

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
 9,130.7 3,525.4 17

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		
		Abundant	Common	Reliability	Adaptability	Scenario RCP45	Scenario RCP85	Scenario RCP45	Scenario RCP85	SHIFT RCP45	SHIFT RCP85	
Ash	1			High	8	11	Increase	3	4	Very Good	0	0
Hickory	0			Medium	12	17	No Change	2	1	Good	1	3
Maple	2	Abundant	0	Low	11	3	Decrease	7	7	Fair	4	2
Oak	1	Common	2	FIA	0		New	17	17	Poor	5	5
Pine	1	Rare	10				Unknown	2	2	Very Poor	2	2
Other	7	Absent	17							FIA Only	0	0
	12		29		31	31		31	31	Unknown	2	2
											14	14

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099
Annual Average	CCSM45	48.4	50.2	52.4	53.2
	CCSM85	48.4	50.7	53.2	56.3
	GFDL45	48.4	54.2	52.8	54.2
	GFDL85	48.4	51.0	54.1	58.5
	HAD45	48.4	51.2	54.8	55.9
	HAD85	48.4	51.7	56.7	60.4
Growing Season (May—Sep)	CCSM45	67.1	69.2	71.8	72.5
	CCSM85	67.1	69.9	72.4	76.4
	GFDL45	67.1	75.0	72.9	75.0
	GFDL85	67.1	70.5	74.1	79.7
	HAD45	67.1	69.4	72.4	73.8
	HAD85	67.1	70.0	74.5	78.4
Coldest Month (Average)	CCSM45	20.5	22.5	23.6	24.7
	CCSM85	20.5	22.3	23.5	25.4
	GFDL45	20.5	23.6	24.0	24.4
	GFDL85	20.5	23.1	24.6	26.0
	HAD45	20.5	23.3	26.8	26.1
	HAD85	20.5	26.0	30.1	31.9
Warmest Month (Average)	CCSM45	74.4	77.0	79.1	79.7
	CCSM85	74.4	78.3	79.9	82.9
	GFDL45	74.4	78.0	79.5	80.7
	GFDL85	74.4	78.9	80.4	84.0
	HAD45	74.4	77.0	78.9	79.8
	HAD85	74.4	78.2	80.9	83.4

Precipitation (in)

	Scenario	2009	2039	2069	2099
Annual Total	CCSM45	24.5	25.7	24.4	24.1
	CCSM85	24.5	24.9	25.8	26.0
	GFDL45	24.5	28.2	30.8	29.8
	GFDL85	24.5	28.0	31.3	30.8
	HAD45	24.5	27.7	26.7	27.8
	HAD85	24.5	26.3	26.6	28.8
Growing Season (May—Sep)	CCSM45	15.9	16.1	14.7	14.4
	CCSM85	15.9	15.0	15.8	15.1
	GFDL45	15.9	18.7	20.4	18.9
	GFDL85	15.9	18.5	20.1	19.3
	HAD45	15.9	17.3	16.1	16.4
	HAD85	15.9	15.7	15.0	14.5

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
bur oak	Quercus macrocarpa	NDH	Medium	36	113.2	30.2	Lg. dec.	Lg. dec.	High	Common	Fair	Fair	Infill +	Infill +	2	1
eastern redcedar	Juniperus virginiana	WDH	Medium	37	105.6	33.8	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			2	2
green ash	Fraxinus pennsylvanica	WSH	Low	17.2	42.2	7.4	Sm. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			2	3
eastern cottonwood	Populus deltoides	NSH	Low	10.8	27.7	26.3	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	2	4
jack pine	Pinus banksiana	NSH	Medium	3.8	12.3	39.6	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	5
American elm	Ulmus americana	WDH	Medium	9.4	12.0	5.2	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	6
hackberry	Celtis occidentalis	WDH	Medium	4.2	2.8	2.3	No change	Sm. inc.	High	Rare	Fair	Good	Infill +		2	7
silver maple	Acer saccharinum	NSH	Low	2	2.0	3.3	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	8
boxelder	Acer negundo	WSH	Low	1.9	1.7	2.7	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	9
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	6.7	1.3	1.9	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	10
red mulberry	Morus rubra	NSL	Low	4.4	1.2	4.3	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good			2	11
slippery elm	Ulmus rubra	WSL	Low	4.4	0.6	2.2	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	12
shortleaf pine	Pinus echinata	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	13
longleaf pine	Pinus palustris	NSH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	14
eastern white pine	Pinus strobus	WDH	High	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	15
Virginia pine	Pinus virginiana	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	16
red maple	Acer rubrum	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	17
American hornbeam; muscle	Carpinus caroliniana	WSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	18
black hickory	Carya texana	NDL	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	19
black walnut	Juglans nigra	WDH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	20
sweetgum	Liquidambar styraciflua	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	21
Osage-orange	Maclura pomifera	NDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	22
balsam poplar	Populus balsamifera	NSH	Medium	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	23
black cherry	Prunus serotina	WDL	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	24
scarlet oak	Quercus coccinea	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	25
blackjack oak	Quercus marilandica	NSL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			0	26
northern red oak	Quercus rubra	WDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	27
post oak	Quercus stellata	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	28
black oak	Quercus velutina	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	29
black locust	Robinia pseudoacacia	NDH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	30
black willow	Salix nigra	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat		Migrate +	3	31