

Current and Potential Future Habitat, Capability, and Migration

	sq. km	sq. mi	FIA Plots
Area of Region	15,812	6,105.2	91

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	3			High	16	21	Increase	11	8	Very Good	5	2	Likely	0	0
Hickory	4			Medium	26	40	No Change	15	15	Good	6	9	Infill	19	19
Maple	6	Abundant	0	Low	28	12	Decrease	22	25	Fair	11	10	Migrate	6	9
Oak	8	Common	19	FIA	8		New	17	17	Poor	12	12		25	28
Pine	3	Rare	37				Unknown	13	13	Very Poor	12	12			
Other	32	Absent	18							FIA Only	3	3			
	56		74		78	73		78	78	Unknown	5	5			
											54	53			

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	43.0	44.3	46.2	46.2	
	CCSM85	43.0	44.8	46.7	48.9	
	GFDL45	43.0	45.3	47.0	47.7	
	GFDL85	43.0	45.2	47.7	50.7	
	HAD45	43.0	45.2	47.6	48.8	
HAD85	43.0	45.3	48.3	52.0		
Growing Season (May—Sep)	CCSM45	55.0	56.2	57.9	58.0	
	CCSM85	55.0	56.7	58.4	61.1	
	GFDL45	55.0	57.7	59.8	60.8	
	GFDL85	55.0	57.7	60.7	64.1	
	HAD45	55.0	57.3	59.0	60.6	
HAD85	55.0	57.0	60.2	63.9		
Coldest Month (Average)	CCSM45	24.8	25.9	27.7	27.7	
	CCSM85	24.8	26.6	27.9	29.4	
	GFDL45	24.8	26.7	27.6	28.0	
	GFDL85	24.8	27.1	28.1	29.4	
	HAD45	24.8	26.0	28.7	28.6	
HAD85	24.8	27.4	29.4	31.9		
Warmest Month (Average)	CCSM45	59.1	60.7	61.7	61.9	
	CCSM85	59.1	61.3	62.4	63.9	
	GFDL45	59.1	61.2	62.5	63.2	
	GFDL85	59.1	61.9	63.4	65.5	
	HAD45	59.1	61.8	62.8	64.0	
HAD85	59.1	62.0	64.1	66.8		

Precipitation (in)

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	22.4	22.3	21.9	22.9	
	CCSM85	22.4	22.8	22.8	22.8	
	GFDL45	22.4	24.2	26.6	26.6	
	GFDL85	22.4	24.1	26.7	27.8	
	HAD45	22.4	22.7	24.1	23.7	
HAD85	22.4	24.0	22.5	24.5		
Growing Season (May—Sep)	CCSM45	11.1	11.1	10.6	10.9	
	CCSM85	11.1	10.9	10.9	10.3	
	GFDL45	11.1	11.7	12.6	12.7	
	GFDL85	11.1	11.9	12.1	12.4	
	HAD45	11.1	10.8	10.1	10.5	
HAD85	11.1	11.0	8.8	9.6		

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.

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Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIAiv	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
red maple	Acer rubrum	WDH	High	38.9	399.8	14.3	Sm. dec.	Sm. dec.	High	Common	Fair	Fair			1	1
black cherry	Prunus serotina	WDL	Medium	49.7	387.3	10.2	No change	Sm. dec.	Low	Common	Poor	Poor			0	2
green ash	Fraxinus pennsylvanica	WSH	Low	51.9	352.5	13.1	No change	No change	Medium	Common	Fair	Fair			1	3
American elm	Ulmus americana	WDH	Medium	52.4	327.5	8.0	No change	No change	Medium	Common	Fair	Fair			1	4
black oak	Quercus velutina	WDH	High	13.7	231.0	15.2	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	5
white oak	Quercus alba	WDH	Medium	13.6	176.6	9.9	Sm. inc.	No change	High	Common	Very Good	Good	Infill ++	Infill ++	1	6
sugar maple	Acer saccharum	WDH	High	19	146.9	17.3	Sm. inc.	No change	High	Common	Very Good	Good	Infill ++	Infill ++	1	7
quaking aspen	Populus tremuloides	WDH	High	17.7	141.8	12.6	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	8
boxelder	Acer negundo	WSH	Low	18	122.3	14.6	Sm. dec.	Sm. dec.	High	Common	Fair	Fair			1	9
northern red oak	Quercus rubra	WDH	Medium	23.3	118.1	5.8	Sm. inc.	No change	High	Common	Very Good	Good			1	10
black walnut	Juglans nigra	WDH	Low	5.1	82.2	6.4	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	11
American basswood	Tilia americana	WSL	Medium	18.1	75.9	4.9	Sm. inc.	No change	Medium	Common	Good	Fair			1	12
northern pin oak	Quercus ellipsoidalis	NSH	Medium	2.1	71.3	56.4	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor	Infill +	Infill +	2	13
eastern cottonwood	Populus deltoides	NSH	Low	22.6	69.3	11.3	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	14
white ash	Fraxinus americana	WDL	Medium	21.2	68.7	4.2	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	15
sassafras	Sassafras albidum	WSL	Low	8.9	67.2	7.3	No change	Sm. dec.	Medium	Common	Fair	Fair	Infill +	Infill +	1	16
shagbark hickory	Carya ovata	WSL	Medium	7.6	63.8	9.7	No change	Sm. dec.	Medium	Common	Fair	Poor	Infill +	Infill +	1	17
scarlet oak	Quercus coccinea	WDL	Medium	0.3	63.2	32.2	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	18
eastern white pine	Pinus strobus	WDH	High	8	59.9	7.1	Sm. dec.	Lg. dec.	Low	Common	Poor	Very Poor	Infill +		0	19
bur oak	Quercus macrocarpa	NDH	Medium	8.8	59.1	5.2	No change	No change	High	Common	Good	Good	Infill ++	Infill ++	1	20
red pine	Pinus resinosa	NSH	Medium	1.7	57.8	11.8	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	21
silver maple	Acer saccharinum	NSH	Low	11.3	51.3	8.9	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good	Infill ++	Infill ++	1	22
tamarack (native)	Larix laricina	NSH	High	2.2	43.8	7.6	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			2	23
swamp white oak	Quercus bicolor	NSL	Low	8.9	41.7	4.2	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	24
paper birch	Betula papyrifera	WDH	High	5.6	40.5	6.2	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	25
pignut hickory	Carya glabra	WDL	Medium	6.5	32.2	3.7	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	26
bigtooth aspen	Populus grandidentata	NSL	Medium	10.6	31.3	4.8	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	27
black ash	Fraxinus nigra	WSH	Medium	4.9	31.1	9.8	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			2	28
bitternut hickory	Carya cordiformis	WSL	Low	5	30.9	5.9	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	1	29
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	4.5	29.9	8.9	Sm. dec.	Lg. dec.	High	Rare	Poor	Poor	Infill +		1	30
northern white-cedar	Thuja occidentalis	WSH	High	1.8	26.2	6.2	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	31
American beech	Fagus grandifolia	WDH	High	9.9	25.7	4.7	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	32
Scots pine	Pinus sylvestris	NSH	FIA	11.7	24.6	9.9	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	33
black willow	Salix nigra	NSH	Low	3	24.6	12.5	No change	No change	Low	Rare	Very Poor	Very Poor			2	34
yellow birch	Betula alleghaniensis	NDL	High	3.1	14.8	7.8	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	35
peachleaf willow	Salix amygdaloides	NSLX	FIA	4.7	13.0	7.7	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	36
Shumard oak	Quercus shumardii	NSL	Low	1	12.6	19.9	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor		Infill +	2	37
white mulberry	Morus alba	NSL	FIA	3.5	12.3	3.2	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	38
black locust	Robinia pseudoacacia	NDH	Low	3.1	12.2	6.4	No change	Lg. inc.	Medium	Rare	Poor	Good	Infill +	Infill ++	2	39
mockernut hickory	Carya alba	WDL	Medium	1.5	11.8	7.0	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor		Infill +	2	40
Siberian elm	Ulmus pumila	NDH	FIA	3.1	11.7	6.2	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	41
white spruce	Picea glauca	NSL	Medium	1.3	10.3	7.3	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	42
eastern redcedar	Juniperus virginiana	WDH	Medium	3.1	9.4	4.9	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	43
chokecherry	Prunus virginiana	NSLX	FIA	3.1	7.7	2.8	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	44
American hornbeam; musclev	Carpinus caroliniana	WSL	Low	6.7	6.2	2.5	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	45
hackberry	Celtis occidentalis	WDH	Medium	4.5	5.4	11.6	Sm. inc.	Lg. inc.	High	Rare	Good	Good			2	46
serviceberry	Amelanchier spp.	NSL	Low	2.7	5.2	0.8	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	47

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blackgum	Nyssa sylvatica	WDL	Medium	5.9	1.8	1.2	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	48
yellow-poplar	Liriodendron tulipifera	WDH	High	1	1.8	2.8	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	49
slippery elm	Ulmus rubra	WSL	Low	1	1.6	2.6	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	2	50
Norway maple	Acer platanoides	NSL	FIA	5.2	1.0	1.9	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	51
butternut	Juglans cinerea	NSLX	FIA	1	1.0	1.6	Unknown	Unknown	Low	Rare	FIA Only	FIA Only			0	52
Norway spruce	Picea abies	NSH	FIA	0.9	1.0	1.4	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	53
black maple	Acer nigrum	NSH	Low	1	0.8	1.3	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			0	54
flowering dogwood	Cornus florida	WDL	Medium	1	0.7	1.2	Sm. dec.	Very Lg. dec.	Medium	Rare	Very Poor	Lost			0	55
American mountain-ash	Sorbus americana	NSL	Low	0.4	0.7	0.4	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	56
ashe juniper	Juniperus ashei	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	57
striped maple	Acer pensylvanicum	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	58
pawpaw	Asimina triloba	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	59
pecan	Carya illinoensis	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	60
black hickory	Carya texana	NDL	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	61
sugarberry	Celtis laevigata	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	62
eastern redbud	Cercis canadensis	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	63
common persimmon	Diospyros virginiana	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	64
honeylocust	Gleditsia triacanthos	NSH	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	65
sweetgum	Liquidambar styraciflua	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	66
Osage-orange	Maclura pomifera	NDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	67
cucumbertree	Magnolia acuminata	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	68
red mulberry	Morus rubra	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	69
sycamore	Platanus occidentalis	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	70
pin cherry	Prunus pensylvanica	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	71
blackjack oak	Quercus marilandica	NSL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	72
pin oak	Quercus palustris	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	73
post oak	Quercus stellata	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	74
live oak	Quercus virginiana	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	75
bluejack oak	Quercus incana	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	76
winged elm	Ulmus alata	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	77
cedar elm	Ulmus crassifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			0	78