

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	10,188	3,933.4	103

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	3			High	6	15	Increase	11	14	Very Good	0	0
Hickory	3			Medium	15	19	No Change	5	3	Good	6	7
Maple	1	Abundant	0	Low	18	6	Decrease	21	20	Fair	7	9
Oak	10	Common	4	FIA	3		New	2	2	Poor	14	11
Pine	0	Rare	36				Unknown	3	3	Very Poor	10	10
Other	23	Absent	2							FIA Only	2	2
	40		42		42	40		42	42	Unknown	0	0
											39	39

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	62.0	63.6	65.2	66.0	
	CCSM85	62.0	64.3	66.2	68.9	
	GFDL45	62.0	68.1	66.6	68.1	
	GFDL85	62.0	64.9	67.9	71.8	
	HAD45	62.0	64.1	66.8	67.7	
	HAD85	62.0	64.5	68.8	71.9	
Growing Season (May—Sep)	CCSM45	77.4	78.9	80.6	81.5	
	CCSM85	77.4	79.9	81.8	85.1	
	GFDL45	77.4	85.6	83.0	85.6	
	GFDL85	77.4	81.4	85.0	89.9	
	HAD45	77.4	79.4	81.8	82.4	
	HAD85	77.4	80.0	84.8	87.5	
Coldest Month Average	CCSM45	38.8	41.1	41.9	42.7	
	CCSM85	38.8	41.2	41.9	43.5	
	GFDL45	38.8	42.2	42.3	42.5	
	GFDL85	38.8	39.6	41.0	41.4	
	HAD45	38.8	39.5	41.8	42.1	
	HAD85	38.8	41.9	43.7	45.4	
Warmest Month Average	CCSM45	83.6	84.9	86.0	86.4	
	CCSM85	83.6	86.0	86.7	88.6	
	GFDL45	83.6	88.8	89.3	91.4	
	GFDL85	83.6	88.7	90.6	94.9	
	HAD45	83.6	85.5	86.9	87.0	
	HAD85	83.6	86.6	89.0	89.9	

Precipitation (in)

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	37.2	37.8	38.8	37.0	
	CCSM85	37.2	36.0	38.4	38.5	
	GFDL45	37.2	38.5	43.5	37.8	
	GFDL85	37.2	38.7	42.4	40.8	
	HAD45	37.2	37.9	37.3	39.6	
	HAD85	37.2	39.1	34.2	37.8	
Growing Season (May—Sep)	CCSM45	18.5	18.2	18.2	17.6	
	CCSM85	18.5	17.9	17.5	17.1	
	GFDL45	18.5	19.4	22.0	19.2	
	GFDL85	18.5	20.3	22.1	20.3	
	HAD45	18.5	18.8	18.4	19.1	
	HAD85	18.5	19.0	15.3	17.1	

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
post oak	Quercus stellata	WDH	High	78.7	246.0	25.1	Sm. dec.	Sm. dec.	High	Common	Fair	Fair			1	1
blackjack oak	Quercus marilandica	NSL	Medium	75.7	104.0	11.5	Sm. dec.	Sm. dec.	High	Common	Fair	Fair			1	2
pecan	Carya illinoensis	NSH	Low	54.5	84.5	12.3	Sm. dec.	Sm. dec.	Low	Common	Poor	Poor			0	3
American elm	Ulmus americana	WDH	Medium	81.8	75.4	9.6	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	4
sugarberry	Celtis laevigata	NDH	Medium	56.2	29.3	4.8	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair			1	5
eastern redcedar	Juniperus virginiana	WDH	Medium	41.7	23.8	3.2	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	6
hackberry	Celtis occidentalis	WDH	Medium	58.5	19.9	2.4	Sm. inc.	Sm. inc.	High	Rare	Good	Good			1	7
black willow	Salix nigra	NSH	Low	33	18.5	5.5	Sm. inc.	Sm. inc.	Low	Rare	Poor	Poor			1	8
green ash	Fraxinus pennsylvanica	WSH	Low	37.7	16.8	4.5	No change	Sm. inc.	Medium	Rare	Poor	Fair	Infill +	Infill +	1	9
winged elm	Ulmus alata	WDL	Medium	24.2	16.6	3.1	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair			1	10
ashe juniper	Juniperus ashei	NDH	High	10.9	14.6	19.0	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			0	11
black walnut	Juglans nigra	WDH	Low	11.8	13.6	3.3	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	12
eastern cottonwood	Populus deltoides	NSH	Low	18.3	13.5	5.3	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	1	13
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	23.8	13.0	2.0	Lg. inc.	Lg. inc.	High	Rare	Good	Good			1	14
chinkapin oak	Quercus muehlenbergii	NSL	Medium	11.2	9.5	2.2	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	15
slippery elm	Ulmus rubra	WSL	Low	24.2	9.1	1.8	No change	Sm. inc.	Medium	Rare	Poor	Fair	Infill +	Infill +	1	16
eastern redbud	Cercis canadensis	NSL	Low	26.8	8.1	4.0	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	17
common persimmon	Diospyros virginiana	NSL	Low	19.2	8.0	3.2	Lg. dec.	Sm. dec.	High	Rare	Poor	Poor			1	18
Shumard oak	Quercus shumardii	NSL	Low	16.6	7.7	3.3	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor		Infill +	1	19
black locust	Robinia pseudoacacia	NDH	Low	8.1	7.6	4.9	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	20
Osage-orange	Maclura pomifera	NDH	Medium	23.9	6.9	1.4	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	1	21
white ash	Fraxinus americana	WDL	Medium	23.6	6.9	2.7	No change	No change	Low	Rare	Very Poor	Very Poor			0	22
boxelder	Acer negundo	WSH	Low	21.9	6.4	4.2	No change	Sm. inc.	High	Rare	Fair	Good		Infill ++	1	23
northern red oak	Quercus rubra	WDH	Medium	18.6	6.3	2.6	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			0	24
honeylocust	Gleditsia triacanthos	NSH	Low	22.5	5.8	1.2	Sm. inc.	Sm. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	25
black hickory	Carya texana	NDL	High	24.7	5.0	1.4	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	1	26
wild plum	Prunus americana	NSLX	FIA	17	5.0	2.8	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	27
cedar elm	Ulmus crassifolia	NDH	Medium	0.1	3.9	0.3	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	2	28
black oak	Quercus velutina	WDH	High	15.6	3.8	1.4	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	29
red mulberry	Morus rubra	NSL	Low	13	2.8	2.6	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	30
bur oak	Quercus macrocarpa	NDH	Medium	10.5	1.6	2.0	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	31
Siberian elm	Ulmus pumila	NDH	FIA	11.8	1.5	2.1	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	32
sycamore	Platanus occidentalis	NSL	Low	4.6	1.3	1.2	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	33
white oak	Quercus alba	WDH	Medium	3.9	0.9	3.7	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	34
bitternut hickory	Carya cordiformis	WSL	Low	6.5	0.9	1.4	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	35
pin oak	Quercus palustris	NSH	Low	6.8	0.5	0.8	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	36
Texas ash	Fraxinus texensis	NDH	FIA	0.1	0.4	0.0	Unknown	Unknown	NA	Rare	FIA Only	FIA Only			0	37
southern red oak	Quercus falcata	WDL	Medium	1.4	0.4	0.6	Sm. dec.	No change	High	Rare	Poor	Fair			0	38
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	2.8	0.2	0.5	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			0	39
black cherry	Prunus serotina	WDL	Medium	3.1	0.1	0.4	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	40
water oak	Quercus nigra	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	41
live oak	Quercus virginiana	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	42