

# HUC 080301 Lower Mississippi-Greenville

## HUC 6 Watershed Climate Change Atlas Tree Species

USDA Forest Service  
Northern Research Station  
Landscape Change Research Group  
Iverson, Peters, Prasad, Matthews

### Current and Potential Future Habitat, Capability, and Migration

	sq. km	sq. mi	FIA Plots
Area of Region	1,556.6	601.0	41

#### 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	1					Increase	17	18	Very Good	7	8	
Hickory	3					No Change	6	6	Good	11	12	
Maple	4	Abundant	9	High	10	18	Decrease	17	16	Fair	8	6
Oak	8	Common	11	Medium	22	37			Poor	8	8	
Pine	1	Rare	21	Low	28	6	New	16	16	Very Poor	5	5
Other	24	Absent	19	FIA	1		Unknown	5	5	FIA Only	1	1
	<b>41</b>		<b>60</b>		<b>61</b>	<b>61</b>		<b>61</b>	<b>61</b>	Unknown	4	4
											<b>44</b>	<b>44</b>
											<b>19</b>	<b>20</b>

#### Potential Changes in Climate Variables

##### Temperature (°F)

Scenario	2009	2039	2069	2099		
Annual	CCSM45	41.6	42.1	42.7	42.8	
Average	CCSM85	41.6	42.2	43.0	43.7	
	GFDL45	41.6	42.7	42.9	43.2	
	GFDL85	41.6	42.4	43.3	44.4	
	HAD45	41.6	42.4	43.2	43.6	
	HAD85	41.6	42.4	43.7	44.9	
Growing Season	CCSM45	45.9	46.3	46.8	46.9	
	CCSM85	45.9	46.5	47.2	48.2	
May—Sep	GFDL45	45.9	47.2	47.4	47.9	
	GFDL85	45.9	46.9	47.9	49.2	
	HAD45	45.9	46.9	47.7	48.0	
	HAD85	45.9	47.0	48.8	49.8	
Coldest Month	CCSM45	35.1	35.8	36.1	36.2	
Average	CCSM85	35.1	35.9	36.3	36.7	
	GFDL45	35.1	36.2	36.3	36.3	
	GFDL85	35.1	35.5	35.9	36.0	
	HAD45	35.1	35.4	35.9	36.1	
	HAD85	35.1	35.7	36.2	36.7	
Warmest Month	CCSM45	47.3	47.6	47.9	47.9	
Average	CCSM85	47.3	47.8	48.1	48.6	
	GFDL45	47.3	48.6	48.6	49.0	
	GFDL85	47.3	48.4	48.8	49.7	
	HAD45	47.3	48.6	49.1	49.2	
	HAD85	47.3	48.8	49.9	50.2	

##### Precipitation (in)

Scenario	2009	2039	2069	2099		
Annual	CCSM45	16.3	17.0	18.7	18.0	
Total	CCSM85	16.3	17.2	17.9	18.8	
	GFDL45	16.3	17.9	19.9	19.1	
	GFDL85	16.3	17.6	18.5	19.2	
	HAD45	16.3	15.7	16.8	17.9	
	HAD85	16.3	16.8	14.9	16.6	
Growing Season	CCSM45	5.6	5.6	5.8	5.7	
	CCSM85	5.6	5.2	5.2	5.3	
May—Sep	GFDL45	5.6	6.1	7.2	6.6	
	GFDL85	5.6	6.4	6.9	7.0	
	HAD45	5.6	5.2	5.4	5.2	
	HAD85	5.6	5.5	4.3	4.3	

**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	92.9	2889.4	11.6	Sm. dec.	Sm. dec.	Medium	Abundant	Fair	Fair			0	1
black willow	Salix nigra	NSH	Low	33.2	951.2	9.6	No change	No change	Low	Abundant	Fair	Fair			0	2
sweetgum	Liquidambar styraciflua	WDH	High	37.3	845.0	3.5	No change	No change	Medium	Abundant	Good	Good			1	3
boxelder	Acer negundo	WSH	Low	65.8	645.9	2.7	Sm. dec.	Sm. dec.	High	Abundant	Good	Good			1	4
sycamore	Platanus occidentalis	NSL	Low	48.5	582.4	5.4	Sm. dec.	Sm. dec.	Medium	Abundant	Fair	Fair			0	5
bald cypress	Taxodium distichum	NSH	Medium	25.6	576.9	5.2	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			1	6
eastern cottonwood	Populus deltoides	NSH	Low	47.2	558.2	7.0	Sm. dec.	No change	Medium	Abundant	Fair	Good			1	7
pecan	Carya illinoensis	NSH	Low	47.9	539.2	2.0	No change	Sm. inc.	Low	Abundant	Fair	Good			1	8
green ash	Fraxinus pennsylvanica	WSH	Low	84	537.2	2.9	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			1	9
water hickory	Carya aquatica	NSL	Medium	59.3	333.5	2.3	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	10
American elm	Ulmus americana	WDH	Medium	33.8	246.1	1.4	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	11
honeylocust	Gleditsia triacanthos	NSH	Low	54.1	220.9	3.2	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	12
water oak	Quercus nigra	WDH	High	23.8	184.6	0.6	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	13
Nuttall oak	Quercus texana	NSH	Medium	11.2	172.4	2.4	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			0	14
hackberry	Celtis occidentalis	WDH	Medium	10.8	137.2	2.7	Lg. dec.	Lg. dec.	High	Common	Fair	Fair	Infill +		1	15
eastern redbud	Cercis canadensis	NSL	Low	6.5	125.7	1.1	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	16
winged elm	Ulmus alata	WDL	Medium	16.3	105.9	2.4	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	17
overcup oak	Quercus lyrata	NSL	Medium	12.9	91.1	1.2	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	18
slippery elm	Ulmus rubra	WSL	Low	39.1	81.5	0.9	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	19
black locust	Robinia pseudoacacia	NDH	Low	10.8	57.1	1.0	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	20
water elm	Planera aquatica	NSL	Low	9	49.7	0.8	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	1	21
laurel oak	Quercus laurifolia	NDH	Medium	0.4	49.5	0.5	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	22
red mulberry	Morus rubra	NSL	Low	15.4	46.8	0.8	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	23
common persimmon	Diospyros virginiana	NSL	Low	39.9	44.8	0.4	Lg. inc.	Lg. inc.	High	Rare	Good	Good			1	24
sassafras	Sassafras albidum	WSL	Low	8	43.5	1.4	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	25
loblolly pine	Pinus taeda	WDH	High	7.4	40.2	7.2	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	26
willow oak	Quercus phellos	NSL	Low	14	32.1	0.5	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	27
yellow-poplar	Liriodendron tulipifera	WDH	High	1.9	24.4	1.1	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	28
waterlocust	Gleditsia aquatica	NSLX	FIA	8.2	22.9	1.5	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	29
flowering dogwood	Cornus florida	WDL	Medium	30.6	20.5	0.8	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	30
red maple	Acer rubrum	WDH	High	4.2	20.4	0.8	Sm. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	31
southern red oak	Quercus falcata	WDL	Medium	4.9	19.1	0.1	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	32
cherrybark oak; swamp red o.	Quercus pagoda	NSL	Medium	9	16.2	0.4	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	33
sourwood	Oxydendrum arboreum	NDL	High	1.9	13.9	0.6	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	34
silver maple	Acer saccharinum	NSH	Low	9.5	12.5	0.9	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			1	35
pignut hickory	Carya glabra	WDL	Medium	1.7	7.5	0.3	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	36
cedar elm	Ulmus crassifolia	NDH	Medium	2.8	3.9	0.3	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	2	37
florida maple	Acer barbatum	NSL	Low	0.4	3.3	0.0	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	38
American basswood	Tilia americana	WSL	Medium	6.1	3.1	0.5	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	39
pawpaw	Asimina triloba	NSL	Low	9.6	1.4	0.3	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	40
Shumard oak	Quercus shumardii	NSL	Low	2.8	1.2	0.1	Sm. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	41
Atlantic white-cedar	Chamaecyparis thyoides	NSH	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	42
eastern redcedar	Juniperus virginiana	WDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	43
slash pine	Pinus elliotii	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	44
longleaf pine	Pinus palustris	NSH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	45
striped maple	Acer pensylvanicum	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	46
serviceberry	Amelanchier spp.	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			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
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	48
American hornbeam; musclev	Carpinus caroliniana	WSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	49
mockernut hickory	Carya alba	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Likely +	Likely +	3	50
American beech	Fagus grandifolia	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	51
black walnut	Juglans nigra	WDH	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	52
Osage-orange	Maclura pomifera	NDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Likely +	Likely +	3	53
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	54
water tupelo	Nyssa aquatica	NSH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	55
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Likely +	Likely +	3	56
pin cherry	Prunus pensylvanica	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	57
blackjack oak	Quercus marilandica	NSL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	58
swamp chestnut oak	Quercus michauxii	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	59
post oak	Quercus stellata	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	60
live oak	Quercus virginiana	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	61