

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 10,748 4,149.7 113

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	2			High	6	8	Increase	3	3	Very Good	0	0	Likely	1	1
Hickory	3			Medium	12	16	No Change	5	6	Good	4	5	Infill	1	0
Maple	1	Abundant	2	Low	10	5	Decrease	13	12	Fair	3	3	Migrate	4	4
Oak	5	Common	4	FIA	2		New	5	5	Poor	6	5		6	5
Pine	0	Rare	17				Unknown	4	4	Very Poor	8	8			
Other	12	Absent	6							FIA Only	2	2			
	23		29		30	29		30	30	Unknown	2	2			
											25	25			

Potential Changes in Climate Variables

Temperature (°F)

Scenario	2009	2039	2069	2099	
Annual Average	68.4	69.9	71.1	71.7	
CCSM45	68.4	69.9	71.1	71.7	
CCSM85	68.4	70.3	72.3	74.7	
GFDL45	68.4	73.7	72.8	74.4	
GFDL85	68.4	71.2	74.4	78.1	
HAD45	68.4	70.5	72.9	73.7	
HAD85	68.4	71.1	74.1	77.2	
Growth Season (May-Sep)	80.6	81.9	82.9	83.6	
CCSM45	80.6	81.9	82.9	83.6	
CCSM85	80.6	82.4	84.4	87.1	
GFDL45	80.6	87.2	85.8	88.3	
GFDL85	80.6	84.3	87.9	92.3	
HAD45	80.6	82.8	84.7	85.4	
HAD85	80.6	83.3	86.5	89.4	
Coldest Month	49.4	51.8	52.3	52.7	
CCSM45	49.4	51.8	52.3	52.7	
CCSM85	49.4	51.5	52.5	53.8	
GFDL45	49.4	53.0	52.9	53.0	
GFDL85	49.4	50.4	51.5	52.0	
HAD45	49.4	50.1	51.5	52.0	
HAD85	49.4	52.7	54.0	55.5	
Warmest Month	84.6	85.7	86.4	86.6	
CCSM45	84.6	85.7	86.4	86.6	
CCSM85	84.6	86.4	87.1	88.4	
GFDL45	84.6	89.2	89.7	90.9	
GFDL85	84.6	89.3	90.8	93.8	
HAD45	84.6	87.1	87.9	88.4	
HAD85	84.6	87.6	89.3	90.4	

Precipitation (in)

Scenario	2009	2039	2069	2099	
Annual Total	31.5	34.2	36.1	31.5	
CCSM45	31.5	34.2	36.1	31.5	
CCSM85	31.5	33.3	35.0	34.3	
GFDL45	31.5	29.7	35.2	27.6	
GFDL85	31.5	29.7	30.9	29.1	
HAD45	31.5	32.7	31.0	33.2	
HAD85	31.5	31.8	29.6	31.8	
Growth Season (May-Sep)	15.3	17.6	17.7	15.8	
CCSM45	15.3	17.6	17.7	15.8	
CCSM85	15.3	17.1	16.6	15.8	
GFDL45	15.3	14.3	18.4	13.7	
GFDL85	15.3	14.9	15.4	14.4	
HAD45	15.3	14.9	14.8	16.5	
HAD85	15.3	15.3	14.1	15.2	

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
ashe juniper	Juniperus ashei	NDH	High	47.1	1415.0	44.0	No change	No change	Medium	Abundant	Good	Good			0	1
live oak	Quercus virginiana	NDH	High	60.6	840.5	23.4	No change	No change	Medium	Abundant	Good	Good			1	2
blackjack oak	Quercus marilandica	NSL	Medium	18.1	142.3	24.2	Lg. dec.	Lg. dec.	High	Common	Fair	Fair			1	3
post oak	Quercus stellata	WDH	High	12.8	121.8	13.2	Sm. dec.	Sm. dec.	High	Common	Fair	Fair			1	4
cedar elm	Ulmus crassifolia	NDH	Medium	41.9	82.8	7.9	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	5
sugarberry	Celtis laevigata	NDH	Medium	26.9	67.0	8.4	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	6
hackberry	Celtis occidentalis	WDH	Medium	36.5	47.0	9.6	Sm. dec.	No change	High	Rare	Poor	Fair			1	7
black cherry	Prunus serotina	WDL	Medium	9.4	25.5	1.9	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	8
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	13	18.2	3.7	Lg. inc.	Lg. inc.	High	Rare	Good	Good			1	9
black willow	Salix nigra	NSH	Low	4.7	10.5	6.4	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	10
Texas ash	Fraxinus texensis	NDH	FIA	1.3	6.6	2.7	Unknown	Unknown	NA	Rare	FIA Only	FIA Only			0	11
black hickory	Carya texana	NDL	High	1.9	5.8	3.6	No change	No change	Medium	Rare	Poor	Poor			0	12
pecan	Carya illinoensis	NSH	Low	3.7	5.6	23.9	No change	No change	Low	Rare	Very Poor	Very Poor			2	13
pignut hickory	Carya glabra	WDL	Medium	0.5	5.1	2.7	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	14
boxelder	Acer negundo	WSH	Low	0.5	4.6	2.4	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	15
white ash	Fraxinus americana	WDL	Medium	0.2	1.5	0.3	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	16
sycamore	Platanus occidentalis	NSL	Low	0.2	1.1	0.2	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	17
American elm	Ulmus americana	WDH	Medium	0.2	0.9	0.2	No change	No change	Medium	Rare	Poor	Poor			0	18
eastern redcedar	Juniperus virginiana	WDH	Medium	3.7	0.9	3.9	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good	Infill +		2	19
southern red oak	Quercus falcata	WDL	Medium	3.7	0.5	1.9	Lg. dec.	Sm. dec.	High	Rare	Poor	Poor			0	20
black walnut	Juglans nigra	WDH	Low	7.4	0.4	0.8	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	21
durand oak	Quercus sinuata var. sinuata	NSL	FIA	0.4	0.3	0.2	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	22
red mulberry	Morus rubra	NSL	Low	3.7	0.3	1.2	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	23
loblolly pine	Pinus taeda	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	24
mockernut hickory	Carya alba	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	25
eastern redbud	Cercis canadensis	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	26
green ash	Fraxinus pennsylvanica	WSH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	27
bur oak	Quercus macrocarpa	NDH	Medium	0	0	0	Unknown	Unknown	High	Modeled	Unknown	Unknown			0	28
water oak	Quercus nigra	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	29
bluejack oak	Quercus incana	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	30