HUC 031001 Peace

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	9,557.2	3,690.1	105

Species Information

The columns below provide breif 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
Ash	1
Hickory	2
Maple	1
Oak	6
Pine	2
Other	15
	27

Abundance	
Abundant	3
Common	6
Rare	18
Absent	12
	39

	Model Reliability	Adaptability
High	9	8
Medium	21	30
Low	13	5
FIA	1	
	44	**43**

Potential Change in Habitat Suitability	Scenario RCP45	Scenario RCP85
Increase	10	12
No Change	9	7
Decrease	7	7
New	8	8
Unknown	10	10
	44	**44**

Capability to Cope or Persist	Scenario RCP45	Scenario RCP85
Very Good	2	5
Good	8	5
Fair	5	6
Poor	3	2
Very Poor	6	6
FIA Only	1	1
Unknown	9	9
	34	**34**

Migration Potential	SHIFT RCP45	SHIFT RCP85
Likely	0	0
Infill	9	8
Migrate	4	7
	13	**15**

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099
Annual Average	CCSM45	59.5	60.5	61.4	61.4
	CCSM85	59.5	60.5	62.0	63.5
	GFDL45	59.5	61.7	62.3	62.8
	GFDL85	59.5	61.0	62.9	65.1
	HAD45	59.5	60.5	61.9	62.6
	HAD85	59.5	60.9	62.4	64.6
Growing Season May—Sep	CCSM45	64.7	65.6	66.4	66.4
	CCSM85	64.7	65.6	67.0	68.6
	GFDL45	64.7	66.9	67.4	68.1
	GFDL85	64.7	66.3	68.1	70.5
	HAD45	64.7	66.1	67.1	67.9
	HAD85	64.7	66.3	68.1	70.0
Coldest Month Average	CCSM45	51.0	52.3	52.9	52.8
	CCSM85	51.0	51.9	52.5	53.5
	GFDL45	51.0	52.8	53.0	53.4
	GFDL85	51.0	52.6	53.4	54.1
	HAD45	51.0	51.1	51.9	52.2
	HAD85	51.0	51.6	52.1	53.3
Warmest Month Average	CCSM45	65.9	66.8	67.3	67.3
	CCSM85	65.9	66.8	67.7	68.7
	GFDL45	65.9	67.4	68.1	68.5
	GFDL85	65.9	67.6	68.6	69.9
	HAD45	65.9	67.2	67.7	68.1
	HAD85	65.9	67.3	68.3	69.2

Precipitation (in)

	Scenario	2009	2039	2069	2099
Annual Total	CCSM45	34.2	35.9	35.4	37.9
	CCSM85	34.2	35.5	35.4	33.6
	GFDL45	34.2	39.4	40.5	41.6
	GFDL85	34.2	37.2	43.0	38.8
	HAD45	34.2	35.9	36.3	36.7
	HAD85	34.2	33.2	34.9	33.9
Growing Season May—Sep	CCSM45	23.0	24.3	23.5	25.3
	CCSM85	23.0	23.8	24.1	21.8
	GFDL45	23.0	25.7	25.8	25.4
	GFDL85	23.0	24.7	27.1	23.9
	HAD45	23.0	23.7	24.3	22.6
	HAD85	23.0	22.1	21.1	20.4

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.

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Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIAiv	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
slash pine	Pinus elliottii	NDH	High	60.5	974.5	26.0	No change	No change	Medium	Abundant	Good	Good			1	1
cabbage palmetto	Sabal palmetto	NDH	Medium	60.5	539.7	20.6	No change	Sm. inc.	Medium	Abundant	Good	Very Good			0	2
live oak	Quercus virginiana	NDH	High	76	535.5	19.8	No change	Sm. inc.	Medium	Abundant	Good	Very Good			1	3
laurel oak	Quercus laurifolia	NDH	Medium	71.3	175.2	6.8	No change	No change	Medium	Common	Fair	Fair			1	4
red maple	Acer rubrum	WDH	High	44.1	106.2	9.9	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	5
longleaf pine	Pinus palustris	NSH	Medium	22.9	82.2	12.2	Sm. inc.	No change	Medium	Common	Good	Fair			1	6
bald cypress	Taxodium distichum	NSH	Medium	14	66.5	13.4	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good	Infill ++	Infill ++	1	7
water oak	Quercus nigra	WDH	High	38.2	64.0	7.1	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	8
pond cypress	Taxodium ascendens	NSH	Medium	10.3	60.6	7.5	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good	Infill ++	Infill ++	1	9
sweetbay	Magnolia virginiana	NSL	Medium	32.8	42.5	4.6	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair			1	10
swamp tupelo	Nyssa biflora	NDH	Medium	17.7	27.7	4.3	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair			1	11
American elm	Ulmus americana	WDH	Medium	24	25.7	4.2	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	1	12
sweetgum	Liquidambar styraciflua	WDH	High	4.8	23.3	5.6	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	13
Carolina ash	Fraxinus caroliniana	NSL	FIA	16.1	12.5	3.0	Unknown	Unknown	NA	Rare	FIA Only	FIA Only			0	14
water hickory	Carya aquatica	NSL	Medium	3.6	9.1	2.9	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	15
sugarberry	Celtis laevigata	NDH	Medium	6.4	7.9	5.4	No change	Lg. inc.	Medium	Rare	Poor	Good	Infill +	Infill ++	2	16
loblolly-bay	Gordonia lasianthus	NSH	Medium	5.8	6.7	2.5	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	17
turkey oak	Quercus laevis	NSH	Medium	3.9	4.8	3.8	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	18
black cherry	Prunus serotina	WDL	Medium	4.7	4.2	3.1	No change	No change	Low	Rare	Very Poor	Very Poor			2	19
red mulberry	Morus rubra	NSL	Low	2.4	3.0	1.4	Sm. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	20
redbay	Persea borbonia	NSL	Low	9.2	2.6	0.8	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	1	21
pignut hickory	Carya glabra	WDL	Medium	1.2	1.5	1.4	Sm. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			2	22
bluejack oak	Quercus incana	NSL	Low	3.1	1.0	2.5	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	23
common persimmon	Diospyros virginiana	NSL	Low	5.6	1.0	0.8	Very Lg. dec.	Very Lg. dec.	High	Rare	Lost	Lost			0	24
black willow	Salix nigra	NSH	Low	4.6	0.9	3.4	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	25
willow oak	Quercus phellos	NSL	Low	5.1	0.9	0.6	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	26
American hornbeam; muscle	Carpinus caroliniana	WSL	Low	1.2	0.7	0.7	No change	No change	Medium	Rare	Poor	Poor	Infill +		2	27
sand pine	Pinus clausa	NDH	High	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	28
shortleaf pine	Pinus echinata	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	29
pond pine	Pinus serotina	NSH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat		Migrate ++	3	30
loblolly pine	Pinus taeda	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	31
striped maple	Acer pensylvanicum	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	32
pawpaw	Asimina triloba	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	33
flowering dogwood	Cornus florida	WDL	Medium	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	34
green ash	Fraxinus pennsylvanica	WSH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	35
American holly	Ilex opaca	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	36
cucumbertree	Magnolia acuminata	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	37
blackgum	Nyssa sylvatica	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	38
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	39
water elm	Planera aquatica	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	40
cherrybark oak; swamp red o	Quercus pagoda	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	41
Nuttall oak	Quercus texana	NSH	Medium	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	42
post oak	Quercus stellata	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	43
slippery elm	Ulmus rubra	WSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	44