

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
 9,683.1 3,738.7 10

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	Increase	1	Very Good	0	Likely	0
Hickory	0			Medium	8	No Change	5	Good	1	Infill	7
Maple	1	Abundant	0	Low	13	Decrease	6	Fair	2	Migrate	6
Oak	1	Common	2	FIA	3	New	11	Poor	7		8
Pine	0	Rare	13			Unknown	6	Very Poor	2		8
Other	12	Absent	13				6	FIA Only	2		
	15		28				29	Unknown	3		
							29		17		16

Potential Changes in Climate Variables

Temperature (°F)

Scenario	2009	2039	2069	2099		
Annual	CCSM45	55.2	57.1	59.0	59.6	
Average	CCSM85	55.2	57.6	59.6	62.6	
	GFDL45	55.2	61.4	60.1	61.4	
	GFDL85	55.2	58.0	61.1	65.3	
	HAD45	55.2	57.8	60.8	61.7	
	HAD85	55.2	58.1	63.0	65.8	
Growing Season	CCSM45	73.2	75.6	77.7	78.3	
	CCSM85	73.2	76.1	78.3	81.8	
May—Sep	GFDL45	73.2	81.6	79.4	81.6	
	GFDL85	73.2	77.0	80.5	85.8	
	HAD45	73.2	75.3	77.7	78.5	
	HAD85	73.2	76.0	81.0	83.4	
Coldest Month	CCSM45	28.7	30.5	31.6	32.5	
	CCSM85	28.7	31.2	31.7	33.5	
Average	GFDL45	28.7	32.3	32.5	32.8	
	GFDL85	28.7	30.4	31.8	32.7	
	HAD45	28.7	30.7	33.0	32.9	
	HAD85	28.7	32.7	35.3	36.8	
Warmest Month	CCSM45	80.2	82.8	84.3	84.9	
	CCSM85	80.2	83.8	85.2	87.2	
Average	GFDL45	80.2	84.4	85.6	87.2	
	GFDL85	80.2	84.7	86.0	90.2	
	HAD45	80.2	82.3	83.8	84.3	
	HAD85	80.2	84.1	86.4	87.8	

Precipitation (in)

Scenario	2009	2039	2069	2099		
Annual	CCSM45	27.2	26.8	27.0	26.2	
Total	CCSM85	27.2	27.8	27.8	28.8	
	GFDL45	27.2	29.3	31.6	30.2	
	GFDL85	27.2	30.4	33.8	31.4	
	HAD45	27.2	29.9	29.2	30.5	
	HAD85	27.2	28.3	26.7	30.1	
Growing Season	CCSM45	17.2	15.6	15.7	15.2	
	CCSM85	17.2	16.6	16.2	16.9	
May—Sep	GFDL45	17.2	18.6	19.6	18.6	
	GFDL85	17.2	19.3	21.4	19.6	
	HAD45	17.2	18.2	19.3	18.9	
	HAD85	17.2	17.0	15.8	16.9	

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	25.8	83.9	23.8	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor	Infill +	Infill +	2	1
American elm	Ulmus americana	WDH	Medium	20.3	55.1	14.9	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	2	2
red mulberry	Morus rubra	NSL	Low	17	39.0	20.2	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			2	3
eastern cottonwood	Populus deltoides	NSH	Low	11.4	22.2	13.4	No change	Sm. inc.	Medium	Rare	Poor	Fair	Infill +	Infill +	2	4
honeylocust	Gleditsia triacanthos	NSH	Low	13.5	18.2	13.7	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor	Infill +	Infill +	2	5
hackberry	Celtis occidentalis	WDH	Medium	11.7	17.7	7.6	Sm. inc.	Sm. inc.	High	Rare	Good	Good			2	6
eastern redcedar	Juniperus virginiana	WDH	Medium	8.2	16.8	8.0	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	7
black walnut	Juglans nigra	WDH	Low	4.8	13.7	8.1	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	8
black willow	Salix nigra	NSH	Low	7.9	13.2	25.4	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			2	9
Osage-orange	Maclura pomifera	NDH	Medium	9.4	8.8	6.4	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	10
Siberian elm	Ulmus pumila	NDH	FIA	6.5	6.9	11.4	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	11
bur oak	Quercus macrocarpa	NDH	Medium	4.1	6.0	23.2	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor		Infill +	2	12
boxelder	Acer negundo	WSH	Low	4.3	2.3	2.2	Sm. dec.	No change	High	Rare	Poor	Fair			0	13
Kentucky coffeetree	Gymnocladus dioicus	NSLX	FIA	4.1	1.8	7.1	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	14
peachleaf willow	Salix amygdaloides	NSLX	FIA	1.5	0.7	1.0	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	15
ashe juniper	Juniperus ashei	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	16
shortleaf pine	Pinus echinata	WDH	High	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	17
serviceberry	Amelanchier spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	18
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	19
pecan	Carya illinoensis	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat		Migrate +	3	20
black hickory	Carya texana	NDL	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	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
eastern redbud	Cercis canadensis	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	23
pin cherry	Prunus pensylvanica	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	24
blackjack oak	Quercus marilandica	NSL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	25
post oak	Quercus stellata	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	26
live oak	Quercus virginiana	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	27
black locust	Robinia pseudoacacia	NDH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	28
cedar elm	Ulmus crassifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	29