

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 10,188 3,933.4 369

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	25	RCP45	RCP85	RCP45	RCP85	RCP45	RCP85
Ash	2					Increase	30	37	Very Good	13	14
Hickory	8			Medium	33	No Change	19	13	Good	15	19
Maple	4	Abundant	5	Low	38	Decrease	14	13	Fair	12	12
Oak	14	Common	18	FIA	3	New	14	15	Poor	13	7
Pine	2	Rare	43			Unknown	14	13	Very Poor	8	8
Other	36	Absent	23					FIA Only	1	1	
								Unknown	11	10	
									73	71	
										22	27

Potential Changes in Climate Variables

Temperature (°F)

Scenario	2009	2039	2069	2099	
Annual	60.7	62.4	64.3	64.6	
Average	60.7	62.8	65.2	67.9	
GFDL45	60.7	63.6	65.3	66.5	
GFDL85	60.7	63.6	66.3	70.0	
HAD45	60.7	63.1	66.0	67.3	
HAD85	60.7	63.3	67.9	71.5	
Growing Season	75.4	77.1	78.7	79.2	
May—Sep	75.4	77.6	79.9	83.4	
GFDL45	75.4	78.9	80.7	82.9	
GFDL85	75.4	79.2	82.3	86.9	
HAD45	75.4	78.3	81.2	82.2	
HAD85	75.4	78.7	84.7	87.8	
Coldest Month	38.8	41.2	42.3	42.4	
Average	38.8	41.6	42.6	44.1	
GFDL45	38.8	42.7	43.1	43.1	
GFDL85	38.8	40.0	41.5	42.1	
HAD45	38.8	39.9	41.8	42.2	
HAD85	38.8	41.0	42.9	44.7	
Warmest Month	81.1	82.7	83.6	83.7	
Average	81.1	83.3	84.1	85.9	
GFDL45	81.1	86.0	86.7	88.1	
GFDL85	81.1	85.6	87.1	90.6	
HAD45	81.1	84.7	86.3	86.6	
HAD85	81.1	85.7	89.0	90.1	

Precipitation (in)

Scenario	2009	2039	2069	2099	
Annual	55.1	54.4	57.8	56.8	
Total	55.1	55.7	59.1	59.5	
GFDL45	55.1	58.1	64.9	59.4	
GFDL85	55.1	58.7	63.8	63.7	
HAD45	55.1	54.6	58.6	60.7	
HAD85	55.1	60.1	51.5	55.7	
Growing Season	21.6	21.4	20.7	21.1	
May—Sep	21.6	21.0	19.8	20.8	
GFDL45	21.6	23.0	25.2	23.9	
GFDL85	21.6	23.9	25.9	24.7	
HAD45	21.6	20.7	21.2	20.5	
HAD85	21.6	22.0	16.0	16.7	

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	70.2	2753.2	28.1	No change	No change	Medium	Abundant	Good	Good			1	1
shortleaf pine	Pinus echinata	WDH	High	89.5	2576.0	21.5	No change	No change	Medium	Abundant	Good	Good			1	2
white oak	Quercus alba	WDH	Medium	92.5	1262.9	10.2	Sm. dec.	Sm. dec.	High	Abundant	Good	Good			1	3
sweetgum	Liquidambar styraciflua	WDH	High	80.6	704.8	5.8	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			1	4
post oak	Quercus stellata	WDH	High	82.2	601.9	5.4	Lg. inc.	Lg. inc.	High	Abundant	Very Good	Very Good			1	5
northern red oak	Quercus rubra	WDH	Medium	64.2	387.9	4.5	No change	No change	High	Common	Good	Good			1	6
black hickory	Carya texana	NDL	High	76.9	370.7	3.3	No change	Sm. inc.	Medium	Common	Fair	Good			1	7
winged elm	Ulmus alata	WDL	Medium	81.8	344.1	3.0	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	8
red maple	Acer rubrum	WDH	High	79.7	297.6	2.7	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	9
blackgum	Nyssa sylvatica	WDL	Medium	82.2	258.1	2.4	Sm. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	10
mockernut hickory	Carya alba	WDL	Medium	81.9	255.4	2.5	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	11
southern red oak	Quercus falcata	WDL	Medium	60.2	243.1	2.8	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	12
black oak	Quercus velutina	WDH	High	62.9	203.9	2.5	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	13
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	61.2	147.3	2.0	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	14
black cherry	Prunus serotina	WDL	Medium	60.6	129.1	1.5	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	15
water oak	Quercus nigra	WDH	High	28.9	127.0	2.5	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	16
eastern redcedar	Juniperus virginiana	WDH	Medium	41.7	115.3	2.0	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	17
willow oak	Quercus phellos	NSL	Low	21.3	106.0	2.6	No change	Sm. inc.	Medium	Common	Fair	Good			1	18
green ash	Fraxinus pennsylvanica	WSH	Low	42.1	97.0	1.2	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	19
flowering dogwood	Cornus florida	WDL	Medium	58.9	76.8	0.9	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	20
American hornbeam; muscle	Carpinus caroliniana	WSL	Low	30.8	75.5	1.5	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	21
sugarberry	Celtis laevigata	NDH	Medium	16.5	54.0	2.6	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	22
American elm	Ulmus americana	WDH	Medium	13.9	52.9	2.9	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	23
blackjack oak	Quercus marilandica	NSL	Medium	27.9	48.4	1.3	Lg. inc.	Lg. inc.	High	Rare	Good	Good			1	24
silver maple	Acer saccharinum	NSH	Low	3.6	48.1	6.4	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			1	25
cherrybark oak; swamp red o	Quercus pagoda	NSL	Medium	13	40.2	1.4	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1	26
hackberry	Celtis occidentalis	WDH	Medium	5.3	26.7	2.0	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	1	27
American holly	Ilex opaca	NSL	Medium	15.7	26.4	1.2	No change	Sm. inc.	Medium	Rare	Poor	Fair			1	28
river birch	Betula nigra	NSL	Low	6.5	25.0	3.6	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair			1	29
honeysuckle	Gleditsia triacanthos	NSH	Low	6.8	24.3	1.8	No change	Sm. inc.	High	Rare	Fair	Good	Infill +	Infill ++	1	30
boxelder	Acer negundo	WSH	Low	5.1	23.0	1.8	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	1	31
slippery elm	Ulmus rubra	WSL	Low	16.9	22.0	1.1	No change	Sm. inc.	Medium	Rare	Poor	Fair			1	32
sycamore	Platanus occidentalis	NSL	Low	7.6	21.7	1.5	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	1	33
bald cypress	Taxodium distichum	NSH	Medium	1	16.3	16.6	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	34
Shumard oak	Quercus shumardii	NSL	Low	4.9	15.7	2.3	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	1	35
white ash	Fraxinus americana	WDL	Medium	11.6	15.5	0.9	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	1	36
shagbark hickory	Carya ovata	WSL	Medium	4.1	15.0	2.1	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	37
pignut hickory	Carya glabra	WDL	Medium	5.4	14.6	2.4	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	1	38
red mulberry	Morus rubra	NSL	Low	10.2	11.7	0.5	No change	Lg. inc.	Medium	Rare	Poor	Good			1	39
overcup oak	Quercus lyrata	NSL	Medium	4.1	11.2	1.7	No change	No change	Low	Rare	Very Poor	Very Poor			2	40
Osage-orange	Maclura pomifera	NDH	Medium	1.7	10.8	4.3	Sm. dec.	No change	High	Rare	Poor	Fair		Infill +	2	41
common persimmon	Diospyros virginiana	NSL	Low	8.2	10.4	0.6	Sm. inc.	Lg. inc.	High	Rare	Good	Good			1	42
serviceberry	Amelanchier spp.	NSL	Low	12	10.0	0.4	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	43
bitternut hickory	Carya cordiformis	WSL	Low	9.3	8.1	0.6	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			1	44
American beech	Fagus grandifolia	WDH	High	3.1	7.5	1.5	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	45
eastern redbud	Cercis canadensis	NSL	Low	4.2	7.4	1.2	No change	No change	Medium	Rare	Poor	Poor			1	46
florida maple	Acer barbatum	NSL	Low	5.5	5.8	1.0	No change	Sm. inc.	High	Rare	Fair	Good	Infill +	Infill ++	2	47



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black locust	Robinia pseudoacacia	NDH	Low	4.1	5.4	0.9	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	48
shellbark hickory	Carya laciniosa	NSL	Low	0.7	5.1	3.7	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	49
water hickory	Carya aquatica	NSL	Medium	2	5.1	2.6	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			2	50
sassafras	Sassafras albidum	WSL	Low	7.1	4.8	0.6	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1	51
chinkapin oak	Quercus muehlenbergii	NSL	Medium	4	4.7	0.8	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	52
pecan	Carya illinoensis	NSH	Low	0.9	4.3	3.8	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair		Infill +	2	53
black willow	Salix nigra	NSH	Low	3.8	4.3	0.6	Sm. inc.	Lg. inc.	Low	Rare	Poor	Fair	Infill +	Infill +	2	54
swamp chestnut oak	Quercus michauxii	NSL	Low	2.5	3.4	1.0	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	55
nuttall oak	Quercus texana	NSH	Medium	1.6	2.9	1.4	Lg. dec.	Very Lg. dec.	High	Rare	Poor	Lost			0	56
black walnut	Juglans nigra	WDH	Low	1.2	2.5	1.0	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	57
American basswood	Tilia americana	WSL	Medium	1.4	2.4	1.0	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	58
wild plum	Prunus americana	NSLX	FIA	2	1.5	0.2	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	59
cedar elm	Ulmus crassifolia	NDH	Medium	1.5	1.4	0.5	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	2	60
Ohio buckeye	Aesculus glabra	NSL	Low	0.6	1.3	0.8	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	61
paulownia	Paulownia tomentosa	NSL	FIA	0.1	0.9	0.1	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	62
redbay	Persea borbonia	NSL	Low	0.2	0.6	0.2	Very Lg. dec.	Very Lg. dec.	High	Rare	Lost	Lost			0	63
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	1	0.4	0.4	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	64
sweetbay	Magnolia virginiana	NSL	Medium	0.7	0.4	0.3	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	65
ailanthus	Ailanthus altissima	NSL	FIA	0.5	0.4	0.2	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	66
ashe juniper	Juniperus ashei	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	67
slash pine	Pinus elliotii	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	68
longleaf pine	Pinus palustris	NSH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	69
Virginia pine	Pinus virginiana	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	70
striped maple	Acer pensylvanicum	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	71
mountain maple	Acer spicatum	NSL	Low	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	72
pawpaw	Asimina triloba	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	73
sweet birch	Betula lenta	NDH	High	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	74
black ash	Fraxinus nigra	WSH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	75
blue ash	Fraxinus quadrangulata	NSL	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	76
silverbell	Halesia spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	77
yellow-poplar	Liriodendron tulipifera	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	78
cucumbertree	Magnolia acuminata	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	79
southern magnolia	Magnolia grandiflora	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	80
mountain or Fraser magnolia	Magnolia fraseri	NSL	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	81
water tupelo	Nyssa aquatica	NSH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	82
sourwood	Oxydendrum arboreum	NDL	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	83
water elm	Planera aquatica	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	84
pin cherry	Prunus pensylvanica	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	85
scarlet oak	Quercus coccinea	WDL	Medium	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat			3	86
laurel oak	Quercus laurifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	87
pin oak	Quercus palustris	NSH	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	88
chestnut oak	Quercus prinus	NDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	89
live oak	Quercus virginiana	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	90
bluejack oak	Quercus incana	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	91