

One x One Degree
Climate Change Atlas Tree Species
 Current and Potential Future Habitat, Capability, and Migration

sq. km sq. mi FIA Plots
 Area of Region 10,421 4,023.6 343

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	Scenario	Scenario	Scenario	SHIFT	SHIFT		
				High	Medium	Low	FIA	RCP45	RCP85	RCP45	RCP85	RCP45	RCP85
Ash	2			16	23	16	4	29	37	12	16	2	2
Hickory	6			35	54	16	4	16	12	18	19	10	16
Maple	3	Abundant	3	35	10	23	19	23	19	9	8	1	2
Oak	15	Common	21	35	10	10	10	10	10	9	8	13	20
Pine	6	Rare	48	4		10	10	10	10	9	8		
Other	40	Absent	16	90	87	12	12	12	12	17	15		
	72		88			90	90	90	90	74	75		

Potential Changes in Climate Variables

Temperature (°F)

Scenario	2009	2039	2069	2099	
Annual	63.3	65.0	67.0	67.1	
Average	63.3	65.3	67.8	70.3	
GFDL45	63.3	66.0	68.0	68.7	
GFDL85	63.3	65.9	69.1	72.6	
HAD45	63.3	65.6	68.3	69.9	
HAD85	63.3	65.8	69.8	73.7	
Growing Season	76.4	78.0	80.6	83.8	
May—Sep	76.4	79.1	82.4	86.4	
Coldest Month	43.9	46.3	47.1	47.6	
Average	43.9	47.1	47.3	47.3	
GFDL45	43.9	45.8	46.9	47.3	
GFDL85	43.9	43.9	45.4	46.1	
HAD45	43.9	43.9	45.4	46.1	
HAD85	43.9	45.0	46.1	47.8	
Warmest Month	80.6	82.3	83.9	85.5	
Average	80.6	83.0	83.9	84.6	
GFDL45	80.6	82.9	84.5	86.7	
GFDL85	80.6	82.9	84.5	86.7	
HAD45	80.6	84.8	86.5	87.2	
HAD85	80.6	84.9	88.5	90.2	

Precipitation (in)

Scenario	2009	2039	2069	2099	
Annual	51.2	52.9	57.0	56.4	
Total	51.2	53.9	56.7	63.4	
GFDL45	51.2	56.9	60.1	63.4	
GFDL85	51.2	57.0	60.0	59.9	
HAD45	51.2	49.0	54.4	55.0	
HAD85	51.2	54.2	49.4	53.0	
Growing Season	20.2	21.8	23.6	23.5	
May—Sep	20.2	24.9	27.0	27.3	
GFDL45	20.2	25.1	27.7	28.2	
GFDL85	20.2	25.1	27.7	28.2	
HAD45	20.2	19.4	20.8	20.2	
HAD85	20.2	21.1	16.5	17.6	

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	97.4	4873.0	37.9	No change	No change	Medium	Abundant	Good	Good			1	1
sweetgum	Liquidambar styraciflua	WDH	High	98.4	1568.4	11.7	No change	No change	Medium	Abundant	Good	Good			1	2
water oak	Quercus nigra	WDH	High	89.2	990.2	7.8	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			1	3
shortleaf pine	Pinus echinata	WDH	High	67.4	493.5	5.6	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	4
yellow-poplar	Liriodendron tulipifera	WDH	High	66.9	381.6	4.1	Sm. dec.	Sm. dec.	High	Common	Fair	Fair			1	5
white oak	Quercus alba	WDH	Medium	49.1	277.8	3.8	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	6
southern red oak	Quercus falcata	WDL	Medium	55.4	263.1	3.5	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	7
red maple	Acer rubrum	WDH	High	74.5	242.1	2.3	Sm. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	8
mockernut hickory	Carya alba	WDL	Medium	49.2	157.4	2.4	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	9
post oak	Quercus stellata	WDH	High	45.2	148.1	2.4	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	10
pignut hickory	Carya glabra	WDL	Medium	44	146.8	2.7	Sm. dec.	No change	Medium	Common	Poor	Fair			1	11
blackgum	Nyssa sylvatica	WDL	Medium	52.9	136.2	1.9	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	12
black cherry	Prunus serotina	WDL	Medium	59	122.6	1.5	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	13
laurel oak	Quercus laurifolia	NDH	Medium	31.6	121.7	3.2	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	14
sweetbay	Magnolia virginiana	NSL	Medium	17.9	120.1	4.5	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	15
winged elm	Ulmus alata	WDL	Medium	49.7	117.9	1.8	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	16
flowering dogwood	Cornus florida	WDL	Medium	51.6	109.0	1.4	No change	Sm. inc.	Medium	Common	Fair	Good			1	17
American hornbeam; musclev	Carpinus caroliniana	WSL	Low	34.9	101.7	1.9	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	18
green ash	Fraxinus pennsylvanica	WSH	Low	27.2	72.6	1.8	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	19
common persimmon	Diospyros virginiana	NSL	Low	40.7	71.5	1.4	Sm. dec.	Sm. inc.	High	Common	Fair	Very Good			1	20
longleaf pine	Pinus palustris	NSH	Medium	9.8	64.2	3.9	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	21
willow oak	Quercus phellos	NSL	Low	12.9	64.2	4.4	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	22
sourwood	Oxydendrum arboreum	NDL	High	27	61.5	1.7	No change	No change	High	Common	Good	Good			1	23
American elm	Ulmus americana	WDH	Medium	23.7	50.1	1.5	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	24
water tupelo	Nyssa aquatica	NSH	Medium	3.1	43.5	7.0	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	25
American beech	Fagus grandifolia	WDH	High	16.9	40.2	1.3	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1	26
swamp tupelo	Nyssa biflora	NDH	Medium	6.2	38.2	4.9	No change	Sm. inc.	Low	Rare	Very Poor	Poor		Infill +	1	27
scarlet oak	Quercus coccinea	WDL	Medium	15.2	35.7	2.2	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	28
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	16	34.7	1.3	Lg. inc.	Lg. inc.	High	Rare	Good	Good			1	29
swamp chestnut oak	Quercus michauxii	NSL	Low	6.5	33.4	3.9	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	1	30
eastern redcedar	Juniperus virginiana	WDH	Medium	20.2	32.8	1.2	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	31
river birch	Betula nigra	NSL	Low	9.7	30.4	2.3	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair			1	32
boxelder	Acer negundo	WSH	Low	8.7	26.3	2.2	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor		Infill +	1	33
northern red oak	Quercus rubra	WDH	Medium	19.3	25.9	1.2	Lg. dec.	Sm. dec.	High	Rare	Poor	Poor	Infill +	Infill +	1	34
florida maple	Acer barbatum	NSL	Low	17.9	25.7	1.1	No change	Sm. inc.	High	Rare	Fair	Good			1	35
black walnut	Juglans nigra	WDL	Low	4	23.7	4.6	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	36
black oak	Quercus velutina	WDH	High	12.9	23.3	1.4	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	37
slash pine	Pinus elliottii	NDH	High	7.4	22.0	2.3	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	38
bald cypress	Taxodium distichum	NSH	Medium	0.5	21.6	11.6	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	39
American basswood	Tilia americana	WSL	Medium	8.7	21.0	2.1	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	40
red mulberry	Morus rubra	NSL	Low	12	19.4	0.9	No change	Lg. inc.	Medium	Rare	Poor	Good			1	41
water hickory	Carya aquatica	NSL	Medium	5.8	18.6	3.2	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			2	42
blackjack oak	Quercus marilandica	NSL	Medium	11.4	16.7	1.2	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	1	43
eastern redbud	Cercis canadensis	NSL	Low	14.5	16.4	0.9	Sm. dec.	Sm. inc.	Medium	Rare	Very Poor	Fair			1	44
spruce pine	Pinus glabra	NSL	Low	9.4	15.4	1.6	Sm. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	45
shagbark hickory	Carya ovata	WSL	Medium	7.7	12.8	1.7	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	46
pecan	Carya illinoensis	NSH	Low	3.3	12.7	2.0	No change	Sm. inc.	Low	Rare	Very Poor	Poor		Infill +	2	47



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sugarberry	Celtis laevigata	NDH	Medium	7.6	12.2	1.2	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1	48
southern magnolia	Magnolia grandiflora	NSL	Low	7.2	12.1	1.4	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	49
chestnut oak	Quercus prinus	NDH	High	2.8	9.8	2.3	No change	No change	High	Rare	Fair	Fair			0	50
sycamore	Platanus occidentalis	NSL	Low	2.8	9.1	1.3	No change	No change	Medium	Rare	Poor	Poor		Infill +	2	51
overcup oak	Quercus lyrata	NSL	Medium	3.8	9.0	2.3	No change	No change	Low	Rare	Very Poor	Very Poor			2	52
cherrybark oak; swamp red o	Quercus pagoda	NSL	Medium	4.5	8.3	1.7	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	53
slippery elm	Ulmus rubra	WSL	Low	6.3	7.5	1.1	No change	No change	Medium	Rare	Poor	Poor		Infill +	1	54
white ash	Fraxinus americana	WDL	Medium	3.8	6.0	1.6	No change	No change	Low	Rare	Very Poor	Very Poor			2	55
sassafras	Sassafras albidum	WSL	Low	8.1	5.9	0.5	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	56
Osage-orange	Maclura pomifera	NDH	Medium	1.9	5.6	2.9	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	57
wild plum	Prunus americana	NSLX	FIA	4.1	4.5	0.8	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	58
eastern cottonwood	Populus deltoides	NSH	Low	1.7	4.5	2.3	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	59
honeylocust	Gleditsia triacanthos	NSH	Low	2.1	4.2	1.1	No change	Sm. inc.	High	Rare	Fair	Good		Infill ++	2	60
American holly	Ilex opaca	NSL	Medium	1.5	3.8	0.7	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1	61
black willow	Salix nigra	NSH	Low	2.4	3.3	0.9	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	2	62
black locust	Robinia pseudoacacia	NDH	Low	0.6	2.8	1.8	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	63
bitternut hickory	Carya cordiformis	WSL	Low	1.9	2.8	1.4	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			0	64
white mulberry	Morus alba	NSL	FIA	0.9	2.4	2.3	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	65
Virginia pine	Pinus virginiana	NDH	High	2.3	1.1	0.2	Very Lg. dec.	Lg. dec.	Medium	Rare	Lost	Very Poor			0	66
hackberry	Celtis occidentalis	WDH	Medium	1	1.0	1.0	Very Lg. dec.	Very Lg. dec.	High	Rare	Lost	Lost			0	67
serviceberry	Amelanchier spp.	NSL	Low	1	0.9	0.9	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	68
loblolly-bay	Gordonia lasianthus	NSH	Medium	1	0.6	0.6	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	69
ailanthus	Ailanthus altissima	NSL	FIA	1	0.5	0.5	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	70
paulownia	Paulownia tomentosa	NSL	FIA	0.8	0.4	0.4	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	71
Shumard oak	Quercus shumardii	NSL	Low	1	0.3	0.4	Lg. dec.	No change	High	Rare	Poor	Fair			0	72
ashe juniper	Juniperus ashei	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	73
striped maple	Acer pensylvanicum	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	74
yellow buckeye	Aesculus flava	NSL	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	75
pawpaw	Asimina triloba	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	76
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	77
shellbark hickory	Carya laciniosa	NSL	Low	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat			3	78
black hickory	Carya texana	NDL	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	79
black ash	Fraxinus nigra	WSH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			0	80
silverbell	Halesia spp.	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	81
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	82
redbay	Persea borbonia	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	83
pin cherry	Prunus pensylvanica	NSL	Low	0	0	0	New Habitat	Unknown	Medium	Absent	New Habitat	Unknown			3	84
swamp white oak	Quercus bicolor	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	85
chinkapin oak	Quercus muehlenbergii	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	86
nuttall oak	Quercus texana	NSH	Medium	0	0	0	Unknown	Unknown	High	Modeled	Unknown	Unknown			0	87
live oak	Quercus virginiana	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	88
bluejack oak	Quercus incana	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	89
cedar elm	Ulmus crassifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	90