

Current and Potential Future Habitat, Capability, and Migration

	sq. km	sq. mi	FIA Plots
Area of Region	15,047	5,809.7	103

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	2			High	14	24	Increase	15	18	Very Good	2	4
Hickory	7			Medium	25	44	No Change	12	14	Good	13	15
Maple	5	Abundant	0	Low	35	7	Decrease	23	18	Fair	13	10
Oak	11	Common	22	FIA	4		New	18	17	Poor	12	13
Pine	1	Rare	32				Unknown	10	11	Very Poor	10	8
Other	28	Absent	23							FIA Only	1	1
	<b>54</b>		<b>77</b>		<b>78</b>	<b>75</b>		<b>78</b>	<b>78</b>	Unknown	6	7
											<b>43</b>	<b>47</b>

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	47.3	48.6	49.9	50.1	
	CCSM85	47.3	48.9	50.5	52.5	
	GFDL45	47.3	50.4	50.9	51.5	
	GFDL85	47.3	49.3	51.5	54.1	
	HAD45	47.3	49.2	51.4	52.5	
	HAD85	47.3	49.4	52.6	55.4	
Growing Season (May—Sep)	CCSM45	58.9	60.3	61.3	61.8	
	CCSM85	58.9	60.7	62.2	64.6	
	GFDL45	58.9	62.6	63.0	64.0	
	GFDL85	58.9	61.3	63.9	67.1	
	HAD45	58.9	61.1	63.1	64.5	
	HAD85	58.9	61.3	65.4	68.1	
Coldest Month (Average)	CCSM45	28.9	30.1	31.1	31.4	
	CCSM85	28.9	30.9	31.6	32.6	
	GFDL45	28.9	32.1	32.4	32.7	
	GFDL85	28.9	31.1	31.9	32.5	
	HAD45	28.9	30.1	31.8	31.9	
	HAD85	28.9	30.9	32.6	33.9	
Warmest Month (Average)	CCSM45	62.8	64.2	64.9	65.4	
	CCSM85	62.8	64.9	66.0	67.2	
	GFDL45	62.8	65.1	66.0	66.7	
	GFDL85	62.8	65.4	66.7	68.7	
	HAD45	62.8	65.3	66.7	67.4	
	HAD85	62.8	66.4	68.9	70.4	

Precipitation (in)

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	27.8	26.8	29.7	29.0	
	CCSM85	27.8	28.8	29.4	30.2	
	GFDL45	27.8	31.8	33.5	34.3	
	GFDL85	27.8	31.2	35.4	36.5	
	HAD45	27.8	28.5	30.2	29.9	
	HAD85	27.8	29.6	28.4	30.6	
Growing Season (May—Sep)	CCSM45	12.8	12.0	13.1	12.2	
	CCSM85	12.8	12.4	12.3	12.3	
	GFDL45	12.8	14.4	14.5	15.0	
	GFDL85	12.8	14.3	15.1	15.3	
	HAD45	12.8	12.5	11.9	11.9	
	HAD85	12.8	12.6	10.6	10.6	

**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-DGP30 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
hackberry	Celtis occidentalis	WDH	Medium	60.5	230.5	9.2	Sm. dec.	Sm. dec.	High	Common	Fair	Fair	Infill +	Infill +	1	1
shingle oak	Quercus imbricaria	NDH	Medium	33	183.9	11.2	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor	Infill +	Infill +	0	2
American elm	Ulmus americana	WDH	Medium	65.1	172.8	5.6	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	3
boxelder	Acer negundo	WSH	Low	40.9	142.3	7.4	Sm. dec.	Sm. dec.	High	Common	Fair	Fair	Infill +	Infill +	1	4
silver maple	Acer saccharinum	NSH	Low	28.7	122.1	11.7	No change	No change	High	Common	Good	Good	Infill ++	Infill ++	1	5
white oak	Quercus alba	WDH	Medium	28.4	117.9	8.4	Sm. dec.	Sm. dec.	High	Common	Fair	Fair	Infill +	Infill +	1	6
black walnut	Juglans nigra	WDH	Low	52.2	103.6	5.4	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	7
green ash	Fraxinus pennsylvanica	WSH	Low	48.3	102.6	8.4	Sm. inc.	Sm. inc.	Medium	Common	Good	Good	Infill ++	Infill ++	1	8
black cherry	Prunus serotina	WDL	Medium	53.7	97.9	4.4	Sm. dec.	Sm. dec.	Low	Common	Poor	Poor	Infill +	Infill +	0	9
shagbark hickory	Carya ovata	WSL	Medium	47.6	91.4	4.8	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor	Infill +	Infill +	0	10
post oak	Quercus stellata	WDH	High	15.7	85.0	9.6	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good	Infill ++	Infill ++	1	11
bitternut hickory	Carya cordiformis	WSL	Low	32.3	80.5	5.1	No change	No change	High	Common	Good	Good	Infill ++	Infill ++	1	12
pignut hickory	Carya glabra	WDL	Medium	27.7	79.0	5.1	Sm. dec.	Lg. dec.	Medium	Common	Poor	Poor	Infill +	Infill +	0	13
Osage-orange	Maclura pomifera	NDH	Medium	13.3	77.7	9.5	Sm. dec.	Sm. inc.	High	Common	Fair	Very Good	Infill +	Infill ++	2	14
sugar maple	Acer saccharum	WDH	High	28.6	76.3	5.1	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good	Infill ++	Infill ++	1	15
black oak	Quercus velutina	WDH	High	35.7	73.9	5.3	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	16
sassafras	Sassafras albidum	WSL	Low	35.5	67.7	6.8	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor	Infill +	Infill +	0	17
black willow	Salix nigra	NSH	Low	8.8	63.5	21.4	Sm. dec.	No change	Low	Common	Poor	Poor	Infill +	Infill +	2	18
eastern cottonwood	Populus deltoides	NSH	Low	7.8	62.8	11.2	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor	Infill +	Infill +	2	19
honeylocust	Gleditsia triacanthos	NSH	Low	28.3	57.6	7.7	No change	Sm. inc.	High	Common	Good	Very Good	Infill ++	Infill ++	1	20
sycamore	Platanus occidentalis	NSL	Low	22.5	51.7	7.3	Sm. inc.	Sm. inc.	Medium	Common	Good	Good	Infill ++	Infill ++	1	21
mockernut hickory	Carya alba	WDL	Medium	24.8	50.8	3.6	Sm. dec.	No change	High	Common	Fair	Good	Infill +	Infill ++	1	22
white ash	Fraxinus americana	WDL	Medium	20.9	40.3	3.9	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	1	23
slippery elm	Ulmus rubra	WSL	Low	42.8	32.2	1.7	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good	Infill +	Infill ++	1	24
red mulberry	Morus rubra	NSL	Low	27.3	29.9	2.2	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	25
pin oak	Quercus palustris	NSH	Low	18.1	29.9	6.0	No change	No change	Low	Rare	Very Poor	Very Poor			2	26
eastern redbud	Cercis canadensis	NSL	Low	18.3	23.6	2.4	Sm. dec.	No change	Medium	Rare	Very Poor	Poor		Infill +	1	27
bur oak	Quercus macrocarpa	NDH	Medium	15.6	22.1	4.9	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor	Infill +	Infill +	2	28
northern red oak	Quercus rubra	WDH	Medium	21.1	17.9	2.2	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	29
black locust	Robinia pseudoacacia	NDH	Low	7	17.5	21.1	Sm. dec.	No change	Medium	Rare	Very Poor	Poor		Infill +	2	30
common persimmon	Diospyros virginiana	NSL	Low	20.8	15.8	6.0	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	1	31
eastern redcedar	Juniperus virginiana	WDH	Medium	10.9	14.8	1.7	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	32
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	4.2	7.6	0.6	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	33
blackjack oak	Quercus marilandica	NSL	Medium	5	6.4	2.9	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	34
chinkapin oak	Quercus muehlenbergii	NSL	Medium	12.6	6.3	1.3	Lg. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	35
Ohio buckeye	Aesculus glabra	NSL	Low	1	5.5	3.1	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	36
swamp white oak	Quercus bicolor	NSL	Low	6.4	4.0	7.4	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	37
red maple	Acer rubrum	WDH	High	4.7	3.6	4.7	Sm. inc.	Sm. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	38
American basswood	Tilia americana	WSL	Medium	6.2	2.6	1.9	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	39
ailanthus	Ailanthus altissima	NSL	FIA	2.7	2.6	1.4	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	40
white mulberry	Morus alba	NSL	FIA	2.8	1.9	0.9	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	41
pecan	Carya illinoensis	NSH	Low	5.4	1.7	1.6	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	2	42
black hickory	Carya texana	NDL	High	0.8	1.7	1.2	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	43
Scots pine	Pinus sylvestris	NSH	FIA	2.7	1.6	9.9	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	44
shellbark hickory	Carya laciniosa	NSL	Low	5.9	1.4	2.7	No change	No change	Medium	Rare	Poor	Poor		Infill +	2	45
flowering dogwood	Cornus florida	WDL	Medium	4.9	1.4	0.5	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	46
American hornbeam; muscle	Carpinus caroliniana	WSL	Low	0	1.2	0.1	No change	Lg. inc.	Medium	Rare	Poor	Good			0	47

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Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIAiv	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
Kentucky coffeetree	Gymnocladus dioicus	NSLX	FIA	2.1	1.0	1.7	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			2	48
river birch	Betula nigra	NSL	Low	2.2	0.5	2.7	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			2	49
winged elm	Ulmus alata	WDL	Medium	0.1	0.4	0.1	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	50
pawpaw	Asimina triloba	NSL	Low	0.1	0.2	0.1	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	51
blackgum	Nyssa sylvatica	WDL	Medium	0.1	0.2	0.1	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	52
Shumard oak	Quercus shumardii	NSL	Low	0.6	0.1	0.2	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	53
black maple	Acer nigrum	NSH	Low	2.7	0.1	0.4	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			0	54
ashe juniper	Juniperus ashei	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	55
shortleaf pine	Pinus echinata	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	56
loblolly pine	Pinus taeda	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	57
striped maple	Acer pensylvanicum	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	58
mountain maple	Acer spicatum	NSL	Low	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	59
serviceberry	Amelanchier spp.	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	60
yellow birch	Betula alleghaniensis	NDL	High	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	61
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	62
sugarberry	Celtis laevigata	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	63
American beech	Fagus grandifolia	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	64
sweetgum	Liquidambar styraciflua	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	65
yellow-poplar	Liriodendron tulipifera	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate ++	Migrate +	3	66
cucumbertree	Magnolia acuminata	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	67
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	68
redbay	Persea borbonia	NSL	Low	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	69
pin cherry	Prunus pensylvanica	NSL	Low	0	0	0	New Habitat	Unknown	Medium	Absent	New Habitat	Unknown			3	70
southern red oak	Quercus falcata	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	71
cherrybark oak; swamp red o.	Quercus pagoda	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	72
overcup oak	Quercus lyrata	NSL	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	73
swamp chestnut oak	Quercus michauxii	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	74
water oak	Quercus nigra	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	75
willow oak	Quercus phellos	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	76
live oak	Quercus virginiana	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	77
cedar elm	Ulmus crassifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	78