

Current and Potential Future Habitat, Capability, and Migration

	sq. km	sq. mi	FIA Plots
Area of Region	30,507	11,779	283

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		
		High	Common	Reliability	Adaptability	Scenario RCP45	Scenario RCP85	Scenario RCP45	Scenario RCP85	SHIFT RCP45	SHIFT RCP85	
Ash	3											
Hickory	6	Abundant	1	High	11	18	Increase	7	9	Very Good	1	1
Maple	2	Common	12	Medium	23	36	No Change	22	22	Good	7	7
Oak	13	Rare	40	Low	23	6	Decrease	20	18	Fair	11	14
Pine	3	Absent	7	FIA	4		New	1	2	Poor	16	13
Other	26						Unknown	11	10	Very Poor	13	13
	53		60		61	60		61	61	FIA Only	4	4
										Unknown	7	6
											59	58
											30	29

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	56.9	58.0	59.2	59.6	
	CCSM85	56.9	58.5	60.1	62.0	
	GFDL45	56.9	60.3	60.2	61.4	
	GFDL85	56.9	59.1	61.3	64.2	
	HAD45	56.9	58.6	60.6	61.3	
HAD85	56.9	58.8	61.9	64.3		
Growing Season (May—Sep)	CCSM45	68.0	69.0	70.0	70.6	
	CCSM85	68.0	69.7	71.1	73.4	
	GFDL45	68.0	72.3	71.8	73.9	
	GFDL85	68.0	70.9	73.5	77.1	
	HAD45	68.0	69.7	71.4	71.9	
HAD85	68.0	70.1	73.5	75.6		
Coldest Month Average	CCSM45	40.4	42.1	42.6	42.9	
	CCSM85	40.4	42.1	42.8	43.8	
	GFDL45	40.4	43.0	43.0	43.2	
	GFDL85	40.4	41.1	42.2	42.4	
	HAD45	40.4	40.7	42.3	42.6	
HAD85	40.4	42.6	43.9	45.1		
Warmest Month Average	CCSM45	72.3	73.0	73.7	73.9	
	CCSM85	72.3	73.8	74.3	75.7	
	GFDL45	72.3	76.2	76.4	77.9	
	GFDL85	72.3	76.2	77.5	80.4	
	HAD45	72.3	74.1	75.0	75.1	
HAD85	72.3	74.7	76.4	77.1		

Precipitation (in)

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	28.7	29.2	29.7	28.7	
	CCSM85	28.7	28.1	30.6	30.2	
	GFDL45	28.7	29.5	33.9	28.3	
	GFDL85	28.7	29.1	31.4	30.6	
	HAD45	28.7	29.1	28.4	30.2	
HAD85	28.7	29.9	26.3	28.6		
Growing Season (May—Sep)	CCSM45	12.4	13.4	12.3	12.5	
	CCSM85	12.4	12.3	12.3	11.9	
	GFDL45	12.4	13.2	15.7	12.7	
	GFDL85	12.4	13.4	14.4	13.7	
	HAD45	12.4	12.1	11.7	12.5	
HAD85	12.4	12.3	9.9	10.9		

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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HUC 120301 Upper Trinity

HUC 6 Watershed Climate Change Atlas Tree Species

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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	40.9	832.0	34.3	Sm. dec.	Sm. dec.	High	Abundant	Good	Good	Infill ++	Infill ++	1	1
sugarberry	Celtis laevigata	NDH	Medium	62.9	207.0	13.3	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	2
cedar elm	Ulmus crassifolia	NDH	Medium	59.7	204.0	14.7	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair	Infill +	Infill +	1	3
eastern redcedar	Juniperus virginiana	WDH	Medium	40.4	121.1	8.6	Sm. inc.	Sm. inc.	Medium	Common	Good	Good	Infill ++	Infill ++	1	4
blackjack oak	Quercus marilandica	NSL	Medium	22.2	113.6	10.5	No change	No change	High	Common	Good	Good	Infill ++	Infill ++	1	5
winged elm	Ulmus alata	WDL	Medium	31.5	90.8	8.1	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	6
pecan	Carya illinoensis	NSH	Low	27.1	79.1	8.2	No change	Sm. inc.	Low	Common	Poor	Fair	Infill +	Infill +	1	7
American elm	Ulmus americana	WDH	Medium	30.7	79.0	7.1	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	8
ashe juniper	Juniperus ashei	NDH	High	10.1	76.4	12.0	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			0	9
green ash	Fraxinus pennsylvanica	WSH	Low	34.5	67.8	9.1	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	10
Osage-orange	Maclura pomifera	NDH	Medium	39.2	66.7	12.7	No change	No change	High	Common	Good	Good	Infill ++	Infill ++	1	11
honeylocust	Gleditsia triacanthos	NSH	Low	32.4	62.0	9.8	Sm. dec.	Sm. dec.	High	Common	Fair	Fair	Infill +	Infill +	1	12
live oak	Quercus virginiana	NDH	High	7.2	52.7	18.8	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			2	13
hackberry	Celtis occidentalis	WDH	Medium	17.5	36.4	5.9	Sm. dec.	No change	High	Rare	Poor	Fair	Infill +	Infill +	2	14
water oak	Quercus nigra	WDH	High	5.7	36.1	8.2	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	15
Texas ash	Fraxinus texensis	NDH	FIA	9.4	26.7	7.9	Unknown	Unknown	NA	Rare	FIA Only	FIA Only			0	16
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	22.1	25.1	3.2	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	1	17
Shumard oak	Quercus shumardii	NSL	Low	9.6	22.8	7.4	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor	Infill +	Infill +	2	18
black walnut	Juglans nigra	WDH	Low	4	19.7	24.5	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	19
black hickory	Carya texana	NDL	High	3.1	19.1	5.7	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	20
black willow	Salix nigra	NSH	Low	14.9	17.7	7.0	Sm. dec.	No change	Low	Rare	Very Poor	Very Poor			2	21
common persimmon	Diospyros virginiana	NSL	Low	6.3	12.5	3.8	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor	Infill +	Infill +	2	22
mockernut hickory	Carya alba	WDL	Medium	2.3	12.5	6.7	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	23
loblolly pine	Pinus taeda	WDH	High	0.7	11.0	10.2	No change	Sm. inc.	Medium	Rare	Poor	Fair	Infill +	Infill +	2	24
slippery elm	Ulmus rubra	WSL	Low	10.8	10.2	4.7	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	2	25
bur oak	Quercus macrocarpa	NDH	Medium	6.6	8.5	6.0	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor	Infill +		2	26
eastern cottonwood	Populus deltoides	NSH	Low	10.7	8.4	11.2	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	27
sweetgum	Liquidambar styraciflua	WDH	High	0.8	6.4	3.3	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	28
southern red oak	Quercus falcata	WDL	Medium	3.2	5.2	2.8	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	29
boxelder	Acer negundo	WSH	Low	7.8	5.1	6.4	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	30
red mulberry	Morus rubra	NSL	Low	11.8	4.5	1.9	Lg. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			2	31
shortleaf pine	Pinus echinata	WDH	High	0.4	4.3	6.4	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	32
slash pine	Pinus elliotii	NDH	High	1.3	4.2	24.5	Sm. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	33
willow oak	Quercus phellos	NSL	Low	0.2	3.6	1.7	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	34
wild plum	Prunus americana	NSLX	FIA	1.3	3.2	4.5	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	35
white ash	Fraxinus americana	WDL	Medium	4.5	3.1	3.7	No change	No change	Low	Rare	Very Poor	Very Poor			2	36
bitternut hickory	Carya cordiformis	WSL	Low	2.9	2.8	3.5	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	37
bluejack oak	Quercus incana	NSL	Low	0.6	2.5	1.2	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	38
eastern redbud	Cercis canadensis	NSL	Low	6.9	2.2	1.7	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	39
blackgum	Nyssa sylvatica	WDL	Medium	0.4	2.2	2.7	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	40
waterlocust	Gleditsia aquatica	NSLX	FIA	1.3	2.1	25.0	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	41
overcup oak	Quercus lyrata	NSL	Medium	0.5	1.6	1.7	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	42
sassafras	Sassafras albidum	WSL	Low	0.5	1.3	1.5	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	43
chinkapin oak	Quercus muehlenbergii	NSL	Medium	1.8	0.9	3.2	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	44
pignut hickory	Carya glabra	WDL	Medium	0.4	0.8	0.6	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	45
black locust	Robinia pseudoacacia	NDH	Low	0.3	0.7	2.2	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	46
cherrybark oak; swamp red o.	Quercus pagoda	NSL	Medium	1.6	0.7	2.3	Lg. dec.	Lg. dec.	Medium	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
water elm	Planera aquatica	NSL	Low	0.2	0.5	0.7	No change	No change	Medium	Rare	Poor	Poor				0 48
durand oak	Quercus sinuata var. sinuata	NSL	FIA	1.3	0.5	0.4	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only				0 49
red maple	Acer rubrum	WDH	High	1.3	0.3	3.6	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor				0 50
water hickory	Carya aquatica	NSL	Medium	0.3	0.3	0.8	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost				0 51
black cherry	Prunus serotina	WDL	Medium	0.1	0.1	0.1	No change	No change	Low	Rare	Very Poor	Very Poor				0 52
flowering dogwood	Cornus florida	WDL	Medium	0.3	0.0	0.1	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good				2 53
pawpaw	Asimina triloba	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0 54
American holly	Ilex opaca	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +		3 55
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0 56
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	0	0	0	Unknown	New Habitat	High	Absent	Unknown	New Habitat				3 57
sourwood	Oxydendrum arboreum	NDL	High	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown				0 58
pin cherry	Prunus pensylvanica	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0 59
northern red oak	Quercus rubra	WDH	Medium	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown				0 60
American basswood	Tilia americana	WSL	Medium	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown				0 61