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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	10,421	4,023.6	84

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
Ash	3
Hickory	6
Maple	2
Oak	11
Pine	3
Other	19
	44

Abundance	
Abundant	0
Common	10
Rare	34
Absent	5
	49

	Model Reliability	Adaptability
High	11	16
Medium	18	29
Low	19	5
FIA	3	
	51	**50**

Potential Change in Habitat Suitability	Scenario RCP45	Scenario RCP85
Increase	9	10
No Change	15	15
Decrease	17	16
New	1	1
Unknown	9	9
	51	**51**

Capability to Cope or Persist	Scenario RCP45	Scenario RCP85
Very Good	0	0
Good	9	10
Fair	10	9
Poor	10	10
Very Poor	10	10
FIA Only	3	3
Unknown	6	6
	48	**48**

Migration Potential	SHIFT RCP45	SHIFT RCP85
Likely	1	1
Infill	22	22
Migrate	0	0
	23	**23**

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099
Annual Average	CCSM45	65.3	66.8	68.2	68.7
	CCSM85	65.3	67.4	69.6	71.9
	GFDL45	65.3	70.6	69.6	71.1
	GFDL85	65.3	68.1	71.0	74.6
	HAD45	65.3	67.5	70.1	71.0
	HAD85	65.3	67.9	71.7	75.1
Growing Season May—Sep	CCSM45	79.5	80.9	82.0	82.7
	CCSM85	79.5	81.8	83.6	86.6
	GFDL45	79.5	86.4	84.4	87.0
	GFDL85	79.5	83.2	86.5	91.0
	HAD45	79.5	81.9	84.3	84.8
	HAD85	79.5	82.4	86.9	89.8
Coldest Month Average	CCSM45	44.1	46.2	47.0	47.3
	CCSM85	44.1	46.4	47.5	48.7
	GFDL45	44.1	47.7	47.7	47.8
	GFDL85	44.1	45.3	46.6	47.0
	HAD45	44.1	44.5	46.4	46.8
	HAD85	44.1	46.7	48.3	50.0
Warmest Month Average	CCSM45	84.9	85.8	86.5	86.8
	CCSM85	84.9	86.8	87.4	89.1
	GFDL45	84.9	89.9	90.0	91.9
	GFDL85	84.9	89.8	91.4	95.0
	HAD45	84.9	87.5	88.7	88.8
	HAD85	84.9	88.2	90.4	91.4

Precipitation (in)

	Scenario	2009	2039	2069	2099
Annual Total	CCSM45	39.4	39.5	41.2	39.4
	CCSM85	39.4	38.8	42.6	41.6
	GFDL45	39.4	40.3	46.4	38.9
	GFDL85	39.4	39.8	42.9	42.2
	HAD45	39.4	40.0	39.3	41.8
	HAD85	39.4	41.5	36.3	39.2
Growing Season May—Sep	CCSM45	15.8	17.2	15.9	16.1
	CCSM85	15.8	15.4	15.8	15.3
	GFDL45	15.8	17.0	20.4	16.5
	GFDL85	15.8	17.3	18.6	17.9
	HAD45	15.8	15.2	14.4	15.7
	HAD85	15.8	15.5	12.3	13.5

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
sugarberry	Celtis laevigata	NDH	Medium	68.3	301.8	13.0	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	1
post oak	Quercus stellata	WDH	High	30.7	243.7	23.0	No change	No change	High	Common	Good	Good	Infill ++	Infill ++	1	2
cedar elm	Ulmus crassifolia	NDH	Medium	61.5	178.3	10.2	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair	Infill +	Infill +	1	3
eastern redcedar	Juniperus virginiana	WDH	Medium	56.4	174.1	10.0	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	4
honeylocust	Gleditsia triacanthos	NSH	Low	42.2	137.0	9.4	Lg. dec.	Lg. dec.	High	Common	Fair	Fair	Infill +	Infill +	1	5
winged elm	Ulmus alata	WDL	Medium	45.3	108.0	7.0	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	6
Osage-orange	Maclura pomifera	NDH	Medium	42.3	100.4	14.0	No change	No change	High	Common	Good	Good	Infill ++	Infill ++	1	7
green ash	Fraxinus pennsylvanica	WSH	Low	42.4	95.9	8.5	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	8
ashe juniper	Juniperus ashei	NDH	High	6.7	62.1	16.8	No change	No change	Medium	Common	Fair	Fair			0	9
water oak	Quercus nigra	WDH	High	14.6	60.2	9.8	Sm. inc.	Sm. inc.	Medium	Common	Good	Good	Infill ++	Infill ++	2	10
pecan	Carya illinoinensis	NSH	Low	18.5	50.0	10.2	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	1	11
American elm	Ulmus americana	WDH	Medium	22.2	26.0	3.4	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1	12
loblolly pine	Pinus taeda	WDH	High	0.7	25.4	18.9	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	13
black hickory	Carya texana	NDL	High	3.8	24.2	9.3	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	14
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	28	23.3	3.1	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	1	15
Shumard oak	Quercus shumardii	NSL	Low	13.7	19.5	6.2	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor	Infill +	Infill +	2	16
black walnut	Juglans nigra	WDH	Low	3.8	18.8	78.2	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	17
shortleaf pine	Pinus echinata	WDH	High	0.7	12.2	9.1	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	18
slash pine	Pinus elliottii	NDH	High	2.1	12.0	27.8	Sm. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	19
common persimmon	Diospyros virginiana	NSL	Low	1.9	10.3	2.9	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor	Infill +	Infill +	2	20
sweetgum	Liquidambar styraciflua	WDH	High	0.7	7.9	5.9	No change	No change	Medium	Rare	Poor	Poor			0	21
slippery elm	Ulmus rubra	WSL	Low	9.4	6.4	6.8	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	22
red mulberry	Morus rubra	NSL	Low	10.2	5.3	1.3	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			2	23
boxelder	Acer negundo	WSH	Low	7.2	5.1	4.8	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	24
bur oak	Quercus macrocarpa	NDH	Medium	7.3	4.6	4.3	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	25
wild plum	Prunus americana	NSLX	FIA	3.8	3.7	15.6	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	26
black willow	Salix nigra	NSH	Low	7.3	3.7	7.4	No change	No change	Low	Rare	Very Poor	Very Poor			2	27
blackjack oak	Quercus marilandica	NSL	Medium	12.4	3.6	1.8	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	28
hackberry	Celtis occidentalis	WDH	Medium	8.1	2.7	1.5	Sm. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	29
Texas ash	Fraxinus texensis	NDH	FIA	3.8	2.3	9.7	Unknown	Unknown	NA	Rare	FIA Only	FIA Only			0	30
white ash	Fraxinus americana	WDL	Medium	7.7	2.2	4.7	Sm. dec.	No change	Low	Rare	Very Poor	Very Poor			0	31
overcup oak	Quercus lyrata	NSL	Medium	0.8	2.2	2.0	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	32
cherrybark oak; swamp red o	Quercus pagoda	NSL	Medium	4.5	1.9	2.2	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	33
eastern redbud	Cercis canadensis	NSL	Low	6	1.6	0.8	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	34
eastern cottonwood	Populus deltoides	NSH	Low	2.9	1.3	4.2	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	35
mockernut hickory	Carya alba	WDL	Medium	4.6	1.0	0.3	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	36
southern red oak	Quercus falcata	WDL	Medium	3.4	1.0	0.9	No change	Sm. inc.	High	Rare	Fair	Good	Infill +	Infill ++	2	37
red maple	Acer rubrum	WDH	High	2.7	0.9	2.6	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	38
chinkapin oak	Quercus muehlenbergii	NSL	Medium	1.4	0.8	1.2	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	39
water hickory	Carya aquatica	NSL	Medium	1	0.8	0.8	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	40
bitternut hickory	Carya cordiformis	WSL	Low	6.6	0.7	1.2	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	41
shagbark hickory	Carya ovata	WSL	Medium	0.1	0.4	0.1	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	42
live oak	Quercus virginiana	NDH	High	0.1	0.3	0.0	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	43
durand oak	Quercus sinuata var. sinuata	NSL	FIA	3.8	0.1	0.6	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	44
flowering dogwood	Cornus florida	WDL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	45
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	46
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	0	0	0	Unknown	Unknown	High	Modeled	Unknown	Unknown			0	47

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sourwood	Oxydendrum arboreum	NDL	High	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	48
pin cherry	Prunus pensylvanica	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	49
willow oak	Quercus phellos	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	50
bluejack oak	Quercus incana	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	51