

Current and Potential Future Habitat, Capability, and Migration

	sq. km	sq. mi	FIA Plots
Area of Region	28,276	10,917	247

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	14	23	Increase	18	17	Very Good	4	6	Likely	0	0
Hickory	3			Medium	25	38	No Change	9	11	Good	13	10	Infill	25	24
Maple	5	Abundant	0	Low	28	11	Decrease	21	20	Fair	10	10	Migrate	8	14
Oak	7	Common	20	FIA	9		New	15	16	Poor	7	8		33	38
Pine	4	Rare	37				Unknown	13	12	Very Poor	12	12			
Other	35	Absent	19					76	76	FIA Only	5	5			
	57		76							Unknown	4	3			
											55	54			

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	43.6	45.1	47.2	47.3	
	CCSM85	43.6	45.7	47.7	50.2	
	GFDL45	43.6	46.8	47.8	48.7	
	GFDL85	43.6	46.0	48.7	52.1	
	HAD45	43.6	45.8	48.5	49.9	
Growing Season (May-Sep)	CCSM45	58.1	59.8	61.5	61.8	
	CCSM85	58.1	60.4	62.2	65.1	
	GFDL45	58.1	62.0	63.0	64.5	
	GFDL85	58.1	61.1	64.1	68.2	
	HAD45	58.1	60.4	62.4	64.0	
Coldest Month Average	CCSM45	20.3	21.7	23.9	23.8	
	CCSM85	20.3	22.5	24.0	25.6	
	GFDL45	20.3	23.1	24.2	24.4	
	GFDL85	20.3	23.3	24.5	26.0	
	HAD45	20.3	21.3	24.5	24.5	
Warmest Month Average	CCSM45	62.7	64.6	65.7	66.2	
	CCSM85	62.7	65.7	67.0	68.5	
	GFDL45	62.7	65.3	66.4	67.6	
	GFDL85	62.7	66.1	67.5	70.1	
	HAD45	62.7	65.1	66.5	67.4	
HAD85	62.7	66.0	68.2	70.8		

Precipitation (in)

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	27.0	26.7	26.6	27.0	
	CCSM85	27.0	26.9	27.1	27.2	
	GFDL45	27.0	29.0	32.2	31.4	
	GFDL85	27.0	29.9	33.0	32.7	
	HAD45	27.0	28.1	29.0	28.8	
Growing Season (May-Sep)	CCSM45	15.3	15.3	15.0	15.3	
	CCSM85	15.3	14.9	14.9	14.3	
	GFDL45	15.3	15.7	17.8	17.1	
	GFDL85	15.3	16.7	17.5	16.7	
	HAD45	15.3	15.3	14.4	14.8	
HAD85	15.3	15.3	12.8	13.3		

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
black cherry	Prunus serotina	WDL	Medium	58	453.6	13.4	Sm. dec.	Lg. dec.	Low	Common	Poor	Very Poor	Infill +		0	1
boxelder	Acer negundo	WDH	Low	39.8	325.5	10.3	Sm. dec.	Sm. dec.	High	Common	Fair	Fair	Infill +	Infill +	1	2
American elm	Ulmus americana	WDH	Medium	54.8	302.1	13.5	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	3
bur oak	Quercus macrocarpa	NDH	Medium	33	269.1	13.5	No change	No change	High	Common	Good	Good	Infill ++	Infill ++	2	4
black walnut	Juglans nigra	WDH	Low	35.7	217.9	11.4	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	5
white oak	Quercus alba	WDH	Medium	28.3	171.7	7.8	Sm. inc.	No change	High	Common	Very Good	Good	Infill ++	Infill ++	2	6
eastern white pine	Pinus strobus	WDH	High	16.8	157.1	19.4	Lg. dec.	Lg. dec.	Low	Common	Very Poor	Very Poor			2	7
American basswood	Tilia americana	WSL	Medium	20.6	154.1	9.3	No change	Sm. dec.	Medium	Common	Fair	Poor	Infill +	Infill +	1	8
green ash	Fraxinus pennsylvanica	WSH	Low	21.2	121.8	12.5	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good	Infill ++	Infill ++	2	9
northern red oak	Quercus rubra	WDH	Medium	24.5	94.5	6.3	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good	Infill ++	Infill ++	2	10
sugar maple	Acer saccharum	WDH	High	10.7	94.3	12.5	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good	Infill ++	Infill ++	2	11
shagbark hickory	Carya ovata	WSL	Medium	31.4	93.5	6.5	Sm. inc.	No change	Medium	Common	Good	Fair	Infill ++	Infill +	1	12
slippery elm	Ulmus rubra	WSL	Low	33.2	86.1	4.9	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	13
white ash	Fraxinus americana	WDL	Medium	13.2	77.4	7.6	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair	Infill +	Infill +	2	14
black oak	Quercus velutina	WDH	High	19.2	69.7	6.4	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good	Infill ++	Infill ++	2	15
bitternut hickory	Carya cordiformis	WDL	Low	21.7	68.1	5.6	No change	Sm. inc.	High	Common	Good	Very Good	Infill ++	Infill ++	2	16
hackberry	Celtis occidentalis	WDH	Medium	29.4	65.1	6.4	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good	Infill ++	Infill ++	2	17
black locust	Robinia pseudoacacia	NDH	Low	5	64.6	13.9	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	2	18
quaking aspen	Populus tremuloides	WDH	High	8.4	57.8	6.7	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor	Infill +	Infill +	2	19
black willow	Salix nigra	NSH	Low	6.4	55.9	13.2	Sm. dec.	No change	Low	Common	Poor	Poor	Infill +	Infill +	2	20
red mulberry	Morus rubra	NSL	Low	17.2	45.8	3.8	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	2	21
northern pin oak	Quercus ellipsoidalis	NSH	Medium	12.3	36.2	4.1	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor	Infill +		2	22
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	10.3	35.4	4.6	Lg. inc.	Sm. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	23
red pine	Pinus resinosa	NSH	Medium	6.3	35.3	7.2	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			2	24
silver maple	Acer saccharinum	NSH	Low	9.6	32.2	11.6	Sm. inc.	Sm. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	25
Scots pine	Pinus sylvestris	NSH	FIA	0.8	30.7	43.7	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	26
black ash	Fraxinus nigra	WSH	Medium	7.1	29.2	5.1	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			2	27
white mulberry	Morus alba	NSL	FIA	11.7	26.0	6.0	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	28
Siberian elm	Ulmus pumila	NDH	FIA	5	23.2	14.0	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	29
Norway spruce	Picea abies	NSH	FIA	2.3	20.3	6.9	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	30
tamarack (native)	Larix laricina	NSH	High	1.5	17.1	6.7	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			2	31
bigtooth aspen	Populus grandidentata	NSL	Medium	2.8	15.5	4.1	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	32
red maple	Acer rubrum	WDH	High	3.6	13.4	4.6	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	33
paper birch	Betula papyrifera	WDH	High	0.5	12.0	2.5	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	34
Osage-orange	Maclura pomifera	NDH	Medium	3.6	10.4	13.9	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	35
eastern redcedar	Juniperus virginiana	WDH	Medium	3.5	7.3	4.2	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	36
eastern cottonwood	Populus deltoides	NSH	Low	4.9	6.7	2.3	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	37
honeylocust	Gleditsia triacanthos	NSH	Low	7.9	5.5	6.2	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	38
black maple	Acer nigrum	NSH	Low	2.7	5.4	6.1	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			0	39
butternut	Juglans cinerea	NSLX	FIA	1.2	4.8	3.2	Unknown	Unknown	Low	Rare	FIA Only	FIA Only			0	40
jack pine	Pinus banksiana	NSH	Medium	1.4	4.7	51.6	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			0	41
northern white-cedar	Thuja occidentalis	WSH	High	2.7	4.0	7.6	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	42
white spruce	Picea glauca	NSL	Medium	1.9	3.3	5.2	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	43
chokecherry	Prunus virginiana	NSLX	FIA	3.8	2.9	0.9	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	44
peachleaf willow	Salix amygdaloides	NSLX	FIA	2.9	2.3	1.6	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	45
balsam fir	Abies balsamea	NDH	High	0.4	1.7	4.7	Very Lg. dec.	Very Lg. dec.	Low	Rare	Lost	Lost			0	46
American beech	Fagus grandifolia	WDH	High	0.1	1.5	1.8	No change	No change	Medium	Rare	Poor	Poor			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
yellow birch	Betula alleghaniensis	NDL	High	0.4	1.5	4.1	Sm. dec.	No change	Medium	Rare	Very Poor	Poor	Infill +		2	48
serviceberry	Amelanchier spp.	NSL	Low	0.5	1.1	1.1	Sm. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	49
flowering dogwood	Cornus florida	WDL	Medium	0.4	1.1	3.0	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	50
swamp white oak	Quercus bicolor	NSL	Low	1.8	0.7	2.0	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	51
American hornbeam; musclev	Carpinus caroliniana	WSL	Low	1.5	0.7	1.2	Sm. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	52
pin cherry	Prunus pensylvanica	NSL	Low	1.1	0.4	0.9	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	53
wild plum	Prunus americana	NSLX	FIA	0	0.3	0.1	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	54
northern catalpa	Catalpa speciosa	NSHX	FIA	0.1	0.2	0.1	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	55
pin oak	Quercus palustris	NSH	Low	1.4	0.1	1.2	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	2	56
mockernut hickory	Carya alba	WDL	Medium	0.1	0.1	0.0	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	57
mountain maple	Acer spicatum	NSL	Low	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	58
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	Unknown	New Habitat	High	Absent	Unknown	New Habitat			3	59
pignut hickory	Carya glabra	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	60
pecan	Carya illinoensis	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat		Migrate ++	3	61
black hickory	Carya texana	NDL	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	62
sugarberry	Celtis laevigata	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	63
eastern redbud	Cercis canadensis	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	64
common persimmon	Diospyros virginiana	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	65
yellow-poplar	Liriodendron tulipifera	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	66
cucumbertree	Magnolia acuminata	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	67
sycamore	Platanus occidentalis	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	68
shingle oak	Quercus imbricaria	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate +	3	69
blackjack oak	Quercus marilandica	NSL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate ++	3	70
chinkapin oak	Quercus muehlenbergii	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	71
Shumard oak	Quercus shumardii	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	72
post oak	Quercus stellata	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	73
bluejack oak	Quercus incana	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	74
sassafras	Sassafras albidum	WSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	75
winged elm	Ulmus alata	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate ++	3	76