

	sq. km	sq. mi	FIA Plots
Area of Region	10,556	4,075.8	111

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	4			High	8	7	Increase	11	11	Very Good	3	3
Hickory	0			Medium	22	26	No Change	9	10	Good	8	9
Maple	1	Abundant	1	Low	9	6	Decrease	6	5	Fair	4	4
Oak	6	Common	12	FIA	2		New	3	4	Poor	5	4
Pine	4	Rare	15				Unknown	12	11	Very Poor	6	6
Other	13	Absent	8							FIA Only	2	2
	28		36		41	39		41	41	Unknown	10	9
											38	37

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099
Annual Average	CCSM45	60.0	61.0	62.0	62.0
	CCSM85	60.0	61.1	62.5	64.1
	GFDL45	60.0	62.3	62.8	63.4
	GFDL85	60.0	61.6	63.5	65.8
	HAD45	60.0	61.0	62.4	63.2
	HAD85	60.0	61.4	62.9	65.2
Growing Season May—Sep	CCSM45	65.4	66.3	67.1	67.2
	CCSM85	65.4	66.3	67.8	69.5
	GFDL45	65.4	67.6	68.1	68.9
	GFDL85	65.4	67.0	68.9	71.3
	HAD45	65.4	66.8	67.9	68.7
	HAD85	65.4	67.0	68.9	70.9
Coldest Month Average	CCSM45	51.2	52.5	53.1	53.0
	CCSM85	51.2	52.1	52.7	53.7
	GFDL45	51.2	52.9	53.2	53.6
	GFDL85	51.2	52.8	53.6	54.3
	HAD45	51.2	51.2	52.0	52.3
	HAD85	51.2	51.6	52.2	53.4
Warmest Month Average	CCSM45	66.7	67.6	68.1	68.1
	CCSM85	66.7	67.6	68.5	69.5
	GFDL45	66.7	68.3	68.9	69.4
	GFDL85	66.7	68.4	69.5	70.7
	HAD45	66.7	68.2	68.6	69.0
	HAD85	66.7	68.2	69.2	70.1

Precipitation (in)

	Scenario	2009	2039	2069	2099
Annual Total	CCSM45	33.1	34.8	34.3	36.7
	CCSM85	33.1	34.6	34.2	33.0
	GFDL45	33.1	38.6	39.6	41.0
	GFDL85	33.1	35.9	42.1	38.7
	HAD45	33.1	33.7	33.6	34.2
	HAD85	33.1	31.2	32.6	31.3
Growing Season May—Sep	CCSM45	21.4	22.8	21.7	23.6
	CCSM85	21.4	22.6	22.2	20.3
	GFDL45	21.4	24.2	24.4	24.1
	GFDL85	21.4	23.1	25.7	23.3
	HAD45	21.4	21.6	21.3	19.9
	HAD85	21.4	19.8	18.5	17.8

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>.

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
slash pine	Pinus elliottii	NDH	High	55.5	742.4	30.1	Sm. inc.	No change	Medium	Abundant	Very Good	Good			1	1
live oak	Quercus virginiana	NDH	High	56.9	396.0	14.7	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	2
pond cypress	Taxodium ascendens	NSH	Medium	16.8	390.5	24.6	Sm. inc.	Sm. inc.	Medium	Common	Good	Good	Infill ++	Infill ++	1	3
longleaf pine	Pinus palustris	NSH	Medium	24.9	269.8	22.8	No change	No change	Medium	Common	Fair	Fair			1	4
cabbage palmetto	Sabal palmetto	NDH	Medium	37.3	232.9	13.3	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			0	5
red maple	Acer rubrum	WDH	High	29.5	170.2	8.4	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	6
bald cypress	Taxodium distichum	NSH	Medium	18.8	148.7	20.3	No change	No change	Medium	Common	Fair	Fair			1	7
swamp tupelo	Nyssa biflora	NDH	Medium	25.5	122.8	7.6	No change	No change	Low	Common	Poor	Poor	Infill +	Infill +	0	8
laurel oak	Quercus laurifolia	NDH	Medium	38.7	117.1	5.1	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	9
redbay	Persea borbonia	NSL	Low	21.4	88.5	5.6	Sm. dec.	No change	High	Common	Fair	Good			1	10
sweetbay	Magnolia virginiana	NSL	Medium	21.5	80.2	7.1	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	11
loblolly-bay	Gordonia lasianthus	NSH	Medium	11.6	66.3	7.7	Sm. inc.	Sm. inc.	Medium	Common	Good	Good	Infill ++	Infill ++	1	12
water oak	Quercus nigra	WDH	High	11.8	54.2	7.5	Sm. inc.	Sm. inc.	Medium	Common	Good	Good	Infill ++	Infill ++	1	13
sand pine	Pinus clausa	NDH	High	8.7	45.6	16.5	No change	No change	Low	Rare	Very Poor	Very Poor			2	14
pumpkin ash	Fraxinus profunda	NSH	FIA	1.9	23.1	12.2	Unknown	Unknown	NA	Rare	FIA Only	FIA Only			0	15
pond pine	Pinus serotina	NSH	Medium	7.9	18.2	10.1	No change	No change	Low	Rare	Very Poor	Very Poor			2	16
turkey oak	Quercus laevis	NSH	Medium	5.6	15.8	5.3	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	17
common persimmon	Diospyros virginiana	NSL	Low	9.5	14.3	4.8	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			1	18
Carolina ash	Fraxinus caroliniana	NSL	FIA	16.7	14.0	8.8	Unknown	Unknown	NA	Rare	FIA Only	FIA Only			0	19
American elm	Ulmus americana	WDH	Medium	4.1	12.5	3.2	No change	Sm. inc.	Medium	Rare	Poor	Fair	Infill +	Infill +	2	20
green ash	Fraxinus pennsylvanica	WSH	Low	0.9	9.6	10.1	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	21
sweetgum	Liquidambar styraciflua	WDH	High	0.9	2.5	2.6	No change	No change	Medium	Rare	Poor	Poor		Infill +	2	22
blackgum	Nyssa sylvatica	WDL	Medium	2.1	1.9	1.1	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	23
white ash	Fraxinus americana	WDL	Medium	0.9	1.5	1.6	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	24
bluejack oak	Quercus incana	NSL	Low	1.3	0.9	1.3	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	25
sugarberry	Celtis laevigata	NDH	Medium	3.8	0.3	1.4	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	26
willow oak	Quercus phellos	NSL	Low	0.7	0.1	0.1	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	27
eastern redcedar	Juniperus virginiana	WDH	Medium	0.2	0.1	0.0	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	28
shortleaf pine	Pinus echinata	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	29
striped maple	Acer pensylvanicum	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	30
serviceberry	Amelanchier spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	31
pignut hickory	Carya glabra	WDL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	32
flowering dogwood	Cornus florida	WDL	Medium	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	33
American holly	Ilex opaca	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	34
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	0	0	0	Unknown	Unknown	High	Modeled	Unknown	Unknown			0	35
black cherry	Prunus serotina	WDL	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Likely +	Likely +	3	36
cherrybark oak; swamp red o	Quercus pagoda	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	37
post oak	Quercus stellata	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	38
black locust	Robinia pseudoacacia	NDH	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	39
American mountain-ash	Sorbus americana	NSL	Low	0	0	0	Unknown	New Habitat	Low	Absent	Unknown	New Habitat			0	40
winged elm	Ulmus alata	WDL	Medium	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	41