

National Forests and Grasslands
Climate Change Atlas Tree Species
Current and Potential Future Habitat, Capability, and Migration

	sq. km	sq. mi	FIA Plots
Area of Region	8,176.7	3,157.0	243

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					
		Abundant	Common	Reliability	Adaptability	Scenario RCP45	Scenario RCP85	Scenario RCP45	Scenario RCP85	SHIFT RCP45	SHIFT RCP85				
Ash	4			High	11	12	Increase	18	20	Very Good	9	9	Likely	1	3
Hickory	3			Medium	31	40	No Change	9	6	Good	7	9	Infill	4	5
Maple	2	Abundant	3	Low	22	12	Decrease	12	13	Fair	8	7	Migrate	1	6
Oak	9	Common	19	FIA	3		New	7	10	Poor	6	5		6	14
Pine	5	Rare	20				Unknown	21	18	Very Poor	7	7			
Other	19	Absent	23							FIA Only	3	3			
	42		65		67	64		67	67	Unknown	18	15			
											58	55			

Potential Changes in Climate Variables

Temperature (°F)

Scenario	2009	2039	2069	2099	
Annual	70.6	72.0	73.5	73.5	
Average	70.6	72.1	74.2	76.4	
GFDL45	70.6	73.4	74.8	75.6	
GFDL85	70.6	72.9	75.8	79.2	
HAD45	70.6	72.2	74.5	75.7	
HAD85	70.6	72.8	75.3	78.8	
Growing Season	79.9	81.1	82.3	82.5	
May—Sep	79.9	81.2	83.3	85.7	
GFDL45	79.9	82.7	83.9	84.9	
GFDL85	79.9	82.3	85.1	88.7	
HAD45	79.9	82.3	84.1	85.4	
HAD85	79.9	82.6	85.8	89.0	
Coldest Month	55.5	57.7	58.6	58.3	
Average	55.5	57.2	58.1	59.5	
GFDL45	55.5	58.1	58.6	59.1	
GFDL85	55.5	57.7	58.9	59.9	
HAD45	55.5	55.3	56.6	57.2	
HAD85	55.5	56.1	56.8	58.7	
Warmest Month	82.2	83.4	84.2	84.3	
Average	82.2	83.5	84.7	86.1	
GFDL45	82.2	84.4	85.2	85.9	
GFDL85	82.2	84.5	86.0	87.9	
HAD45	82.2	84.8	85.6	86.2	
HAD85	82.2	84.8	86.7	88.0	

Precipitation (in)

Scenario	2009	2039	2069	2099	
Annual	50.9	54.3	55.8	56.6	
Total	50.9	53.6	54.6	54.6	
GFDL45	50.9	59.8	61.3	63.4	
GFDL85	50.9	55.3	64.0	61.4	
HAD45	50.9	49.4	48.5	51.5	
HAD85	50.9	47.7	47.6	45.7	
Growing Season	30.7	33.1	32.7	33.4	
May—Sep	30.7	32.2	33.0	31.9	
GFDL45	30.7	36.3	37.0	37.4	
GFDL85	30.7	34.4	39.1	37.8	
HAD45	30.7	30.1	29.1	28.1	
HAD85	30.7	27.9	25.3	24.2	

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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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	60.8	1570.0	26.0	No change	No change	Medium	Abundant	Good	Good			1	1
sand pine	Pinus clausa	NDH	High	38.2	1453.5	41.7	No change	Sm. dec.	Low	Abundant	Fair	Fair			0	2
longleaf pine	Pinus palustris	NSH	Medium	35	643.7	23.5	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			1	3
live oak	Quercus virginiana	NDH	High	58	496.2	9.9	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	4
laurel oak	Quercus laurifolia	NDH	Medium	59.1	411.8	9.9	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	5
cabbage palmetto	Sabal palmetto	NDH	Medium	32.4	356.0	11.4	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			0	6
loblolly pine	Pinus taeda	WDH	High	25.1	350.3	16.4	No change	Sm. inc.	Medium	Common	Fair	Good			1	7
red maple	Acer rubrum	WDH	High	32.3	316.2	11.3	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	8
loblolly-bay	Gordonia lasianthus	NSH	Medium	35.7	305.8	9.0	No change	No change	Medium	Common	Fair	Fair			1	9
pond cypress	Taxodium ascendens	NSH	Medium	12.2	268.8	22.0	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	10
swamp tupelo	Nyssa biflora	NDH	Medium	31.1	241.9	8.6	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	11
turkey oak	Quercus laevis	NSH	Medium	27.7	186.9	9.8	No change	No change	High	Common	Good	Good			1	12
pond pine	Pinus serotina	NSH	Medium	14.5	171.3	11.4	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	13
sweetgum	Liquidambar styraciflua	WDH	High	29.2	135.0	5.1	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	14
bald cypress	Taxodium distichum	NSH	Medium	18.2	114.9	8.3	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	15
redbay	Persea borbonia	NSL	Low	32.6	80.8	2.9	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	16
sweetbay	Magnolia virginiana	NSL	Medium	27.9	79.6	4.2	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	17
water oak	Quercus nigra	WDH	High	25.7	75.1	5.2	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	18
pumpkin ash	Fraxinus profunda	NSH	FIA	8.4	72.0	8.4	Unknown	Unknown	NA	Common	FIA Only	FIA Only			0	19
green ash	Fraxinus pennsylvanica	WSH	Low	5.5	71.3	10.3	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	20
pignut hickory	Carya glabra	WDL	Medium	10.9	64.9	9.3	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	21
black cherry	Prunus serotina	WDL	Medium	24.2	58.6	4.9	Sm. inc.	Lg. inc.	Low	Common	Fair	Good			1	22
American elm	Ulmus americana	WDH	Medium	17.8	39.3	1.8	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1	23
Carolina ash	Fraxinus caroliniana	NSL	FIA	4.8	24.2	4.9	Unknown	Unknown	NA	Rare	FIA Only	FIA Only			0	24
sand hickory	Carya pallida	NSL	FIA	2.3	15.0	6.1	Unknown	Unknown	NA	Rare	FIA Only	FIA Only			0	25
bluejack oak	Quercus incana	NSL	Low	9.8	13.8	2.7	No change	No change	Medium	Rare	Poor	Poor			1	26
blackgum	Nyssa sylvatica	WDL	Medium	3.2	10.5	2.6	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	1	27
American holly	Ilex opaca	NSL	Medium	8.3	7.6	0.9	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	28
overcup oak	Quercus lyrata	NSL	Medium	1.2	5.8	4.8	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	29
eastern redcedar	Juniperus virginiana	WDH	Medium	1.2	5.8	4.7	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	30
water tupelo	Nyssa aquatica	NSH	Medium	1.2	5.5	4.5	No change	No change	Low	Rare	Very Poor	Very Poor			0	31
white ash	Fraxinus americana	WDL	Medium	1.2	5.2	4.3	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	32
southern magnolia	Magnolia grandiflora	NSL	Low	2.4	4.6	1.9	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	2	33
florida maple	Acer barbatum	NSL	Low	1.2	4.5	3.7	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	34
flowering dogwood	Cornus florida	WDL	Medium	1.2	3.8	3.1	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	35
common persimmon	Diospyros virginiana	NSL	Low	4.9	3.8	0.8	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			1	36
American hornbeam; muscley	Carpinus caroliniana	WSL	Low	4.7	3.2	0.6	No change	Sm. inc.	Medium	Rare	Poor	Fair			1	37
post oak	Quercus stellata	WDH	High	1.2	2.6	2.1	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	38
water hickory	Carya aquatica	NSL	Medium	2.4	1.4	0.6	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	39
swamp chestnut oak	Quercus michauxii	NSL	Low	1.2	1.0	0.9	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	40
blackjack oak	Quercus marilandica	NSL	Medium	1.2	0.5	0.4	Lg. dec.	Sm. dec.	High	Rare	Poor	Poor		Infill +	2	41
pawpaw	Asimina triloba	NSL	Low	1.2	0.4	0.3	Sm. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	42
shortleaf pine	Pinus echinata	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	43
striped maple	Acer pensylvanicum	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	44
serviceberry	Amelanchier spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	45
sweet birch	Betula lenta	NDH	High	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	46
river birch	Betula nigra	NSL	Low	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat		Migrate +	3	47

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Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIaiv	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
gray birch	Betula populifolia	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	48
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			0	49
shagbark hickory	Carya ovata	WSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	50
mockernut hickory	Carya alba	WDL	Medium	0	0	0	Unknown	New Habitat	High	Absent	Unknown	New Habitat		Likely +	3	51
sugarberry	Celtis laevigata	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	52
eastern redbud	Cercis canadensis	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	53
black ash	Fraxinus nigra	WSH	Medium	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	54
silverbell	Halesia spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	55
cucumbertree	Magnolia acuminata	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	56
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	57
sourwood	Oxydendrum arboreum	NDL	High	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	58
sycamore	Platanus occidentalis	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	59
southern red oak	Quercus falcata	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	60
willow oak	Quercus phellos	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	61
black locust	Robinia pseudoacacia	NDH	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	62
black willow	Salix nigra	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat		Migrate +	3	63
American mountain-ash	Sorbus americana	NSL	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	64
American basswood	Tilia americana	WSL	Medium	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	65
winged elm	Ulmus alata	WDL	Medium	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat		Likely +	3	66
cedar elm	Ulmus crassifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat		Migrate ++	3	67