

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	9,273.2	3,580.4	12

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	Scenario	Scenario	Scenario	SHIFT	SHIFT		
														RCP45	RCP85
Ash	1			High	6	11	Increase	2	3	Very Good	0	0	Likely	0	0
Hickory	0			Medium	10	14	No Change	5	4	Good	2	2	Infill	6	5
Maple	1	Abundant	0	Low	12	4	Decrease	2	2	Fair	1	3	Migrate	2	4
Oak	0	Common	1	FIA	2		New	14	14	Poor	6	3		8	9
Pine	1	Rare	10				Unknown	7	7	Very Poor	0	1			
Other	8	Absent	16							FIA Only	1	1			
	11		27		30	29		30	30	Unknown	5	5			
											15	15			

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099
Annual Average	CCSM45	48.6	50.4	52.4	53.2
	CCSM85	48.6	50.8	53.2	56.3
	GFDL45	48.6	54.5	53.0	54.5
	GFDL85	48.6	51.3	54.4	58.7
	HAD45	48.6	51.4	54.9	55.9
	HAD85	48.6	51.8	56.8	60.2
Growing Season May—Sep	CCSM45	66.9	69.0	71.5	72.2
	CCSM85	66.9	69.6	72.1	75.9
	GFDL45	66.9	74.9	72.7	74.9
	GFDL85	66.9	70.4	73.9	79.4
	HAD45	66.9	69.3	72.2	73.4
	HAD85	66.9	69.8	74.6	78.0
Coldest Month Average	CCSM45	21.6	23.4	24.4	25.7
	CCSM85	21.6	23.7	24.5	26.3
	GFDL45	21.6	24.7	24.9	25.3
	GFDL85	21.6	23.8	25.3	26.7
	HAD45	21.6	24.1	27.2	26.6
	HAD85	21.6	26.9	30.5	32.2
Warmest Month Average	CCSM45	74.0	76.5	78.5	79.2
	CCSM85	74.0	77.9	79.4	82.3
	GFDL45	74.0	77.6	79.0	80.3
	GFDL85	74.0	78.6	79.9	83.6
	HAD45	74.0	76.5	78.4	79.1
	HAD85	74.0	77.7	80.3	82.4

Precipitation (in)

	Scenario	2009	2039	2069	2099
Annual Total	CCSM45	24.6	26.4	25.0	24.6
	CCSM85	24.6	25.5	25.9	25.9
	GFDL45	24.6	28.0	30.7	29.4
	GFDL85	24.6	28.0	31.0	30.0
	HAD45	24.6	27.7	26.8	27.7
	HAD85	24.6	26.8	26.5	28.0
Growing Season May—Sep	CCSM45	16.0	16.6	15.0	14.8
	CCSM85	16.0	15.5	15.6	15.0
	GFDL45	16.0	18.5	20.2	18.5
	GFDL85	16.0	18.2	20.0	18.7
	HAD45	16.0	17.2	16.5	16.7
	HAD85	16.0	16.4	15.3	14.4

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
eastern redcedar	Juniperus virginiana	WDH	Medium	27.5	127.0	41.7	Sm. dec.	No change	Medium	Common	Poor	Fair	Infill +	Infill +	2	1
green ash	Fraxinus pennsylvanica	WSH	Low	22.5	45.0	26.8	No change	Sm. dec.	Medium	Rare	Poor	Very Poor	Infill +		2	2
American elm	Ulmus americana	WDH	Medium	16.1	29.6	26.6	No change	Sm. inc.	Medium	Rare	Poor	Fair	Infill +	Infill +	2	3
hackberry	Celtis occidentalis	WDH	Medium	16.1	18.5	15.5	Sm. inc.	Sm. inc.	High	Rare	Good	Good			2	4
eastern cottonwood	Populus deltoides	NSH	Low	7.4	17.3	31.2	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	5
Siberian elm	Ulmus pumila	NDH	FIA	6.4	12.1	21.3	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	6
red mulberry	Morus rubra	NSL	Low	4.3	7.8	28.9	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	7
peachleaf willow	Salix amygdaloides	NSLX	FIA	4.3	6.7	25.0	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	8
honeylocust	Gleditsia triacanthos	NSH	Low	4.3	2.6	9.7	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	9
boxelder	Acer negundo	WSH	Low	2.1	1.6	3.0	Sm. inc.	Sm. inc.	High	Rare	Good	Good			2	10
jack pine	Pinus banksiana	NSH	Medium	2.1	1.4	2.5	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	11
shortleaf pine	Pinus echinata	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	12
eastern white pine	Pinus strobus	WDH	High	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	13
red maple	Acer rubrum	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	14
mountain maple	Acer spicatum	NSL	Low	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	15
serviceberry	Amelanchier spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	16
black hickory	Carya texana	NDL	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	17
black walnut	Juglans nigra	WDH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	18
sweetgum	Liquidambar styraciflua	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	19
Osage-orange	Maclura pomifera	NDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	20
cucumbertree	Magnolia acuminata	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	21
balsam poplar	Populus balsamifera	NSH	Medium	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	22
black cherry	Prunus serotina	WDL	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	23
bur oak	Quercus macrocarpa	NDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	24
blackjack oak	Quercus marilandica	NSL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	25
northern red oak	Quercus rubra	WDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	26
post oak	Quercus stellata	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	27
black locust	Robinia pseudoacacia	NDH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	28
black willow	Salix nigra	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat		Migrate +	3	29
American mountain-ash	Sorbus americana	NSL	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	30