

HUC 080602 Big Black-Homochitto

HUC 6 Watershed Climate Change Atlas Tree Species

Current and Potential Future Habitat, Capability, and Migration

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

	sq. km	sq. mi	FIA Plots
Area of Region	16,541	6,386.5	566

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		
		Model	Reliability	Adaptability	Scenario	Scenario	Scenario	Scenario	SHIFT	SHIFT		
		High			RCP45	RCP85	Very Good	RCP45	RCP85	RCP45	RCP85	
Ash	2			24	Increase	39	42	15	19	Likely	1	1
Hickory	9			57	No Change	20	19	21	20	Infill	15	16
Maple	4	Abundant	4	10	Decrease	17	15	14	13	Migrate	1	1
Oak	19	Common	29	5	New	7	7	12	11		17	18
Pine	5	Rare	48		Unknown	10	10	13	12			
Other	42	Absent	11	93		93	93	4	4			
	81		92					5	5			
								84	84			

Potential Changes in Climate Variables

Temperature (°F)

Scenario	2009	2039	2069	2099	
Annual	55.8	57.0	58.4	58.6	
Average	55.8	57.3	59.1	60.9	
GFDL45	55.8	57.9	59.0	59.7	
GFDL85	55.8	57.7	60.0	62.5	
HAD45	55.8	57.6	59.7	60.6	
HAD85	55.8	57.8	60.8	63.6	
Growing Season	65.4	66.5	67.6	68.0	
May—Sep	65.4	67.8	70.1	73.1	
	65.4	67.6	70.1	70.5	
	65.4	68.0	72.2	74.6	
Coldest Month	41.2	42.9	43.6	43.6	
Average	41.2	43.2	44.2	45.1	
GFDL45	41.2	43.9	44.0	44.0	
GFDL85	41.2	42.3	43.0	43.4	
HAD45	41.2	41.6	42.9	43.5	
HAD85	41.2	42.5	43.6	44.9	
Warmest Month	68.4	69.3	69.7	69.9	
Average	68.4	69.6	70.3	71.5	
GFDL45	68.4	71.3	71.3	72.2	
GFDL85	68.4	70.7	71.9	73.7	
HAD45	68.4	71.5	72.9	72.9	
HAD85	68.4	71.9	74.5	75.3	

Precipitation (in)

Scenario	2009	2039	2069	2099	
Annual	42.1	44.5	48.2	46.3	
Total	42.1	44.7	45.4	48.6	
GFDL45	42.1	46.6	51.2	49.8	
GFDL85	42.1	46.1	47.8	49.4	
HAD45	42.1	41.1	43.6	45.6	
HAD85	42.1	43.6	39.0	42.4	
Growing Season	15.8	16.1	16.6	16.2	
Season	15.8	15.0	15.2	15.4	
May—Sep	15.8	18.1	20.8	19.1	
	15.8	18.7	20.0	21.0	
	15.8	14.9	15.9	15.4	
	15.8	15.7	12.8	13.0	

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	86.5	3762.8	29.9	No change	No change	Medium	Abundant	Good	Good			1	1
sweetgum	Liquidambar styraciflua	WDH	High	93.6	1625.4	11.3	No change	No change	Medium	Abundant	Good	Good			1	2
water oak	Quercus nigra	WDH	High	90.5	944.3	7.3	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			1	3
cherrybark oak; swamp red o	Quercus pagoda	NSL	Medium	63.9	500.8	5.4	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			1	4
winged elm	Ulmus alata	WDL	Medium	82.1	305.6	2.6	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	5
southern red oak	Quercus falcata	WDL	Medium	61.2	274.2	3.1	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	6
white oak	Quercus alba	WDH	Medium	54.5	252.5	3.3	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	7
shortleaf pine	Pinus echinata	WDH	High	46	252.3	3.5	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	8
boxelder	Acer negundo	WSH	Low	27.1	244.1	5.6	Sm. dec.	Sm. dec.	High	Common	Fair	Fair			1	9
yellow-poplar	Liriodendron tulipifera	WDH	High	50.5	223.2	3.2	No change	No change	High	Common	Good	Good			1	10
sugarberry	Celtis laevigata	NDH	Medium	32.7	219.2	3.8	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	11
American hornbeam; musclev	Carpinus caroliniana	WSL	Low	54.7	204.1	2.5	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	12
green ash	Fraxinus pennsylvanica	WSH	Low	44	176.2	2.9	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	13
pignut hickory	Carya glabra	WDL	Medium	54.2	163.2	2.0	No change	No change	Medium	Common	Fair	Fair			1	14
American elm	Ulmus americana	WDH	Medium	50.2	162.7	2.0	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	15
red maple	Acer rubrum	WDH	High	61.7	159.1	1.8	Sm. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	16
sycamore	Platanus occidentalis	NSL	Low	29.2	158.4	3.2	No change	No change	Medium	Common	Fair	Fair			1	17
American beech	Fagus grandifolia	WDH	High	38	155.1	2.8	Lg. inc.	Sm. inc.	Medium	Common	Very Good	Good			1	18
black cherry	Prunus serotina	WDL	Medium	65.7	151.8	1.5	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	19
eastern redcedar	Juniperus virginiana	WDH	Medium	38.8	151.1	2.6	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	20
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	50.7	137.3	1.9	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	21
black willow	Salix nigra	NSH	Low	15.7	133.5	5.1	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	22
blackgum	Nyssa sylvatica	WDL	Medium	50.8	124.3	1.6	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	23
post oak	Quercus stellata	WDH	High	29.9	118.5	2.4	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	24
willow oak	Quercus phellos	NSL	Low	23.4	114.3	4.1	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	25
mockernut hickory	Carya alba	WDL	Medium	41.1	112.4	1.7	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	26
pecan	Carya illinoensis	NSH	Low	16.4	97.7	3.4	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	27
slippery elm	Ulmus rubra	WSL	Low	29.2	90.5	2.1	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	28
flowering dogwood	Cornus florida	WDL	Medium	47.8	87.9	1.3	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	29
bald cypress	Taxodium distichum	NSH	Medium	5.5	84.5	11.3	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	30
common persimmon	Diospyros virginiana	NSL	Low	34.6	72.7	0.9	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	31
eastern cottonwood	Populus deltoides	NSH	Low	4.2	67.2	6.1	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	1	32
swamp chestnut oak	Quercus michauxii	NSL	Low	16.1	60.4	2.9	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	33
white ash	Fraxinus americana	WDL	Medium	32.5	55.9	1.2	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	34
sassafras	Sassafras albidum	WSL	Low	16.8	45.9	1.4	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good			1	35
southern magnolia	Magnolia grandiflora	NSL	Low	22.4	40.3	1.5	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	36
black oak	Quercus velutina	WDH	High	18	39.5	1.4	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	37
sourwood	Oxydendrum arboreum	NDL	High	23.8	38.9	1.3	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			1	38
black locust	Robinia pseudoacacia	NDH	Low	9.9	38.5	2.5	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	1	39
Shumard oak	Quercus shumardii	NSL	Low	14.9	38.3	1.3	Sm. inc.	Lg. inc.	High	Rare	Good	Good			1	40
water hickory	Carya aquatica	NSL	Medium	5	34.8	2.3	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	1	41
overcup oak	Quercus lyrata	NSL	Medium	9	32.3	2.2	No change	Sm. inc.	Low	Rare	Very Poor	Poor			1	42
bitternut hickory	Carya cordiformis	WSL	Low	15.4	27.5	1.1	No change	Sm. inc.	High	Rare	Fair	Good	Infill +	Infill ++	1	43
florida maple	Acer barbatum	NSL	Low	11.5	26.6	1.2	Sm. dec.	No change	High	Rare	Poor	Fair	Infill +	Infill +	1	44
bigleaf magnolia	Magnolia macrophylla	NSL	Low	12.2	22.0	0.8	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	45
honeylocust	Gleditsia triacanthos	NSH	Low	9.6	21.9	1.7	No change	Sm. inc.	High	Rare	Fair	Good	Infill +	Infill ++	1	46
northern red oak	Quercus rubra	WDH	Medium	7.3	20.5	1.3	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor		Infill +	2	47



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Nuttall oak	Quercus texana	NSH	Medium	5.1	20.0	2.9	No change	No change	High	Rare	Fair	Fair			0	48
red mulberry	Morus rubra	NSL	Low	18.8	18.3	0.6	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair			1	49
laurel oak	Quercus laurifolia	NDH	Medium	8.9	18.1	1.1	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	1	50
water tupelo	Nyssa aquatica	NSH	Medium	3.4	17.1	4.0	No change	No change	Low	Rare	Very Poor	Very Poor			2	51
chinkapin oak	Quercus muehlenbergii	NSL	Medium	4.5	16.6	1.9	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			2	52
eastern redbud	Cercis canadensis	NSL	Low	9	16.1	0.7	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	53
water elm	Planera aquatica	NSL	Low	3.4	15.8	4.1	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	1	54
cucumbertree	Magnolia acuminata	NSL	Low	6.9	14.5	1.9	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	1	55
swamp tupelo	Nyssa biflora	NDH	Medium	3.2	14.0	2.0	No change	No change	Low	Rare	Very Poor	Very Poor			2	56
sweetbay	Magnolia virginiana	NSL	Medium	5.5	12.7	1.9	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	1	57
waterlocust	Gleditsia aquatica	NSLX	FIA	0.6	12.1	20.0	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	58
American holly	Ilex opaca	NSL	Medium	12.6	11.7	0.6	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	59
blackjack oak	Quercus marilandica	NSL	Medium	6.6	11.3	1.0	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	1	60
river birch	Betula nigra	NSL	Low	3	8.7	2.9	No change	No change	Medium	Rare	Poor	Poor		Infill +	1	61
black walnut	Juglans nigra	WDH	Low	4.9	8.2	0.9	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	62
scarlet oak	Quercus coccinea	NDL	Medium	3.7	7.8	1.2	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	63
Osage-orange	Maclura pomifera	NDH	Medium	1.8	7.0	2.1	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	64
shagbark hickory	Carya ovata	WSL	Medium	2.4	6.6	0.7	Sm. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	65
live oak	Quercus virginiana	NDH	High	0.6	6.2	10.3	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	66
spruce pine	Pinus glabra	NSL	Low	1.3	5.8	2.3	No change	No change	Medium	Rare	Poor	Poor	Infill +		2	67
cedar elm	Ulmus crassifolia	NDH	Medium	0.1	4.2	0.3	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	2	68
paulownia	Paulownia tomentosa	NSL	FIA	0.8	4.2	1.3	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	69
longleaf pine	Pinus palustris	NSH	Medium	1.2	3.9	3.2	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	70
pawpaw	Asimina triloba	NSL	Low	2.3	3.5	0.9	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	71
shellbark hickory	Carya laciniata	NSL	Low	1.9	3.3	0.8	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	72
black hickory	Carya texana	NDL	High	2.4	3.0	0.7	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	73
durand oak	Quercus sinuata var. sinuata	NSL	FIA	0.1	2.8	1.1	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	74
silver maple	Acer saccharinum	NSH	Low	1.8	2.1	1.2	Sm. dec.	Lg. dec.	High	Rare	Poor	Poor			0	75
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	2.1	0.2	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	76
redbay	Persea borbonia	NSL	Low	1.6	1.6	0.4	Sm. dec.	No change	High	Rare	Poor	Fair			0	77
sand hickory	Carya pallida	NSL	FIA	0.6	1.5	2.2	Unknown	Unknown	NA	Rare	FIA Only	FIA Only			0	78
turkey oak	Quercus laevis	NSH	Medium	1.2	0.5	0.4	Very Lg. dec.	Very Lg. dec.	High	Rare	Lost	Lost			0	79
Virginia pine	Pinus virginiana	NDH	High	0.6	0.4	0.7	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	80
chokecherry	Prunus virginiana	NSLX	FIA	0.8	0.4	0.2	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	81
ashe juniper	Juniperus ashei	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	82
slash pine	Pinus elliotii	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	83
striped maple	Acer pensylvanicum	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	84
yellow buckeye	Aesculus flava	NSL	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	85
serviceberry	Amelanchier spp.	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	86
black ash	Fraxinus nigra	WSH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	87
silverbell	Halesia spp.	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	88
pin cherry	Prunus pensylvanica	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	89
swamp white oak	Quercus bicolor	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	90
shingle oak	Quercus imbricaria	NDH	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	91
bur oak	Quercus macrocarpa	NDH	Medium	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	92
American basswood	Tilia americana	WSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	93