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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	10,308	3,979.8	63

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	2
Hickory	6
Maple	1
Oak	11
Pine	2
Other	25
	47

Abundance	
Abundant	0
Common	8
Rare	39
Absent	11
	58

	Model Reliability	Adaptability
High	11	20
Medium	25	33
Low	24	7
FIA	0	
	60	**60**

Potential Change in Habitat Suitability	Scenario RCP45	Scenario RCP85
Increase	7	9
No Change	16	14
Decrease	24	24
New	5	4
Unknown	8	9
	60	**60**

Capability to Cope or Persist	Scenario RCP45	Scenario RCP85
Very Good	0	1
Good	5	6
Fair	11	9
Poor	15	15
Very Poor	15	14
FIA Only	0	0
Unknown	8	9
	54	**54**

Migration Potential	SHIFT RCP45	SHIFT RCP85
Likely	1	1
Infill	22	23
Migrate	1	1
	24	**25**

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099
Annual Average	CCSM45	69.5	71.0	72.3	72.5
	CCSM85	69.5	71.3	73.5	75.5
	GFDL45	69.5	74.4	73.5	74.7
	GFDL85	69.5	71.9	74.9	78.1
	HAD45	69.5	71.4	73.9	74.8
	HAD85	69.5	71.7	74.8	77.9
Growing Season May—Sep	CCSM45	80.8	82.0	82.9	83.3
	CCSM85	80.8	82.3	84.3	86.5
	GFDL45	80.8	86.6	85.1	87.1
	GFDL85	80.8	83.7	86.9	90.6
	HAD45	80.8	82.8	84.8	85.5
	HAD85	80.8	83.1	86.4	88.9
Coldest Month Average	CCSM45	51.6	53.8	54.7	54.7
	CCSM85	51.6	54.0	55.1	56.4
	GFDL45	51.6	54.9	55.0	55.2
	GFDL85	51.6	52.8	54.1	54.6
	HAD45	51.6	52.4	54.1	54.8
	HAD85	51.6	54.3	55.6	57.4
Warmest Month Average	CCSM45	84.1	85.0	85.5	85.7
	CCSM85	84.1	85.5	86.2	87.2
	GFDL45	84.1	87.4	87.9	89.0
	GFDL85	84.1	87.5	89.0	91.3
	HAD45	84.1	86.4	87.1	87.4
	HAD85	84.1	86.6	88.3	89.2

Precipitation (in)

	Scenario	2009	2039	2069	2099
Annual Total	CCSM45	50.4	53.2	57.8	54.6
	CCSM85	50.4	52.8	54.6	53.5
	GFDL45	50.4	52.2	60.5	49.3
	GFDL85	50.4	50.5	52.6	50.5
	HAD45	50.4	52.3	49.1	53.1
	HAD85	50.4	54.7	48.6	51.2
Growing Season May—Sep	CCSM45	23.4	26.3	27.8	25.1
	CCSM85	23.4	24.7	24.8	22.8
	GFDL45	23.4	25.5	32.4	24.4
	GFDL85	23.4	25.1	26.1	25.9
	HAD45	23.4	23.3	22.5	25.3
	HAD85	23.4	24.7	22.3	22.9

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
loblolly pine	Pinus taeda	WDH	High	37.2	393.8	31.2	No change	Sm. dec.	Medium	Common	Fair	Poor	Infill +	Infill +	2	1
sugarberry	Celtis laevigata	NDH	Medium	63.4	291.4	13.7	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor	Infill +	Infill +	0	2
water oak	Quercus nigra	WDH	High	61.2	220.1	11.1	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor	Infill +	Infill +	0	3
cedar elm	Ulmus crassifolia	NDH	Medium	42.4	138.3	15.5	No change	Sm. inc.	Low	Common	Poor	Fair	Infill +	Infill +	1	4
live oak	Quercus virginiana	NDH	High	32.6	84.3	13.2	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good	Infill ++	Infill ++	1	5
green ash	Fraxinus pennsylvanica	WSH	Low	47	77.9	7.7	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	6
sweetgum	Liquidambar styraciflua	WDH	High	14	75.3	5.7	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	2	7
pecan	Carya illinoinensis	NSH	Low	30.2	75.0	11.5	Sm. dec.	Sm. dec.	Low	Common	Poor	Poor	Infill +	Infill +	0	8
willow oak	Quercus phellos	NSL	Low	16.5	29.4	4.2	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	9
American elm	Ulmus americana	WDH	Medium	39.2	22.7	3.2	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good	Infill +	Infill ++	1	10
sycamore	Platanus occidentalis	NSL	Low	5	17.5	3.5	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			2	11
southern red oak	Quercus falcata	WDL	Medium	14.4	13.5	3.6	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	12
slippery elm	Ulmus rubra	WSL	Low	11.2	13.2	2.3	Sm. dec.	No change	Medium	Rare	Very Poor	Poor		Infill +	2	13
laurel oak	Quercus laurifolia	NDH	Medium	1.9	12.9	6.6	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			2	14
post oak	Quercus stellata	WDH	High	6.8	11.7	4.1	No change	Sm. inc.	High	Rare	Fair	Good	Infill +		2	15
hackberry	Celtis occidentalis	WDH	Medium	8.3	10.8	10.9	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	16
eastern redcedar	Juniperus virginiana	WDH	Medium	4.5	8.5	1.3	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	17
swamp chestnut oak	Quercus michauxii	NSL	Low	2	7.0	3.6	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			2	18
white ash	Fraxinus americana	WDL	Medium	10.7	6.3	3.2	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	19
winged elm	Ulmus alata	WDL	Medium	5.9	5.6	6.5	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	20
cherrybark oak; swamp red o	Quercus pagoda	NSL	Medium	13.5	5.5	3.7	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	21
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	15.2	4.9	2.1	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	22
Osage-orange	Maclura pomifera	NDH	Medium	10.4	4.8	1.6	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			0	23
American holly	Ilex opaca	NSL	Medium	6.9	4.7	1.4	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			2	24
boxelder	Acer negundo	WSH	Low	15.8	4.7	1.8	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	25
Shumard oak	Quercus shumardii	NSL	Low	4.9	3.8	3.3	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	26
mockernut hickory	Carya alba	WDL	Medium	3.3	3.7	4.9	Sm. dec.	No change	High	Rare	Poor	Fair	Infill +	Infill +	2	27
black willow	Salix nigra	NSH	Low	8.5	3.1	4.0	No change	Sm. inc.	Low	Rare	Very Poor	Poor		Infill +	2	28
white oak	Quercus alba	WDH	Medium	1	2.8	2.9	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	29
black hickory	Carya texana	NDL	High	0.9	2.6	0.9	No change	No change	Medium	Rare	Poor	Poor		Infill +	2	30
blackgum	Nyssa sylvatica	WDL	Medium	3.7	2.4	0.9	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	31
common persimmon	Diospyros virginiana	NSL	Low	5.9	2.4	1.4	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	32
black cherry	Prunus serotina	WDL	Medium	5.9	2.0	0.8	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	33
shortleaf pine	Pinus echinata	WDH	High	1	1.7	1.7	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	34
red mulberry	Morus rubra	NSL	Low	1.9	1.6	0.8	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	35
honeylocust	Gleditsia triacanthos	NSH	Low	4.6	1.1	1.4	No change	No change	High	Rare	Fair	Fair			0	36
southern magnolia	Magnolia grandiflora	NSL	Low	1	1.1	1.2	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	37
redbay	Persea borbonia	NSL	Low	0.8	1.1	0.9	No change	No change	High	Rare	Fair	Fair			0	38
American hornbeam; muscle	Carpinus caroliniana	WSL	Low	0.8	1.0	0.8	Sm. inc.	No change	Medium	Rare	Fair	Poor	Infill +	Infill +	2	39
bitternut hickory	Carya cordiformis	WSL	Low	0.8	0.9	0.8	Lg. dec.	Very Lg. dec.	High	Rare	Poor	Lost			0	40
bald cypress	Taxodium distichum	NSH	Medium	3.8	0.8	3.2	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	41
sweetbay	Magnolia virginiana	NSL	Medium	3.9	0.7	2.9	No change	Sm. dec.	Medium	Rare	Poor	Very Poor	Infill +		2	42
water hickory	Carya aquatica	NSL	Medium	3.9	0.7	2.8	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	43
shagbark hickory	Carya ovata	WSL	Medium	0.8	0.6	0.5	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	44
black oak	Quercus velutina	WDH	High	3.9	0.2	1.0	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	45
sassafras	Sassafras albidum	WSL	Low	1.3	0.2	0.3	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	46
water tupelo	Nyssa aquatica	NSH	Medium	1.1	0.1	0.2	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	47

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Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIAiv	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
florida maple	Acer barbatum	NSL	Low	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	48
red maple	Acer rubrum	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	49
serviceberry	Amelanchier spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	50
pawpaw	Asimina triloba	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	51
American beech	Fagus grandifolia	WDH	High	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	52
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	53
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Likely +	Likely +	3	54
sourwood	Oxydendrum arboreum	NDL	High	0	0	0	Unknown	Unknown	High	Modeled	Unknown	Unknown			0	55
pin cherry	Prunus pensylvanica	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	56
overcup oak	Quercus lyrata	NSL	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	57
blackjack oak	Quercus marilandica	NSL	Medium	0	0	0	New Habitat	Unknown	High	Absent	New Habitat	Unknown			3	58
nuttall oak	Quercus texana	NSH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			0	59
American basswood	Tilia americana	WSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	60