

HUC 080601 Lower Mississippi-Natchez

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	1,793.0	692.3	45

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					
				Reliability	Adaptability	Scenario RCP45	Scenario RCP85	Scenario RCP45	Scenario RCP85	SHIFT RCP45	SHIFT RCP85				
Ash	2			High	14	24	Increase	24	27	Very Good	10	12	Likely	4	4
Hickory	7			Medium	34	50	No Change	20	18	Good	20	20	Infill	8	9
Maple	3	Abundant	12	Low	36	11	Decrease	16	15	Fair	10	10	Migrate	6	6
Oak	13	Common	23	FIA	2		New	16	16	Poor	8	6			
Pine	1	Rare	27				Unknown	10	10	Very Poor	7	8			
Other	36	Absent	20							FIA Only	2	2			
	62		82		86	85		86	86	Unknown	8	8			
											65	66			

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	44.4	45.0	45.6	45.7	
	CCSM85	44.4	45.1	46.0	46.8	
	GFDL45	44.4	45.4	45.9	46.3	
	GFDL85	44.4	45.3	46.4	47.7	
	HAD45	44.4	45.2	46.3	46.7	
HAD85	44.4	45.4	46.8	48.2		
Growing Season (May—Sep)	CCSM45	49.1	49.6	50.1	50.3	
	CCSM85	49.1	49.7	50.6	51.6	
	GFDL45	49.1	50.2	50.7	51.4	
	GFDL85	49.1	50.2	51.4	52.9	
	HAD45	49.1	50.2	51.3	51.5	
HAD85	49.1	50.4	52.3	53.5		
Coldest Month (Average)	CCSM45	37.2	38.1	38.4	38.4	
	CCSM85	37.2	38.2	38.7	39.1	
	GFDL45	37.2	38.5	38.5	38.5	
	GFDL85	37.2	37.7	38.0	38.2	
	HAD45	37.2	37.4	38.1	38.4	
HAD85	37.2	37.9	38.4	39.1		
Warmest Month (Average)	CCSM45	50.5	50.9	51.1	51.2	
	CCSM85	50.5	51.0	51.4	51.9	
	GFDL45	50.5	51.9	51.8	52.4	
	GFDL85	50.5	51.7	52.2	53.2	
	HAD45	50.5	51.9	52.5	52.6	
HAD85	50.5	52.2	53.3	53.7		

Precipitation (in)

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	21.3	22.5	24.3	23.3	
	CCSM85	21.3	22.5	23.2	24.2	
	GFDL45	21.3	23.2	26.1	24.7	
	GFDL85	21.3	23.0	23.7	24.5	
	HAD45	21.3	20.9	21.6	22.8	
HAD85	21.3	21.9	19.6	21.3		
Growing Season (May—Sep)	CCSM45	7.9	8.0	8.3	8.1	
	CCSM85	7.9	7.4	7.7	7.5	
	GFDL45	7.9	8.9	10.7	9.4	
	GFDL85	7.9	9.2	9.8	10.4	
	HAD45	7.9	7.6	7.9	7.7	
HAD85	7.9	7.6	6.4	6.5		

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.

Cite as: Iverson, L.R.; Prasad, A.M.; Peters, M.P.; Matthews, S.N. 2019. Facilitating Adaptive Forest Management under Climate Change: A Spatially Specific Synthesis of 125 Species for Habitat Changes and Assisted Migration over the Eastern United States. *Forests*. 10(11): 989. <https://doi.org/10.3390/f10110989>.

HUC 080601 Lower Mississippi-Natchez

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

Common Name	Scientific Name	Range	MR	%Cell	FIASum	FIaiv	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
sugarberry	Celtis laevigata	NDH	Medium	74.2	2265.5	6.0	No change	No change	Medium	Abundant	Good	Good			1	1
sweetgum	Liquidambar styraciflua	WDH	High	70.4	1802.4	5.9	No change	No change	Medium	Abundant	Good	Good			1	2
sycamore	Platanus occidentalis	NSL	Low	54.6	1023.7	5.2	Sm. dec.	Sm. dec.	Medium	Abundant	Fair	Fair			0	3
black willow	Salix nigra	NSH	Low	23.2	993.8	23.7	Sm. inc.	Sm. inc.	Low	Abundant	Good	Good			1	4
cherrybark oak; swamp red o	Quercus pagoda	NSL	Medium	44.9	973.9	5.1	No change	No change	Medium	Abundant	Good	Good			1	5
boxelder	Acer negundo	WSH	Low	57.2	897.3	4.5	No change	No change	High	Abundant	Very Good	Very Good			1	6
pecan	Carya illinoensis	NSH	Low	53.8	853.8	4.9	Sm. inc.	Sm. inc.	Low	Abundant	Good	Good			1	7
water oak	Quercus nigra	WDH	High	56	798.0	3.1	Lg. inc.	Lg. inc.	Medium	Abundant	Very Good	Very Good			1	8
green ash	Fraxinus pennsylvanica	WSH	Low	45.4	761.5	4.6	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			1	9
water hickory	Carya aquatica	NSL	Medium	29.2	682.6	4.7	No change	No change	Medium	Abundant	Good	Good			1	10
bald cypress	Taxodium distichum	NSH	Medium	5.5	613.1	2.6	No change	No change	Medium	Abundant	Good	Good			1	11
loblolly pine	Pinus taeda	WDH	High	20.6	583.4	6.3	Lg. inc.	Lg. inc.	Medium	Abundant	Very Good	Very Good			1	12
eastern cottonwood	Populus deltoides	NSH	Low	29.7	497.3	5.9	No change	No change	Medium	Common	Fair	Fair			1	13
overcup oak	Quercus lyrata	NSL	Medium	25.9	468.2	2.1	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	14
slippery elm	Ulmus rubra	WSL	Low	36.8	409.4	2.9	No change	Sm. inc.	Medium	Common	Fair	Good			1	15
American elm	Ulmus americana	WDH	Medium	56.9	408.0	1.6	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	16
common persimmon	Diospyros virginiana	NSL	Low	33.7	309.2	3.9	Sm. dec.	No change	High	Common	Fair	Good			1	17
willow oak	Quercus phellos	NSL	Low	14.1	290.2	4.5	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	18
water tupelo	Nyssa aquatica	NSH	Medium	2.7	276.6	2.5	No change	No change	Low	Rare	Very Poor	Very Poor			2	19
pignut hickory	Carya glabra	WDL	Medium	28.6	257.1	1.6	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	20
yellow-poplar	Liriodendron tulipifera	WDH	High	21.6	243.6	1.6	No change	No change	High	Common	Good	Good			1	21
winged elm	Ulmus alata	WDL	Medium	37.5	177.6	1.1	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	22
American hornbeam; musclev	Carpinus caroliniana	WSL	Low	31.1	164.9	1.0	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	23
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	28.1	164.1	0.7	No change	No change	High	Common	Good	Good			1	24
American beech	Fagus grandifolia	WDH	High	15.6	160.7	1.1	Sm. inc.	Sm. inc.	Medium	Common	Good	Good	Infill ++	Infill ++	1	25
Nuttall oak	Quercus texana	NSH	Medium	13.1	138.8	1.6	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			0	26
honeylocust	Gleditsia triacanthos	NSH	Low	21.7	127.5	1.2	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	27
black locust	Robinia pseudoacacia	NDH	Low	22.5	124.9	1.6	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	28
eastern redcedar	Juniperus virginiana	WDL	Medium	24	104.7	1.8	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	29
flowering dogwood	Cornus florida	WDL	Medium	27.4	94.9	0.5	No change	No change	Medium	Common	Fair	Fair			1	30
white oak	Quercus alba	WDH	Medium	19.9	90.7	1.1	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	31
Shumard oak	Quercus shumardii	NSL	Low	7	87.2	4.7	No change	No change	High	Common	Good	Good	Infill ++	Infill ++	2	32
cedar elm	Ulmus crassifolia	NDH	Medium	13.9	87.0	1.4	Lg. inc.	Lg. inc.	Low	Common	Good	Good	Infill ++	Infill ++	1	33
red maple	Acer rubrum	WDH	High	26.7	81.5	0.7	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	34
black cherry	Prunus serotina	WDL	Medium	18.4	73.5	0.3	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	35
white ash	Fraxinus americana	WDL	Medium	15.4	65.2	0.5	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	36
sassafras	Sassafras albidum	WSL	Low	5.2	47.8	1.2	No change	No change	Medium	Rare	Poor	Poor			1	37
swamp chestnut oak	Quercus michauxii	NSL	Low	6.2	40.7	0.5	No change	No change	Medium	Rare	Poor	Poor			1	38
blackgum	Nyssa sylvatica	WDL	Medium	15.9	37.9	0.7	Lg. inc.	Lg. inc.	High	Rare	Good	Good			1	39
black walnut	Juglans nigra	WDH	Low	6.1	36.5	0.5	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	40
mockernut hickory	Carya alba	WDL	Medium	14.8	36.4	0.7	Lg. inc.	Lg. inc.	High	Rare	Good	Good			1	41
northern red oak	Quercus rubra	WDH	Medium	5	36.2	0.5	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor		Infill +	2	42
red mulberry	Morus rubra	NSL	Low	15.6	33.7	0.5	No change	Sm. inc.	Medium	Rare	Poor	Fair			1	43
southern magnolia	Magnolia grandiflora	NSL	Low	14	32.5	0.3	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	44
bitternut hickory	Carya cordiformis	WSL	Low	12.7	27.8	0.4	Sm. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	1	45
southern red oak	Quercus falcata	WDL	Medium	4.3	25.7	3.6	Lg. inc.	Lg. inc.	High	Rare	Good	Good			1	46
water elm	Planera aquatica	NSL	Low	1.8	23.8	0.4	No change	Sm. inc.	Medium	Rare	Poor	Fair	Infill +	Infill +	1	47



Current and Potential Future Habitat, Capability, and Migration

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	8.8	20.5	0.3	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	1	48
pawpaw	Asimina triloba	NSL	Low	3.5	14.9	0.5	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	49
sand hickory	Carya pallida	NSL	FIA	0.4	13.5	0.2	Unknown	Unknown	NA	Rare	FIA Only	FIA Only			0	50
eastern redbud	Cercis canadensis	NSL	Low	9.3	12.1	0.2	Very Lg. dec.	Lg. dec.	Medium	Rare	Lost	Very Poor			0	51
black oak	Quercus velutina	WDH	High	8.1	11.9	0.2	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	52
sourwood	Oxydendrum arboreum	NDL	High	1.3	8.2	0.4	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	53
chinkapin oak	Quercus muehlenbergii	NSL	Medium	6.6	7.5	0.4	Very Lg. dec.	Sm. dec.	Medium	Rare	Lost	Very Poor			2	54
swamp tupelo	Nyssa biflora	NDH	Medium	2.3	6.0	0.1	Very Lg. dec.	Very Lg. dec.	Low	Rare	Lost	Lost			0	55
American holly	Ilex opaca	NSL	Medium	3.7	5.9	0.1	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	1	56
shellbark hickory	Carya laciniosa	NSL	Low	2	4.4	0.3	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	57
bigleaf magnolia	Magnolia macrophylla	NSL	Low	1.4	4.2	0.2	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	58
Osage-orange	Maclura pomifera	NDH	Medium	1.9	3.5	0.2	Very Lg. dec.	Very Lg. dec.	High	Rare	Lost	Lost			0	59
American basswood	Tilia americana	WSL	Medium	1.9	3.5	0.2	Lg. dec.	Very Lg. dec.	Medium	Rare	Very Poor	Lost			0	60
chokecherry	Prunus virginiana	NSLX	FIA	3.7	2.1	0.3	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	61
scarlet oak	Quercus coccinea	WDL	Medium	1.4	1.8	0.1	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	62
Atlantic white-cedar	Chamaecyparis thyoides	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	63
ashe juniper	Juniperus ashei	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	64
shortleaf pine	Pinus echinata	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	65
slash pine	Pinus elliottii	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	66
longleaf pine	Pinus palustris	NSH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	67
striped maple	Acer pensylvanicum	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	68
mountain maple	Acer spicatum	NSL	Low	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	69
yellow buckeye	Aesculus flava	NSL	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	70
serviceberry	Amelanchier spp.	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	71
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	72
black hickory	Carya texana	NDL	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	73
black ash	Fraxinus nigra	WSH	Medium	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	74
silverbell	Halesia spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	75
cucumbertree	Magnolia acuminata	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	76
sweetbay	Magnolia virginiana	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	77
redbay	Persea borbonia	NSL	Low	0	0	0	Unknown	Unknown	High	Modeled	Unknown	Unknown			0	78
pin cherry	Prunus pensylvanica	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	79
swamp white oak	Quercus bicolor	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	80
turkey oak	Quercus laevis	NSH	Medium	0	0	0	Unknown	Unknown	High	Modeled	Unknown	Unknown			0	81
laurel oak	Quercus laurifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	82
bur oak	Quercus macrocarpa	NDH	Medium	0	0	0	Unknown	Unknown	High	Modeled	Unknown	Unknown			0	83
blackjack oak	Quercus marilandica	NSL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	84
post oak	Quercus stellata	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Likely +	Likely +	3	85
live oak	Quercus virginiana	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	86