

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
 1,872.6 723.0 18

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	High	Low	Scenario	Scenario	Scenario	Scenario	SHIFT	SHIFT
				Reliability	Adaptability	RCP45	RCP85	RCP45	RCP85	RCP45	RCP85
Ash	3										
Hickory	1										
Maple	4	0		7	19	Increase	7	7	Very Good	0	0
Oak	3		7	22	22	No Change	4	1	Good	5	6
Pine	3			20	8	Decrease	11	14	Fair	7	5
Other	12		27	4		New	27	26	Poor	5	5
	26		53	53	49	Unknown	4	5	Very Poor	4	5
							53	53	FIA Only	0	0
									Unknown	0	1
										21	22

Potential Changes in Climate Variables

Temperature (°F)

Scenario	2009	2039	2069	2099	
Annual	48.3	50.2	53.0	53.0	
Average	48.3	50.9	53.6	56.7	
GFDL45	48.3	55.0	53.9	55.0	
GFDL85	48.3	51.5	55.0	59.4	
HAD45	48.3	51.3	54.8	56.6	
HAD85	48.3	51.7	56.3	61.3	
Growing Season	66.1	68.1	70.3	70.6	
May—Sep	66.1	74.5	72.7	74.5	
GFDL45	66.1	70.0	74.0	79.3	
GFDL85	66.1	70.0	74.0	79.3	
HAD45	66.1	69.3	71.7	73.9	
HAD85	66.1	69.1	73.9	79.0	
Coldest Month	20.3	21.7	24.5	24.5	
Average	20.3	23.8	24.8	26.7	
GFDL45	20.3	23.8	25.2	25.5	
GFDL85	20.3	24.1	25.5	27.2	
HAD45	20.3	21.6	25.7	25.8	
HAD85	20.3	24.4	27.8	30.9	
Warmest Month	72.7	75.0	76.4	76.9	
Average	72.7	76.1	77.8	79.5	
GFDL45	72.7	76.0	77.6	78.9	
GFDL85	72.7	77.2	79.0	82.2	
HAD45	72.7	76.1	77.8	79.1	
HAD85	72.7	76.8	79.7	83.3	

Precipitation (in)

Scenario	2009	2039	2069	2099	
Annual	35.0	35.0	34.2	34.8	
Total	35.0	35.0	35.0	35.3	
GFDL45	35.0	37.4	41.7	41.6	
GFDL85	35.0	38.7	43.5	43.8	
HAD45	35.0	36.2	38.0	37.5	
HAD85	35.0	37.5	35.3	37.9	
Growing Season	18.4	18.9	18.2	18.2	
May—Sep	18.4	18.8	21.6	21.4	
GFDL45	18.4	20.2	21.6	21.2	
GFDL85	18.4	20.2	21.6	21.2	
HAD45	18.4	18.2	17.2	17.8	
HAD85	18.4	18.4	15.1	15.6	

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
black cherry	Prunus serotina	WDL	Medium	79.1	215.5	8.9	Lg. dec.	Lg. dec.	Low	Common	Very Poor	Very Poor			0	1
white oak	Quercus alba	WDH	Medium	65.5	139.2	6.0	Sm. dec.	Lg. dec.	High	Common	Fair	Fair	Infill +	Infill +	1	2
green ash	Fraxinus pennsylvanica	WSH	Low	64.5	104.3	10.0	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	3
American basswood	Tilia americana	WSL	Medium	52.9	100.6	7.2	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor	Infill +	Infill +	0	4
bur oak	Quercus macrocarpa	NDH	Medium	44.9	99.5	5.1	Sm. dec.	Sm. dec.	High	Common	Fair	Fair	Infill +	Infill +	1	5
boxelder	Acer negundo	WSH	Low	80.9	98.7	4.5	Sm. dec.	Sm. dec.	High	Common	Fair	Fair	Infill +	Infill +	1	6
white ash	Fraxinus americana	WDL	Medium	49.1	74.4	11.5	No change	Sm. dec.	Low	Common	Poor	Poor	Infill +	Infill +	0	7
eastern cottonwood	Populus deltoides	NSH	Low	32.8	47.9	8.5	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	2	8
American elm	Ulmus americana	WDH	Medium	73.9	47.4	5.0	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good	Infill +	Infill ++	1	9
shagbark hickory	Carya ovata	WSL	Medium	34.7	41.5	3.6	No change	Sm. dec.	Medium	Rare	Poor	Very Poor	Infill +		1	10
red maple	Acer rubrum	WDH	High	16.6	37.1	21.6	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor	Infill +		2	11
northern red oak	Quercus rubra	WDH	Medium	49.7	36.4	1.4	No change	Sm. dec.	High	Rare	Fair	Poor	Infill +	Infill +	1	12
black walnut	Juglans nigra	WDH	Low	16.5	27.2	1.7	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1	13
black ash	Fraxinus nigra	WSH	Medium	16.6	24.5	14.2	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	14
eastern redcedar	Juniperus virginiana	WDH	Medium	13.6	16.9	8.1	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	15
red pine	Pinus resinosa	NSH	Medium	31.8	15.4	4.4	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	16
jack pine	Pinus banksiana	NSH	Medium	15.2	12.2	6.5	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			0	17
honeylocust	Gleditsia triacanthos	NSH	Low	18.4	11.2	1.2	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	18
white mulberry	Morus alba	NSL	FIA	16.2	11.1	0.5	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	19
white spruce	Picea glauca	NSL	Medium	28.9	11.0	2.8	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	20
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	18.4	8.5	1.6	Lg. inc.	Sm. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	21
Siberian elm	Ulmus pumila	NDH	FIA	13.6	4.3	2.0	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	22
sugar maple	Acer saccharum	WDH	High	35	4.2	1.3	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	23
eastern white pine	Pinus strobus	WDH	High	15.2	3.0	1.6	Very Lg. dec.	Very Lg. dec.	Low	Rare	Lost	Lost			0	24
Norway spruce	Picea abies	NSH	FIA	13.6	0.7	0.3	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	25
Norway maple	Acer platanoides	NSL	FIA	15.2	0.7	0.4	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	26
silver maple	Acer saccharinum	NSH	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	27
bitternut hickory	Carya cordiformis	WSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Likely +	Likely +	3	28
pignut hickory	Carya glabra	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +		3	29
pecan	Carya illinoensis	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat		Migrate ++	3	30
black hickory	Carya texana	NDL	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	31
mockernut hickory	Carya alba	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	32
sugarberry	Celtis laevigata	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	33
hackberry	Celtis occidentalis	WDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	34
eastern redbud	Cercis canadensis	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	35
common persimmon	Diospyros virginiana	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	36
yellow-poplar	Liriodendron tulipifera	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	37
Osage-orange	Maclura pomifera	NDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	38
red mulberry	Morus rubra	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	39
sycamore	Platanus occidentalis	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	40
swamp white oak	Quercus bicolor	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	41
shingle oak	Quercus imbricaria	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	42
blackjack oak	Quercus marilandica	NSL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	43
chinkapin oak	Quercus muehlenbergii	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	44
pin oak	Quercus palustris	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat		Migrate +	3	45
Shumard oak	Quercus shumardii	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	46
post oak	Quercus stellata	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	47



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black oak	Quercus velutina	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	48
black locust	Robinia pseudoacacia	NDH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	49
black willow	Salix nigra	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Likely +	Likely +	3	50
sassafras	Sassafras albidum	WSL	Low	0	0	0	New Habitat	Unknown	Medium	Absent	New Habitat	Unknown	Migrate +		3	51
winged elm	Ulmus alata	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	52
slippery elm	Ulmus rubra	WSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	53