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One x One Degree
Climate Change Atlas Tree Species
Current and Potential Future Habitat, Capability, and Migration

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	sq. km	sq. mi	FIA Plots
Area of Region	10,533	4,066.9	149

Species Information

The columns below provide breif 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					Potential Change in Habitat Suitability			Capability to Cope or Persist			Migration Potential	
							Scenario	Scenario		Scenario	Scenario		SHIFT	SHIFT
Ash	2			Model			RCP45	RCP85		RCP45	RCP85		RCP45	RCP85
Hickory	5	Abundance		Reliability	Adaptability									
Maple	1	Abundant	1	High	8	13	Increase	6	6	Very Good	2	1	Likely	1	1
Oak	11	Common	15	Medium	21	29	No Change	15	16	Good	7	8	Infill	13	13
Pine	1	Rare	30	Low	18	6	Decrease	23	22	Fair	7	8	Migrate	0	0
Other	26	Absent	2	FIA	2		New	1	1	Poor	13	12		**14**	**14**
	46		**48**		**49**	**48**	Unknown	4	4	Very Poor	14	14			
								49	**49**	FIA Only	1	1			
										Unknown	2	2			
											46	**46**			

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099	
Annual	CCSM45	66.5	68.2	69.4	69.9	
Average	CCSM85	66.5	68.6	70.7	73.0	
	GFDL45	66.5	71.0	70.6	72.1	
	GFDL85	66.5	69.2	72.2	75.7	
	HAD45	66.5	68.7	71.3	72.2	
	HAD85	66.5	69.1	72.7	76.0	
Growing	CCSM45	79.9	81.4	82.2	82.9	
Season	CCSM85	79.9	82.0	83.8	86.6	
May—Sep	GFDL45	79.9	85.5	84.5	87.1	
	GFDL85	79.9	83.3	86.7	91.1	
	HAD45	79.9	82.2	84.5	85.1	
	HAD85	79.9	82.7	86.9	89.7	
Coldest	CCSM45	46.3	48.6	49.2	49.5	
Month	CCSM85	46.3	48.7	49.8	50.9	
Average	GFDL45	46.3	50.0	50.0	50.1	
	GFDL85	46.3	47.5	48.6	49.0	
	HAD45	46.3	46.6	48.4	48.9	
	HAD85	46.3	48.8	50.3	52.0	
Warmest	CCSM45	84.7	85.8	86.3	86.7	
Month	CCSM85	84.7	86.6	87.3	88.7	
Average	GFDL45	84.7	89.3	89.4	91.2	
	GFDL85	84.7	89.2	90.8	94.1	
	HAD45	84.7	87.2	88.3	88.6	
	HAD85	84.7	87.9	90.0	90.9	

Precipitation (in)

	Scenario	2009	2039	2069	2099	
Annual	CCSM45	38.7	37.8	42.1	39.2	
Total	CCSM85	38.7	38.7	42.7	41.2	
	GFDL45	38.7	39.1	45.2	37.6	
	GFDL85	38.7	38.5	41.4	39.7	
	HAD45	38.7	39.7	38.3	40.4	
	HAD85	38.7	40.3	35.5	37.8	
Growing	CCSM45	15.7	16.3	17.1	16.1	
Season	CCSM85	15.7	15.6	16.3	15.0	
May—Sep	GFDL45	15.7	16.8	20.4	15.9	
	GFDL85	15.7	17.1	18.3	17.5	
	HAD45	15.7	15.4	14.6	15.8	
	HAD85	15.7	15.5	13.0	13.6	

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
post oak	Quercus stellata	WDH	High	54.7	1322.2	28.9	No change	Sm. dec.	High	Abundant	Very Good	Good			1	1
water oak	Quercus nigra	WDH	High	40.3	431.9	14.6	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	2
winged elm	Ulmus alata	WDL	Medium	57.6	394.1	9.8	No change	No change	Medium	Common	Fair	Fair			1	3
cedar elm	Ulmus crassifolia	NDH	Medium	63	346.2	12.3	No change	No change	Low	Common	Poor	Poor			0	4
eastern redcedar	Juniperus virginiana	WDH	Medium	53.8	327.9	9.2	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	5
sugarberry	Celtis laevigata	NDH	Medium	60	206.0	9.4	No change	No change	Medium	Common	Fair	Fair			1	6
blackjack oak	Quercus marilandica	NSL	Medium	27.4	183.2	8.0	No change	No change	High	Common	Good	Good			1	7
green ash	Fraxinus pennsylvanica	WSH	Low	46.1	180.4	6.4	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	8
American elm	Ulmus americana	WDH	Medium	31.4	141.5	6.7	No change	No change	Medium	Common	Fair	Fair			1	9
black hickory	Carya texana	NDL	High	21	101.3	4.9	Sm. dec.	No change	Medium	Common	Poor	Fair	Infill +	Infill +	1	10
Osage-orange	Maclura pomifera	NDH	Medium	22.8	93.1	8.3	Sm. dec.	Sm. dec.	High	Common	Fair	Fair	Infill +	Infill +	1	11
sweetgum	Liquidambar styraciflua	WDH	High	5.6	88.9	9.7	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	12
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	23.2	84.9	5.7	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	13
southern red oak	Quercus falcata	WDL	Medium	9.8	73.5	5.7	No change	No change	High	Common	Good	Good	Infill ++	Infill ++	1	14
mockernut hickory	Carya alba	WDL	Medium	16.4	69.9	4.9	No change	No change	High	Common	Good	Good			1	15
black willow	Salix nigra	NSH	Low	9.6	52.7	9.0	Sm. dec.	Sm. dec.	Low	Common	Poor	Poor	Infill +	Infill +	0	16
honeylocust	Gleditsia triacanthos	NSH	Low	26.8	46.2	3.2	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor	Infill +	Infill +	1	17
pecan	Carya illinoinensis	NSH	Low	23.2	45.8	5.2	Sm. inc.	Sm. inc.	Low	Rare	Poor	Poor			1	18
American holly	Ilex opaca	NSL	Medium	4.7	39.8	6.2	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	19
willow oak	Quercus phellos	NSL	Low	8.6	37.9	4.0	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	20
common persimmon	Diospyros virginiana	NSL	Low	15.4	32.6	4.5	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			1	21
loblolly pine	Pinus taeda	WDH	High	2.6	31.0	5.3	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	22
flowering dogwood	Cornus florida	WDL	Medium	8	21.9	3.6	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	23
river birch	Betula nigra	NSL	Low	6.2	21.4	6.5	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	24
blackgum	Nyssa sylvatica	WDL	Medium	6	20.4	2.9	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	25
bluejack oak	Quercus incana	NSL	Low	4.3	18.0	3.6	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	26
hackberry	Celtis occidentalis	WDH	Medium	20.3	16.9	6.1	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	1	27
white ash	Fraxinus americana	WDL	Medium	6.4	16.3	2.1	Sm. dec.	No change	Low	Rare	Very Poor	Very Poor			2	28
overcup oak	Quercus lyrata	NSL	Medium	2	16.0	5.0	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	29
boxelder	Acer negundo	WSH	Low	7.6	14.5	4.7	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor	Infill +	Infill +	1	30
sassafras	Sassafras albidum	WSL	Low	6.1	13.2	2.9	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	1	31
Siberian elm	Ulmus pumila	NDH	FIA	0.9	13.0	13.7	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	32
water elm	Planera aquatica	NSL	Low	1.4	11.4	3.4	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	33
slippery elm	Ulmus rubra	WSL	Low	5.1	10.4	3.5	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	34
eastern redbud	Cercis canadensis	NSL	Low	7.3	9.9	0.7	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	35
Shumard oak	Quercus shumardii	NSL	Low	4.8	5.9	1.3	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	36
ashe juniper	Juniperus ashei	NDH	High	0.4	4.8	2.2	No change	No change	Medium	Rare	Poor	Poor			0	37
laurel oak	Quercus laurifolia	NDH	Medium	0.6	4.5	3.2	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	38
red mulberry	Morus rubra	NSL	Low	13.4	4.0	2.2	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	39
wild plum	Prunus americana	NSLX	FIA	0.9	2.4	2.5	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	40
water hickory	Carya aquatica	NSL	Medium	1.4	1.6	0.6	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	41
black cherry	Prunus serotina	WDL	Medium	0.9	1.5	1.6	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	42
shagbark hickory	Carya ovata	WSL	Medium	0.5	1.4	0.7	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	43
live oak	Quercus virginiana	NDH	High	4.7	1.3	1.9	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	44
black locust	Robinia pseudoacacia	NDH	Low	4.7	1.1	1.1	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	45
bur oak	Quercus macrocarpa	NDH	Medium	0.9	0.9	1.0	Very Lg. dec.	Very Lg. dec.	High	Rare	Lost	Lost			0	46
shortleaf pine	Pinus echinata	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	47

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Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIAiv	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
pin cherry	Prunus pensylvanica	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	48
American basswood	Tilia americana	WSL	Medium	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	49

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