

HUC 031602 Mobile Bay-Tombigbee

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	16,721	6,456.1	560

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	3				Increase	37	41	Very Good	15	16	Likely	1	1		
Hickory	7				No Change	20	18	Good	20	20	Infill	21	22		
Maple	3	Abundant	4	High	17	27	Decrease	20	18	Fair	11	17	Migrate	3	3
Oak	20	Common	27	Medium	37	59	New	12	12	Poor	18	10			
Pine	6	Rare	52	Low	40	12	Unknown	11	11	Very Poor	13	14			
Other	44	Absent	17	FIA	6					FIA Only	6	6			
	83		100		100	98		100	100		88	88		25	26

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	56.6	57.9	59.3	59.4	
	CCSM85	56.6	58.1	59.9	61.7	
	GFDL45	56.6	58.6	59.9	60.5	
	GFDL85	56.6	58.5	60.7	63.3	
	HAD45	56.6	58.3	60.3	61.3	
HAD85	56.6	58.5	61.4	64.2		
Growing Season (May—Sep)	CCSM45	66.2	67.3	68.5	68.8	
	CCSM85	66.2	67.4	69.3	71.5	
	GFDL45	66.2	68.3	69.5	70.6	
	GFDL85	66.2	68.1	70.5	73.4	
	HAD45	66.2	68.5	70.3	71.3	
HAD85	66.2	68.6	72.6	75.1		
Coldest Month (Average)	CCSM45	42.2	43.9	44.5	44.4	
	CCSM85	42.2	44.0	44.9	45.7	
	GFDL45	42.2	44.9	45.0	45.1	
	GFDL85	42.2	43.5	44.3	44.6	
	HAD45	42.2	42.2	43.5	44.0	
HAD85	42.2	43.2	44.1	45.4		
Warmest Month (Average)	CCSM45	69.0	70.1	70.5	70.7	
	CCSM85	69.0	70.0	71.0	72.3	
	GFDL45	69.0	71.2	71.6	72.3	
	GFDL85	69.0	70.7	71.7	73.3	
	HAD45	69.0	72.0	73.1	73.5	
HAD85	69.0	72.2	74.7	75.7		

Precipitation (in)

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	43.7	45.4	49.3	48.3	
	CCSM85	43.7	46.6	47.5	51.6	
	GFDL45	43.7	48.8	51.9	52.0	
	GFDL85	43.7	48.5	50.3	51.0	
	HAD45	43.7	42.6	46.6	47.3	
HAD85	43.7	46.7	42.0	44.0		
Growing Season (May—Sep)	CCSM45	18.2	19.0	20.2	19.8	
	CCSM85	18.2	17.9	18.7	19.9	
	GFDL45	18.2	21.8	23.8	22.5	
	GFDL85	18.2	22.3	24.1	24.7	
	HAD45	18.2	17.4	18.9	18.5	
HAD85	18.2	19.2	14.8	15.4		

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>.



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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	88.2	3839.9	32.3	No change	No change	Medium	Abundant	Good	Good			1	1
sweetgum	Liquidambar styraciflua	WDH	High	82.4	1039.3	10.0	No change	No change	Medium	Abundant	Good	Good			1	2
water oak	Quercus nigra	WDH	High	88.2	662.6	6.0	Lg. inc.	Lg. inc.	Medium	Abundant	Very Good	Very Good			1	3
slash pine	Pinus elliottii	NDH	High	28.1	532.1	12.2	Lg. inc.	Lg. inc.	Medium	Abundant	Very Good	Very Good	Infill ++	Infill ++	1	4
longleaf pine	Pinus palustris	NSH	Medium	29.7	435.8	8.3	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	5
red maple	Acer rubrum	WDH	High	80.4	313.4	2.9	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	6
sweetbay	Magnolia virginiana	NSL	Medium	40.5	282.7	5.2	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	7
laurel oak	Quercus laurifolia	NDH	Medium	45.8	252.3	3.8	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	8
blackgum	Nyssa sylvatica	WDL	Medium	66	235.8	2.7	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	9
yellow-poplar	Liriodendron tulipifera	WDH	High	50.5	228.1	3.3	No change	Sm. dec.	High	Common	Good	Fair			1	10
shortleaf pine	Pinus echinata	WDH	High	40.9	183.9	3.5	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	11
American hornbeam; musclev	Carpinus caroliniana	WSL	Low	42.1	170.9	3.2	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	12
eastern redcedar	Juniperus virginiana	WDH	Medium	23.3	168.8	4.0	Sm. dec.	No change	Medium	Common	Poor	Fair			1	13
southern red oak	Quercus falcata	WDL	Medium	50.5	167.6	2.5	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	14
green ash	Fraxinus pennsylvanica	WSH	Low	33.3	162.2	4.1	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	15
swamp tupelo	Nyssa biflora	NDH	Medium	23.7	146.0	4.9	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	16
sugarberry	Celtis laevigata	NDH	Medium	20.2	145.1	4.3	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	17
white oak	Quercus alba	WDH	Medium	41.6	122.2	2.1	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	18
flowering dogwood	Cornus florida	WDL	Medium	43.9	108.7	2.0	No change	No change	Medium	Common	Fair	Fair			1	19
bald cypress	Taxodium distichum	NSH	Medium	13.8	99.5	6.3	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good	Infill ++	Infill ++	1	20
black cherry	Prunus serotina	WDL	Medium	44.1	97.3	1.7	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	21
willow oak	Quercus phellos	NSL	Low	24.4	94.3	2.6	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	22
water tupelo	Nyssa aquatica	NSH	Medium	6.9	93.9	9.2	No change	No change	Low	Common	Poor	Poor	Infill +	Infill +	0	23
post oak	Quercus stellata	WDH	High	36.7	88.0	1.6	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	24
winged elm	Ulmus alata	WDL	Medium	37	82.7	1.7	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	25
mockernut hickory	Carya alba	WDL	Medium	28.9	78.7	1.6	Sm. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	26
cherrybark oak; swamp red o	Quercus pagoda	NSL	Medium	25	68.4	2.1	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	27
spruce pine	Pinus glabra	NSL	Low	20.2	66.4	2.5	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	28
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	24.7	56.4	1.8	Sm. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	29
black willow	Salix nigra	NSH	Low	11.9	55.6	4.2	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	30
overcup oak	Quercus lyrata	NSL	Medium	11.8	52.4	3.3	Sm. inc.	Lg. inc.	Low	Common	Fair	Good	Infill +	Infill ++	1	31
swamp chestnut oak	Quercus michauxii	NSL	Low	19.9	48.0	1.8	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair			1	32
American holly	Ilex opaca	NSL	Medium	31.5	46.3	1.1	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	33
sourwood	Oxydendrum arboreum	NDL	High	23.4	43.2	1.3	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			1	34
live oak	Quercus virginiana	NDH	High	5.8	40.6	4.7	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	35
American elm	Ulmus americana	WDH	Medium	19.5	36.4	1.6	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	36
common persimmon	Diospyros virginiana	NSL	Low	29.2	34.6	0.9	No change	No change	High	Rare	Fair	Fair			1	37
water hickory	Carya aquatica	NSL	Medium	4.8	33.6	4.5	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	38
pignut hickory	Carya glabra	WDL	Medium	24.6	33.3	1.1	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair			1	39
slippery elm	Ulmus rubra	WSL	Low	12.9	33.0	1.2	Lg. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	40
American beech	Fagus grandifolia	WDH	High	17.2	32.7	1.6	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1	41
turkey oak	Quercus laevis	NSH	Medium	7.9	32.4	3.9	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	42
southern magnolia	Magnolia grandiflora	NSL	Low	15.2	27.6	1.3	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	43
redbay	Persea borbonia	NSL	Low	18.7	27.5	1.0	Sm. inc.	Sm. inc.	High	Rare	Good	Good			1	44
Osage-orange	Maclura pomifera	NDH	Medium	2.6	27.0	2.5	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	45
sycamore	Platanus occidentalis	NSL	Low	11.1	25.1	1.7	No change	Sm. inc.	Medium	Rare	Poor	Fair	Infill +	Infill +	1	46
Nuttall oak	Quercus texana	NSH	Medium	5.1	22.3	2.1	No change	No change	High	Rare	Fair	Fair			0	47



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pond cypress	Taxodium ascendens	NSH	Medium	3.8	22.3	4.5	No change	Sm. inc.	Medium	Rare	Poor	Fair	Infill +	Infill +	2	48
florida maple	Acer barbatum	NSL	Low	9.5	21.9	1.9	Sm. dec.	No change	High	Rare	Poor	Fair	Infill +	Infill +	1	49
black oak	Quercus velutina	WDH	High	9.8	21.1	1.5	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	50
pecan	Carya illinoensis	NSH	Low	5.8	20.4	2.9	No change	No change	Low	Rare	Very Poor	Very Poor			0	51
shagbark hickory	Carya ovata	WSL	Medium	8.5	17.0	1.5	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	52
boxelder	Acer negundo	WSH	Low	5.4	16.5	2.6	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	1	53
river birch	Betula nigra	NSL	Low	6.4	13.9	2.3	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good	Infill +	Infill ++	1	54
durand oak	Quercus sinuata var. sinuata	NSL	FIA	2	13.3	2.9	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	55
bitternut hickory	Carya cordiformis	NSL	Low	8.2	12.7	1.6	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor		Infill +	1	56
Shumard oak	Quercus shumardii	NSL	Low	6.4	12.4	1.5	Sm. dec.	No change	High	Rare	Poor	Fair	Infill +	Infill +	2	57
cucumbertree	Magnolia acuminata	NSL	Low	7	12.1	1.6	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	58
eastern cottonwood	Populus deltoides	NSH	Low	3.3	11.9	2.5	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	59
red mulberry	Morus rubra	NSL	Low	5.2	11.8	1.5	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	1	60
sassafras	Sassafras albidum	WSL	Low	13.7	11.4	0.7	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	61
bigleaf magnolia	Magnolia macrophylla	NSL	Low	6.6	10.8	1.1	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	62
white ash	Fraxinus americana	WDL	Medium	8.5	10.1	0.9	Sm. dec.	No change	Low	Rare	Very Poor	Very Poor			0	63
blackjack oak	Quercus marilandica	NSL	Medium	3.7	8.0	1.1	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	64
northern red oak	Quercus rubra	WDH	Medium	2.8	7.1	1.3	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			0	65
eastern redbud	Cercis canadensis	NSL	Low	5.8	6.7	1.0	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	66
black walnut	Juglans nigra	WDH	Low	3	5.1	1.6	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	67
water elm	Planera aquatica	NSL	Low	2.6	3.2	1.3	No change	Sm. inc.	Medium	Rare	Poor	Fair		Infill +	2	68
Atlantic white-cedar	Chamaecyparis thyoides	NSH	Low	0.6	3.2	5.3	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +		2	69
bluejack oak	Quercus incana	NSL	Low	4.3	3.0	0.7	No change	Sm. inc.	Medium	Rare	Poor	Fair	Infill +	Infill +	2	70
scarlet oak	Quercus coccinea	WDL	Medium	1.9	2.6	1.0	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	71
honeylocust	Gleditsia triacanthos	NSH	Low	1.1	2.4	0.9	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	72
pumpkin ash	Fraxinus profunda	NSH	FIA	0.6	1.5	2.6	Unknown	Unknown	NA	Rare	FIA Only	FIA Only			0	73
hackberry	Celtis occidentalis	WDH	Medium	1.9	1.5	0.9	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor	Infill +	Infill +	2	74
wild plum	Prunus americana	NSLX	FIA	3.9	1.2	0.2	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	75
waterlocust	Gleditsia aquatica	NSLX	FIA	0.6	1.2	1.9	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	76
sand hickory	Carya pallida	NSL	FIA	0.8	1.0	0.6	Unknown	Unknown	NA	Rare	FIA Only	FIA Only			0	77
chinkapin oak	Quercus muehlenbergii	NSL	Medium	0.9	0.7	0.4	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	78
serviceberry	Amelanchier spp.	NSL	Low	0	0.7	0.1	No change	No change	Medium	Rare	Poor	Poor			0	79
black locust	Robinia pseudoacacia	NDH	Low	0.6	0.3	0.5	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	80
Kentucky coffeetree	Gymnocladus dioicus	NSLX	FIA	0.6	0.2	0.4	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	81
Virginia pine	Pinus virginiana	NDH	High	0.2	0.2	0.1	Lg. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	82
pawpaw	Asimina triloba	NSL	Low	0.6	0.1	0.2	No change	Sm. dec.	Medium	Rare	Poor	Very Poor			0	83
ashe juniper	Juniperus ashei	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	84
sand pine	Pinus clausa	NDH	High	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Likely +	Likely +	3	85
Table Mountain pine	Pinus pungens	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	86
striped maple	Acer pensylvanicum	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	87
silver maple	Acer saccharinum	NSH	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	88
mountain maple	Acer spicatum	NSL	Low	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	89
yellow buckeye	Aesculus flava	NSL	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	90
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	91
shellbark hickory	Carya laciniosa	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	92
black hickory	Carya texana	NDL	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	93
black ash	Fraxinus nigra	WSH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	94



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Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIAiv	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
silverbell	Halesia spp.	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	95
pin cherry	Prunus pensylvanica	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	96
chestnut oak	Quercus prinus	NDH	High	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	97
cabbage palmetto	Sabal palmetto	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	98
American basswood	Tilia americana	WSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	99
cedar elm	Ulmus crassifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	100