	19.2	20.3	19.0	
	GFDL85	17.2	19.4	21.7	20.0	
	HAD45	17.2	18.3	19.2	18.7	
HAD85	17.2	17.5	16.5	16.7		

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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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	33.8	90.5	14.8	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor	Infill +	Infill +	2	1
hackberry	Celtis occidentalis	WDH	Medium	35	81.2	19.9	Sm. dec.	Sm. dec.	High	Common	Fair	Fair	Infill +	Infill +	2	2
red mulberry	Morus rubra	NSL	Low	15.3	56.4	12.4	Sm. dec.	Lg. dec.	Medium	Common	Poor	Poor	Infill +	Infill +	2	3
honeylocust	Gleditsia triacanthos	NSH	Low	6.8	49.7	75.8	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			0	4
American elm	Ulmus americana	WDH	Medium	35.1	44.1	9.1	No change	Sm. inc.	Medium	Rare	Poor	Fair	Infill +	Infill +	2	5
bur oak	Quercus macrocarpa	NDH	Medium	14.3	36.0	30.1	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor		Infill +	2	6
eastern cottonwood	Populus deltoides	NSH	Low	7.8	21.3	10.4	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	7
black walnut	Juglans nigra	WDH	Low	17.1	18.4	13.7	Lg. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			2	8
white ash	Fraxinus americana	WDL	Medium	12.6	13.8	17.6	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			2	9
slippery elm	Ulmus rubra	WSL	Low	12.6	8.3	10.5	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	10
black willow	Salix nigra	NSH	Low	4.2	7.0	26.8	Sm. dec.	No change	Low	Rare	Very Poor	Very Poor			2	11
eastern redcedar	Juniperus virginiana	WDH	Medium	1.2	6.4	0.5	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good	Infill +		2	12
Siberian elm	Ulmus pumila	NDH	FIA	4.2	4.9	18.7	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	13
boxelder	Acer negundo	WSH	Low	4.3	3.2	4.5	No change	No change	High	Rare	Fair	Fair			0	14
Osage-orange	Maclura pomifera	NDH	Medium	4.1	1.9	7.2	No change	Sm. inc.	High	Rare	Fair	Good			0	15
wild plum	Prunus americana	NSLX	FIA	0.1	1.8	0.1	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	16
ashe juniper	Juniperus ashei	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	17
Ohio buckeye	Aesculus glabra	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	18
serviceberry	Amelanchier spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	19
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	20
pecan	Carya illinoensis	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat		Migrate +	3	21
sugarberry	Celtis laevigata	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	22
pin cherry	Prunus pensylvanica	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	23
post oak	Quercus stellata	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	24
live oak	Quercus virginiana	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	25
black locust	Robinia pseudoacacia	NDH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	26
cedar elm	Ulmus crassifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			0	27