

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
 9,412.7 3,634.3 50

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	2			High	4	16	Increase	14	14	Very Good	2	2
Hickory	2			Medium	18	23	No Change	9	9	Good	11	11
Maple	2	Abundant	0	Low	22	6	Decrease	8	8	Fair	7	7
Oak	9	Common	9	FIA	3		New	10	10	Poor	4	4
Pine	0	Rare	25				Unknown	6	6	Very Poor	7	7
Other	19	Absent	12							FIA Only	1	1
	34		46		47	45		47	47	Unknown	3	3
											19	25
											35	35

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	51.0	52.9	55.0	55.7	
	CCSM85	51.0	53.6	56.2	59.0	
	GFDL45	51.0	57.1	56.1	57.3	
	GFDL85	51.0	53.9	57.1	61.3	
	HAD45	51.0	53.5	56.7	58.3	
HAD85	51.0	54.1	58.8	62.7		
Growing Season (May—Sep)	CCSM45	69.6	71.8	73.8	74.7	
	CCSM85	69.6	72.8	75.3	78.4	
	GFDL45	69.6	77.4	75.7	77.7	
	GFDL85	69.6	73.4	76.9	82.3	
	HAD45	69.6	71.9	74.3	76.2	
HAD85	69.6	72.5	77.7	81.3		
Coldest Month (Average)	CCSM45	21.4	23.3	25.1	25.7	
	CCSM85	21.4	24.0	25.4	27.1	
	GFDL45	21.4	24.9	25.5	25.9	
	GFDL85	21.4	24.2	25.7	27.1	
	HAD45	21.4	23.1	26.2	26.2	
HAD85	21.4	25.7	28.9	31.3		
Warmest Month (Average)	CCSM45	76.1	78.5	79.9	80.6	
	CCSM85	76.1	80.2	81.8	83.5	
	GFDL45	76.1	79.7	81.2	82.8	
	GFDL85	76.1	80.3	81.8	85.7	
	HAD45	76.1	78.2	80.0	80.9	
HAD85	76.1	80.0	82.9	84.9		

Precipitation (in)

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	36.6	36.1	37.5	34.9	
	CCSM85	36.6	36.1	36.6	37.1	
	GFDL45	36.6	40.3	42.0	41.2	
	GFDL85	36.6	40.3	44.4	42.7	
	HAD45	36.6	40.0	40.9	40.4	
HAD85	36.6	38.4	37.4	40.4		
Growing Season (May—Sep)	CCSM45	22.6	21.9	22.7	20.5	
	CCSM85	22.6	21.3	21.3	21.3	
	GFDL45	22.6	24.9	24.7	24.1	
	GFDL85	22.6	25.0	26.3	24.2	
	HAD45	22.6	23.3	23.6	23.7	
HAD85	22.6	22.5	20.7	20.9		

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-DGP30 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
black walnut	Juglans nigra	WDH	Low	57.9	192.9	9.5	Sm. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	1
hackberry	Celtis occidentalis	WDH	Medium	57.9	186.8	13.4	No change	Sm. dec.	High	Common	Good	Fair			1	2
honeylocust	Gleditsia triacanthos	NSH	Low	54.9	101.4	15.9	No change	No change	High	Common	Good	Good			1	3
shagbark hickory	Carya ovata	WSL	Medium	44.7	95.8	10.4	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor	Infill +	Infill +	0	4
Osage-orange	Maclura pomifera	NDH	Medium	34.1	83.6	11.3	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good	Infill ++	Infill ++	1	5
eastern redcedar	Juniperus virginiana	WDH	Medium	35.3	80.2	15.0	No change	Sm. inc.	Medium	Common	Fair	Good	Infill +	Infill ++	1	6
American elm	Ulmus americana	WDH	Medium	57	79.0	5.7	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	7
bitternut hickory	Carya cordiformis	WSL	Low	43.5	59.8	7.5	Sm. dec.	Sm. dec.	High	Common	Fair	Fair	Infill +	Infill +	1	8
bur oak	Quercus macrocarpa	NDH	Medium	33	50.6	6.0	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good	Infill ++	Infill ++	1	9
white ash	Fraxinus americana	WDL	Medium	13.5	49.0	7.6	Sm. dec.	No change	Low	Rare	Very Poor	Very Poor			2	10
black willow	Salix nigra	NSH	Low	12.4	38.9	2.8	Sm. dec.	No change	Low	Rare	Very Poor	Very Poor			0	11
shingle oak	Quercus imbricaria	NDH	Medium	27.6	36.2	6.6	Sm. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	12
red mulberry	Morus rubra	NSL	Low	46.5	33.3	4.5	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair			1	13
Siberian elm	Ulmus pumila	NDH	FIA	5.5	28.4	4.0	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	14
silver maple	Acer saccharinum	NSH	Low	18.8	26.3	16.1	Sm. inc.	Sm. inc.	High	Rare	Good	Good	Infill ++	Infill ++	1	15
northern red oak	Quercus rubra	WDH	Medium	21.4	25.1	3.4	Sm. inc.	No change	High	Rare	Good	Fair	Infill ++	Infill +	1	16
boxelder	Acer negundo	WSH	Low	34.7	22.1	5.1	No change	Sm. inc.	High	Rare	Fair	Good	Infill +	Infill ++	1	17
slippery elm	Ulmus rubra	WSL	Low	37.7	17.5	3.4	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair			1	18
black cherry	Prunus serotina	WDL	Medium	31.5	16.1	4.1	No change	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	19
green ash	Fraxinus pennsylvanica	WSH	Low	28.3	15.2	3.4	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1	20
black locust	Robinia pseudoacacia	NDH	Low	6.8	14.3	17.7	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	1	21
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	10	12.9	2.0	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	1	22
eastern cottonwood	Populus deltoides	NSH	Low	13	12.7	4.4	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1	23
white oak	Quercus alba	WDH	Medium	16.5	11.2	5.8	Sm. inc.	No change	High	Rare	Good	Fair	Infill ++	Infill +	1	24
black oak	Quercus velutina	WDH	High	21.9	8.5	4.1	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1	25
American basswood	Tilia americana	WSL	Medium	14.5	8.1	5.0	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	26
chinkapin oak	Quercus muehlenbergii	NSL	Medium	4.7	7.6	3.7	No change	No change	Medium	Rare	Poor	Poor		Infill +	2	27
pin oak	Quercus palustris	NSH	Low	5.5	3.8	1.4	No change	No change	Low	Rare	Very Poor	Very Poor			2	28
post oak	Quercus stellata	WDH	High	4.5	3.4	2.2	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	29
wild plum	Prunus americana	NSLX	FIA	8.5	2.5	4.7	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	30
swamp white oak	Quercus bicolor	NSL	Low	7.7	2.4	4.3	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	31
sycamore	Platanus occidentalis	NSL	Low	3.7	1.9	6.2	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good	Infill +		2	32
white mulberry	Morus alba	NSL	FIA	3.7	0.5	1.8	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	33
eastern redbud	Cercis canadensis	NSL	Low	7.1	0.4	0.7	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	34
sugar maple	Acer saccharum	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Likely +	Likely +	3	35
serviceberry	Amelanchier spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	36
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	37
pecan	Carya illinoensis	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	38
black hickory	Carya texana	NDL	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	39
sugarberry	Celtis laevigata	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	40
flowering dogwood	Cornus florida	WDL	Medium	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	41
common persimmon	Diospyros virginiana	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	42
pin cherry	Prunus pensylvanica	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	43
blackjack oak	Quercus marilandica	NSL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	44
Shumard oak	Quercus shumardii	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	45
winged elm	Ulmus alata	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate ++	3	46
cedar elm	Ulmus crassifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	47

