

HUC 031401 Florida Panhandle Coastal

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 17,363 6,704.1 479

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					Potential Change in Habitat Suitability			Capability to Cope or Persist			Migration Potential		
				Model			Scenario	Scenario		Scenario	Scenario		SHIFT	SHIFT	
		Abundance		Reliability	Adaptability		RCP45	RCP85		RCP45	RCP85		RCP45	RCP85	
Ash	4			High	17	20	Increase	26	28	Very Good	10	10	Likely	4	4
Hickory	4			Medium	36	57	No Change	16	17	Good	12	15	Infill	15	17
Maple	2	Abundant	5	Low	34	12	Decrease	16	13	Fair	11	10	igrate	1	3
Oak	12	Common	14	FIA	5		New	12	15	Poor	10	12		20	24
Pine	8	Rare	44				Unknown	22	19	Very Poor	13	10			
Other	33	Absent	27							FIA Only	5	5			
	63		90		92	89		92	92	Unknown	17	14			
Potential Changes in Climate Variables															
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Potential Changes in Climate Variables

Temperature (°F)

Scenario	2009	2039	2069	2099	
Annual	CCSM45	54.6	55.5	56.7	56.7
Average	CCSM85	54.6	55.7	57.2	58.6
	GFDL45	54.6	56.3	57.5	57.9
	GFDL85	54.6	56.1	58.1	60.3
	HAD45	54.6	55.9	57.4	58.3
	HAD85	54.6	56.0	58.1	60.4
Growing	CCSM45	62.3	63.0	63.9	64.1
Season	CCSM85	62.3	63.0	64.5	66.2
May—Sep	GFDL45	62.3	63.9	65.0	65.8
	GFDL85	62.3	63.8	65.7	68.3
	HAD45	62.3	64.0	65.3	66.1
	HAD85	62.3	63.9	66.7	68.6
Coldest	CCSM45	42.9	44.4	44.9	44.7
Month	CCSM85	42.9	44.3	45.0	45.8
Average	GFDL45	42.9	44.9	45.1	45.3
	GFDL85	42.9	44.1	44.9	45.3
	HAD45	42.9	42.9	43.9	44.4
	HAD85	42.9	43.7	44.5	45.6
Warmest	CCSM45	64.3	65.1	65.4	65.6
Month	CCSM85	64.3	65.0	65.8	66.7
Average	GFDL45	64.3	65.9	66.3	66.8
	GFDL85	64.3	65.6	66.4	67.8
	HAD45	64.3	66.2	67.0	67.4
	HAD85	64.3	66.3	67.9	68.8

Precipitation (in)

Scenario	2009	2039	2069	2099	
Annual	CCSM45	41.6	43.5	44.9	45.9
Total	CCSM85	41.6	44.0	45.5	47.9
	GFDL45	41.6	46.3	48.9	49.3
	GFDL85	41.6	46.1	48.9	47.7
	HAD45	41.6	39.6	43.4	45.3
	HAD85	41.6	44.2	39.6	42.0
Growing	CCSM45	19.5	21.1	21.3	21.8
Season	CCSM85	19.5	20.1	21.3	21.8
May—Sep	GFDL45	19.5	23.5	24.8	23.9
	GFDL85	19.5	23.7	26.0	25.7
	HAD45	19.5	18.7	19.7	20.3
	HAD85	19.5	20.0	16.0	17.0

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	ChngCI45	ChngCI85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
slash pine	Pinus elliottii	NDH	High	72.5	2765.5	25.9	No change	No change	Medium	Abundant	Good	Good			1	1
loblolly pine	Pinus taeda	WDH	High	46	1538.0	20.1	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			1	2
longleaf pine	Pinus palustris	NSH	Medium	65.8	1508.0	19.4	Sm. inc.	No change	Medium	Abundant	Very Good	Good			1	3
sand pine	Pinus clausa	NDH	High	24.3	651.4	19.4	No change	No change	Low	Abundant	Fair	Fair			0	4
laurel oak	Quercus laurifolia	NDH	Medium	48.8	503.7	7.5	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			1	5
water oak	Quercus nigra	WDH	High	54.5	464.5	5.2	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	6
sweetbay	Magnolia virginiana	NSL	Medium	56.3	460.3	5.7	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	7
swamp tupelo	Nyssa biflora	NDH	Medium	37.2	292.4	4.8	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	8
turkey oak	Quercus laevis	NSH	Medium	33.5	266.1	6.9	No change	No change	High	Common	Good	Good			1	9
pond cypress	Taxodium ascendens	NSH	Medium	10.4	167.9	9.1	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good	Infill ++	Infill ++	1	10
yellow-poplar	Liriodendron tulipifera	WDH	High	25.3	148.1	4.0	No change	No change	High	Common	Good	Good			1	11
blackgum	Nyssa sylvatica	WDL	Medium	32.5	143.6	2.3	Sm. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	12
live oak	Quercus virginiana	NDH	High	26.9	141.3	5.1	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good	Infill ++	Infill ++	1	13
sweetgum	Liquidambar styraciflua	WDH	High	19.1	130.5	3.0	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	14
southern red oak	Quercus falcata	WDL	Medium	23.2	125.9	3.7	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	15
red maple	Acer rubrum	WDH	High	34.9	110.1	1.9	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	16
water tupelo	Nyssa aquatica	NSH	Medium	4.8	81.7	5.0	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	17
southern magnolia	Magnolia grandiflora	NSL	Low	20	77.6	2.4	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	18
Atlantic white-cedar	Chamaecyparis thyoides	NSH	Low	9.3	70.5	8.6	No change	No change	Low	Common	Poor	Poor			0	19
post oak	Quercus stellata	WDH	High	11.9	58.5	2.7	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good	Infill ++	Infill ++	1	20
flowering dogwood	Cornus florida	WDL	Medium	18.3	41.8	1.4	No change	No change	Medium	Rare	Poor	Poor			1	21
redbay	Persea borbonia	NSL	Low	14.1	33.5	1.5	Sm. inc.	Lg. inc.	High	Rare	Good	Good			1	22
bald cypress	Taxodium distichum	NSH	Medium	5.8	30.4	2.7	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	1	23
black cherry	Prunus serotina	WDL	Medium	9.7	29.4	1.0	Sm. inc.	Lg. inc.	Low	Rare	Poor	Fair			1	24
American holly	Ilex opaca	NSL	Medium	20.8	29.0	0.9	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair			1	25
bluejack oak	Quercus incana	NSL	Low	17.1	24.8	1.3	No change	No change	Medium	Rare	Poor	Poor			1	26
common persimmon	Diospyros virginiana	NSL	Low	15.9	20.8	1.0	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			1	27
shortleaf pine	Pinus echinata	WDH	High	2.4	16.5	0.8	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good	Infill +	Infill ++	2	28
pecan	Carya illinoensis	NSH	Low	2	15.6	1.1	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			2	29
green ash	Fraxinus pennsylvanica	WSH	Low	3.8	15.5	2.0	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	1	30
black walnut	Juglans nigra	WDH	Low	0.7	14.4	24.9	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	31
American hornbeam; muscley	Carpinus caroliniana	WSL	Low	4.3	13.0	0.9	No change	No change	Medium	Rare	Poor	Poor			1	32
eastern redcedar	Juniperus virginiana	WDH	Medium	5.8	11.9	0.8	Sm. dec.	No change	Medium	Rare	Very Poor	Poor		Infill +	2	33
spruce pine	Pinus glabra	NSL	Low	5	11.7	2.2	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	34
mockernut hickory	Carya alba	WDL	Medium	3.1	11.5	1.1	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	35
white oak	Quercus alba	WDH	Medium	3.8	10.9	1.0	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	36
sourwood	Oxydendrum arboreum	NDL	High	3.5	9.4	1.3	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor	Infill +		2	37
pignut hickory	Carya glabra	WDL	Medium	2.3	8.5	1.4	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	38
blackjack oak	Quercus marilandica	NSL	Medium	4.4	7.2	1.3	No change	Sm. inc.	High	Rare	Fair	Good	Infill +	Infill ++	2	39
willow oak	Quercus phellos	NSL	Low	0.7	7.1	1.3	Sm. dec.	No change	Medium	Rare	Very Poor	Poor		Infill +	2	40
swamp chestnut oak	Quercus michauxii	NSL	Low	2	3.4	1.8	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			2	41
black oak	Quercus velutina	WDH	High	0.8	3.0	2.2	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	42
sassafras	Sassafras albidum	WSL	Low	1.3	2.5	0.9	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	43
American beech	Fagus grandifolia	WDH	High	0.1	1.7	0.1	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	2	44
sycamore	Platanus occidentalis	NSL	Low	0.8	1.4	0.5	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			2	45
pumpkin ash	Fraxinus profunda	NSH	FIA	0	1.4	0.1	Unknown	Unknown	NA	Rare	FIA Only	FIA Only			0	46
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	0.7	1.4	0.3	No change	Sm. inc.	High	Rare	Fair	Good	Infill +	Infill ++	2	47

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Carolina ash	Fraxinus caroliniana	NSL	FIA	0.9	1.2	0.9	Unknown	Unknown	NA	Rare	FIA Only	FIA Only			0	48
loblolly-bay	Gordonia lasianthus	NSH	Medium	1.2	1.1	0.8	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	49
black willow	Salix nigra	NSH	Low	0.2	1.1	0.5	No change	Lg. inc.	Low	Rare	Very Poor	Fair	Infill +		2	50
American elm	Ulmus americana	WDH	Medium	0	1.0	0.1	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	51
river birch	Betula nigra	NSL	Low	0	0.7	0.1	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	52
red mulberry	Morus rubra	NSL	Low	0.7	0.7	1.2	Sm. dec.	No change	Medium	Rare	Very Poor	Poor			0	53
pond pine	Pinus serotina	NSH	Medium	0.2	0.7	0.3	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	2	54
sand hickory	Carya pallida	NSL	FIA	1.5	0.6	0.5	Unknown	Unknown	NA	Rare	FIA Only	FIA Only			0	55
Virginia pine	Pinus virginiana	NDH	High	0.1	0.5	0.0	Lg. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	56
water elm	Planera aquatica	NSL	Low	0.7	0.4	0.2	Very Lg. dec.	Sm. dec.	Medium	Rare	Lost	Very Poor			0	57
florida maple	Acer barbatum	NSL	Low	0.8	0.4	0.2	Very Lg. dec.	Very Lg. dec.	High	Rare	Lost	Lost			0	58
sugarberry	Celtis laevigata	NDH	Medium	0	0.4	0.0	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	59
white ash	Fraxinus americana	WDL	Medium	0.7	0.3	0.4	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	60
wild plum	Prunus americana	NSLX	FIA	0.7	0.3	0.4	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	61
serviceberry	Amelanchier spp.	NSL	Low	0.7	0.2	0.4	No change	No change	Medium	Rare	Poor	Poor			0	62
waterlocust	Gleditsia aquatica	NSLX	FIA	0.3	0.1	0.1	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	63
Table Mountain pine	Pinus pungens	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	64
striped maple	Acer pensylvanicum	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	65
silver maple	Acer saccharinum	NSH	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	66
pawpaw	Asimina triloba	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	67
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	Unknown	New Habitat	High	Absent	Unknown	New Habitat			3	68
water hickory	Carya aquatica	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	69
bitternut hickory	Carya cordiformis	WSL	Low	0	0	0	Unknown	Unknown	High	Modeled	Unknown	Unknown			0	70
shellbark hickory	Carya laciniosa	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	71
shagbark hickory	Carya ovata	WSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			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
eastern redbud	Cercis canadensis	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	74
black ash	Fraxinus nigra	WSH	Medium	0	0	0	Unknown	New Habitat	Low	Absent	Unknown	New Habitat			0	75
silverbell	Halesia spp.	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	76
cucumbertree	Magnolia acuminata	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	77
bignleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	78
quaking aspen	Populus tremuloides	WDH	High	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	79
pin cherry	Prunus pensylvanica	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	80
scarlet oak	Quercus coccinea	WDL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	81
cherrybark oak; swamp red o.	Quercus pagoda	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	82
overcup oak	Quercus lyrata	NSL	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Likely +	Likely +	3	83
chinkapin oak	Quercus muehlenbergii	NSL	Medium	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat			3	84
chestnut oak	Quercus prinus	NDH	High	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	85
northern red oak	Quercus rubra	WDH	Medium	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	86
black locust	Robinia pseudoacacia	NDH	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	87
cabbage palmetto	Sabal palmetto	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	88
American basswood	Tilia americana	WSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	89
winged elm	Ulmus alata	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	90
cedar elm	Ulmus crassifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat		Migrate +	3	91
slippery elm	Ulmus rubra	WSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	92