

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
 8,137.7 3,142.0 117

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	21	22	Increase	14	20	Very Good	3	2	Likely	1	1
Hickory	4			Medium	34	51	No Change	14	10	Good	11	14	Infill	20	21
Maple	4	Abundant	3	Low	30	13	Decrease	24	22	Fair	13	17	Migrate	11	13
Oak	12	Common	20	FIA	6		New	25	26	Poor	14	9		32	35
Pine	5	Rare	35				Unknown	14	13	Very Poor	10	8			
Other	30	Absent	30							FIA Only	1	1			
	58		88		91	86		91	91	Unknown	8	7			
											60	58			

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	55.0	56.6	58.7	58.9	
	CCSM85	55.0	57.0	59.4	62.3	
	GFDL45	55.0	59.1	60.3	61.4	
	GFDL85	55.0	58.1	61.4	65.4	
	HAD45	55.0	57.3	60.5	61.9	
	HAD85	55.0	57.4	61.2	65.6	
Growing Season (May—Sep)	CCSM45	70.9	72.5	74.2	74.6	
	CCSM85	70.9	72.7	75.1	78.6	
	GFDL45	70.9	75.6	76.9	78.3	
	GFDL85	70.9	74.6	78.4	82.6	
	HAD45	70.9	73.5	76.3	78.1	
	HAD85	70.9	73.1	77.4	82.0	
Coldest Month (Average)	CCSM45	31.2	33.3	34.7	35.1	
	CCSM85	31.2	33.7	34.9	36.6	
	GFDL45	31.2	34.4	35.1	35.8	
	GFDL85	31.2	34.2	35.4	37.0	
	HAD45	31.2	32.4	34.7	34.9	
	HAD85	31.2	33.2	35.0	37.0	
Warmest Month (Average)	CCSM45	76.8	78.8	79.7	79.8	
	CCSM85	76.8	79.0	80.7	82.2	
	GFDL45	76.8	79.7	81.4	82.6	
	GFDL85	76.8	80.9	83.0	85.6	
	HAD45	76.8	79.9	81.4	82.3	
	HAD85	76.8	79.8	82.2	85.2	

Precipitation (in)

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	45.4	48.7	51.0	53.3	
	CCSM85	45.4	49.7	51.4	56.9	
	GFDL45	45.4	51.0	54.7	55.0	
	GFDL85	45.4	48.5	54.6	56.0	
	HAD45	45.4	48.3	49.6	48.9	
	HAD85	45.4	52.3	47.8	50.8	
Growing Season (May—Sep)	CCSM45	20.3	24.3	25.2	26.9	
	CCSM85	20.3	23.7	24.5	27.0	
	GFDL45	20.3	22.1	24.0	25.1	
	GFDL85	20.3	21.2	23.8	24.5	
	HAD45	20.3	22.1	20.9	19.4	
	HAD85	20.3	22.9	19.5	19.6	

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
red maple	Acer rubrum	WDH	High	73.3	1037.9	14.6	No change	Sm. dec.	High	Abundant	Very Good	Good			1	1
sweetgum	Liquidambar styraciflua	WDH	High	52.5	812.8	18.3	No change	No change	Medium	Abundant	Good	Good			1	2
white oak	Quercus alba	WDH	Medium	43.1	559.4	12.0	Sm. dec.	Sm. dec.	High	Abundant	Good	Good			1	3
yellow-poplar	Liriodendron tulipifera	WDH	High	50.2	458.5	12.8	Sm. dec.	Sm. dec.	High	Common	Fair	Fair			1	4
blackgum	Nyssa sylvatica	WDL	Medium	55	381.1	6.8	Sm. dec.	Sm. dec.	High	Common	Fair	Fair			1	5
black cherry	Prunus serotina	WDL	Medium	52	360.6	7.0	Sm. dec.	No change	Low	Common	Poor	Poor			0	6
scarlet oak	Quercus coccinea	WDL	Medium	24.5	203.7	7.4	Sm. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	7
black oak	Quercus velutina	WDH	High	26.7	192.9	6.6	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	8
American holly	Ilex opaca	NSL	Medium	24	169.2	6.0	No change	No change	Medium	Common	Fair	Fair			1	9
Virginia pine	Pinus virginiana	NDH	High	12.1	145.8	8.1	Sm. dec.	Lg. dec.	Medium	Common	Poor	Poor	Infill +	Infill +	0	10
American beech	Fagus grandifolia	WDH	High	33.9	136.3	4.9	No change	No change	Medium	Common	Fair	Fair			1	11
pitch pine	Pinus rigida	NSH	High	13	136.2	7.1	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	12
black walnut	Juglans nigra	WDH	Low	19.5	131.7	13.3	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	13
eastern redcedar	Juniperus virginiana	WDH	Medium	13.5	120.5	11.6	Sm. dec.	No change	Medium	Common	Poor	Fair	Infill +	Infill +	1	14
chestnut oak	Quercus prinus	NDH	High	16.5	99.5	6.7	Sm. dec.	Lg. dec.	High	Common	Fair	Fair	Infill +	Infill +	1	15
loblolly pine	Pinus taeda	WDH	High	11.8	93.9	5.8	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good	Infill ++	Infill ++	2	16
willow oak	Quercus phellos	NSL	Low	17.6	91.9	5.6	Sm. inc.	Sm. inc.	Medium	Common	Good	Good	Infill ++	Infill ++	1	17
northern red oak	Quercus rubra	WDH	Medium	30.1	79.0	4.6	No change	Sm. dec.	High	Common	Good	Fair			1	18
southern red oak	Quercus falcata	WDL	Medium	22.1	77.1	3.9	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good	Infill ++	Infill ++	1	19
black locust	Robinia pseudoacacia	NDH	Low	13	71.0	10.4	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	20
pin oak	Quercus palustris	NSH	Low	14.4	67.3	4.4	Lg. dec.	Lg. dec.	Low	Common	Very Poor	Very Poor			0	21
shortleaf pine	Pinus echinata	WDH	High	1.2	53.1	43.2	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	2	22
silver maple	Acer saccharinum	NSH	Low	7	52.5	16.3	Sm. dec.	No change	High	Common	Fair	Good	Infill +	Infill ++	1	23
sassafras	Sassafras albidum	WSL	Low	41.2	50.0	2.5	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	24
mockernut hickory	Carya alba	WDL	Medium	16.2	48.2	3.3	Sm. inc.	Lg. inc.	High	Rare	Good	Good			1	25
white ash	Fraxinus americana	WDL	Medium	17.6	42.7	3.9	Sm. inc.	Sm. inc.	Low	Rare	Poor	Poor			1	26
American hornbeam; musclev	Carpinus caroliniana	WSL	Low	7.3	42.2	3.3	No change	No change	Medium	Rare	Poor	Poor			1	27
eastern white pine	Pinus strobus	WDH	High	4.1	38.2	16.0	Lg. dec.	Very Lg. dec.	Low	Rare	Very Poor	Lost			2	28
Atlantic white-cedar	Chamaecyparis thyoides	NSH	Low	2.5	37.1	15.1	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	29
common persimmon	Diospyros virginiana	NSL	Low	13.3	33.9	1.9	Lg. dec.	No change	High	Rare	Poor	Fair	Infill +	Infill +	1	30
American elm	Ulmus americana	WDH	Medium	5.3	30.1	2.8	No change	Sm. inc.	Medium	Rare	Poor	Fair	Infill +	Infill +	2	31
sweetbay	Magnolia virginiana	NSL	Medium	6	30.1	3.2	No change	Sm. inc.	Medium	Rare	Poor	Fair	Infill +	Infill +	2	32
boxelder	Acer negundo	WSH	Low	12.9	26.6	6.6	No change	Sm. inc.	High	Rare	Fair	Good	Infill +	Infill ++	1	33
green ash	Fraxinus pennsylvanica	WSH	Low	4.5	26.0	5.1	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	1	34
slippery elm	Ulmus rubra	WSL	Low	2.2	22.8	8.1	Lg. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			2	35
paulownia	Paulownia tomentosa	NSL	FIA	7.9	17.7	18.0	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	36
shagbark hickory	Carya ovata	WSL	Medium	0.5	17.5	5.9	No change	Sm. dec.	Medium	Rare	Poor	Very Poor	Infill +		2	37
sweet birch	Betula lenta	NDH	High	6.2	16.3	4.2	Sm. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	38
swamp chestnut oak	Quercus michauxii	NSL	Low	12.7	15.8	2.9	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1	39
pignut hickory	Carya glabra	WDL	Medium	9.8	13.6	1.3	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	1	40
black willow	Salix nigra	NSH	Low	1.4	10.7	2.7	No change	Lg. inc.	Low	Rare	Very Poor	Fair		Infill +	2	41
white mulberry	Morus alba	NSL	FIA	1.2	10.5	8.5	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	42
river birch	Betula nigra	NSL	Low	7.3	10.2	3.7	Sm. dec.	Sm. inc.	Medium	Rare	Very Poor	Fair		Infill +	1	43
red mulberry	Morus rubra	NSL	Low	3	8.1	16.3	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	44
bitternut hickory	Carya cordiformis	WSL	Low	3.9	7.7	5.8	No change	Sm. inc.	High	Rare	Fair	Good	Infill +	Infill ++	1	45
wild plum	Prunus americana	NSLX	FIA	1.2	6.0	4.8	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	46
sycamore	Platanus occidentalis	NSL	Low	4.9	5.0	16.3	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	47



