

Current and Potential Future Habitat, Capability, and Migration

	sq. km	sq. mi	FIA Plots
Area of Region	19,994	7,719.7	1,002

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		
		High	Low	Reliability	Adaptability	Scenario RCP45	Scenario RCP85	Scenario RCP45	Scenario RCP85	SHIFT RCP45	SHIFT RCP85	
Ash	3											
Hickory	1											
Maple	5	Abundant	10	High	16	22	Increase	17	20	Very Good	8	11
Oak	6	Common	17	Medium	25	38	No Change	16	13	Good	14	12
Pine	4	Rare	25	Low	25	10	Decrease	12	12	Fair	8	9
Other	33	Absent	21	FIA	7		New	16	18	Poor	9	7
	52		73		73	70	Unknown	12	10	Very Poor	5	5
								73	73	FIA Only	4	4
										Unknown	5	3
											9	11
											53	51

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	40.2	41.5	44.0	44.2	
	CCSM85	40.2	42.3	44.8	47.7	
	GFDL45	40.2	42.5	44.7	45.9	
	GFDL85	40.2	42.8	45.6	49.8	
	HAD45	40.2	42.7	45.7	47.2	
	HAD85	40.2	43.1	46.6	51.1	
Growing Season (May—Sep)	CCSM45	56.5	57.9	60.1	60.3	
	CCSM85	56.5	58.7	61.1	64.5	
	GFDL45	56.5	59.2	61.9	63.6	
	GFDL85	56.5	59.8	62.9	67.6	
	HAD45	56.5	59.1	61.5	63.3	
	HAD85	56.5	59.1	62.7	67.3	
Coldest Month (Average)	CCSM45	13.8	15.1	17.0	17.3	
	CCSM85	13.8	15.1	17.0	19.0	
	GFDL45	13.8	16.6	18.1	18.4	
	GFDL85	13.8	17.0	18.4	21.0	
	HAD45	13.8	15.1	18.6	18.4	
	HAD85	13.8	18.1	20.7	23.7	
Warmest Month (Average)	CCSM45	61.7	63.3	64.5	65.0	
	CCSM85	61.7	64.3	65.9	68.0	
	GFDL45	61.7	64.5	65.7	67.0	
	GFDL85	61.7	65.2	66.8	69.5	
	HAD45	61.7	64.5	65.8	67.1	
	HAD85	61.7	65.1	66.9	70.0	

Precipitation (in)

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	24.8	25.6	25.3	25.2	
	CCSM85	24.8	24.3	24.4	24.8	
	GFDL45	24.8	27.4	28.6	26.5	
	GFDL85	24.8	27.2	29.7	28.6	
	HAD45	24.8	26.4	25.5	26.3	
	HAD85	24.8	26.0	26.5	27.8	
Growing Season (May—Sep)	CCSM45	15.5	15.7	15.0	15.0	
	CCSM85	15.5	14.9	14.2	13.7	
	GFDL45	15.5	17.2	17.3	15.6	
	GFDL85	15.5	17.1	17.6	15.8	
	HAD45	15.5	15.6	14.3	14.6	
	HAD85	15.5	15.2	13.8	13.8	

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
quaking aspen	Populus tremuloides	WDH	High	88.5	1956.5	16.2	Sm. dec.	Sm. dec.	Medium	Abundant	Fair	Fair			0	1
red maple	Acer rubrum	WDH	High	87.2	1130.0	9.5	No change	No change	High	Abundant	Very Good	Very Good			1	2
northern red oak	Quercus rubra	WDH	Medium	73.5	676.7	6.8	No change	No change	High	Abundant	Very Good	Very Good			1	3
black ash	Fraxinus nigra	WSH	Medium	58.2	614.7	7.1	Sm. dec.	Sm. dec.	Low	Abundant	Fair	Fair			0	4
red pine	Pinus resinosa	NSH	Medium	34.9	613.4	13.3	No change	No change	Low	Abundant	Fair	Fair			0	5
paper birch	Betula papyrifera	WDH	High	80.1	604.7	5.5	No change	Sm. dec.	Medium	Abundant	Good	Fair			1	6
northern pin oak	Quercus ellipsoidalis	NSH	Medium	40.3	581.8	11.8	No change	No change	High	Abundant	Very Good	Very Good			1	7
sugar maple	Acer saccharum	WDH	High	54.4	543.3	6.1	No change	No change	High	Abundant	Very Good	Very Good			1	8
bur oak	Quercus macrocarpa	NDH	Medium	63.4	538.0	7.0	Sm. inc.	No change	High	Abundant	Very Good	Very Good			1	9
American basswood	Tilia americana	WSL	Medium	61.5	514.0	5.9	No change	No change	Medium	Abundant	Good	Good			1	10
tamarack (native)	Larix laricina	NSH	High	30.6	392.3	7.4	No change	No change	Low	Common	Poor	Poor			0	11
jack pine	Pinus banksiana	NSH	Medium	23.5	362.4	12.9	Sm. dec.	Sm. dec.	High	Common	Fair	Fair			1	12
bigtooth aspen	Populus grandidentata	NSL	Medium	42.2	311.8	5.2	No change	Sm. dec.	Medium	Common	Fair	Poor			1	13
American elm	Ulmus americana	WDH	Medium	60.7	301.6	3.7	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	14
green ash	Fraxinus pennsylvanica	WSH	Low	57.3	291.7	3.9	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	15
eastern white pine	Pinus strobus	WDH	High	35.5	268.0	5.5	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	16
black spruce	Picea mariana	NSH	High	22.5	245.0	6.1	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	17
white oak	Quercus alba	WDH	Medium	31.6	226.2	5.6	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	18
balsam fir	Abies balsamea	NDH	High	29.9	205.8	3.7	No change	No change	Low	Common	Poor	Poor			0	19
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	55.7	153.5	2.0	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	20
boxelder	Acer negundo	WSH	Low	18.4	133.5	6.7	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	21
black cherry	Prunus serotina	WDL	Medium	47.1	132.1	2.2	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	22
white spruce	Picea glauca	NSL	Medium	22.3	116.8	3.9	Sm. dec.	No change	Medium	Common	Poor	Fair			1	23
white ash	Fraxinus americana	WDL	Medium	20.7	71.3	2.3	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	24
silver maple	Acer saccharinum	NSH	Low	6.6	71.1	10.8	No change	Sm. inc.	High	Common	Good	Very Good	Infill ++	Infill ++	1	25
balsam poplar	Populus balsamifera	NSH	Medium	8.9	53.9	4.5	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	26
northern white-cedar	Thuja occidentalis	WSH	High	6.2	52.8	2.1	No change	Sm. inc.	Medium	Common	Fair	Good	Infill +	Infill ++	2	27
yellow birch	Betula alleghaniensis	NDL	High	16.5	48.5	1.6	No change	Sm. inc.	Medium	Rare	Poor	Fair			1	28
eastern redcedar	Juniperus virginiana	WDH	Medium	4.6	40.5	5.9	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	29
Siberian elm	Ulmus pumila	NDH	FIA	1.3	38.2	25.4	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	30
eastern cottonwood	Populus deltoides	NSH	Low	5.4	31.3	7.2	No change	Sm. inc.	Medium	Rare	Poor	Fair	Infill +	Infill +	2	31
butternut	Juglans cinerea	NSLX	FIA	10.8	31.0	1.8	Unknown	Unknown	Low	Rare	FIA Only	FIA Only			0	32
slippery elm	Ulmus rubra	WSL	Low	9.6	28.8	2.4	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	1	33
black willow	Salix nigra	NSH	Low	0.2	27.6	22.0	Lg. dec.	No change	Low	Rare	Very Poor	Very Poor			2	34
American hornbeam; muscle	Carpinus caroliniana	WSL	Low	22.6	24.8	0.9	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	35
bitternut hickory	Carya cordiformis	WSL	Low	12.4	21.7	1.2	Sm. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	1	36
serviceberry	Amelanchier spp.	NSL	Low	14.3	19.8	0.8	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	37
Scots pine	Pinus sylvestris	NSH	FIA	3.8	19.8	6.2	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	38
black walnut	Juglans nigra	WDH	Low	1.3	16.8	11.2	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	39
chokecherry	Prunus virginiana	NSLX	FIA	17.8	14.2	0.5	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	40
black locust	Robinia pseudoacacia	NDH	Low	1.3	11.9	12.4	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	41
eastern hemlock	Tsuga canadensis	NSH	High	2.9	10.2	1.7	No change	No change	Low	Rare	Very Poor	Very Poor			2	42
black oak	Quercus velutina	WDH	High	1	9.7	9.7	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	43
Norway spruce	Picea abies	NSH	FIA	0.8	4.4	2.9	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	44
hackberry	Celtis occidentalis	WDH	Medium	2.9	4.2	1.4	Sm. inc.	Lg. inc.	High	Rare	Good	Good			2	45
pin cherry	Prunus pensylvanica	NSL	Low	3.3	4.1	0.7	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	46
peachleaf willow	Salix amygdaloides	NSLX	FIA	1.3	3.1	3.5	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			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
wild plum	<i>Prunus americana</i>	NSLX	FIA	0.6	1.4	0.9	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	48
swamp white oak	<i>Quercus bicolor</i>	NSL	Low	0.8	1.4	0.6	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	49
mountain maple	<i>Acer spicatum</i>	NSL	Low	2	1.1	0.2	Sm. dec.	Lg. dec.	High	Rare	Poor	Poor			0	50
river birch	<i>Betula nigra</i>	NSL	Low	0.5	0.5	0.9	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	51
red mulberry	<i>Morus rubra</i>	NSL	Low	0.8	0.2	0.6	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good			2	52
striped maple	<i>Acer pensylvanicum</i>	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	53
Ohio buckeye	<i>Aesculus glabra</i>	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	54
cittamwood/gum bumelia	<i>Sideroxylon lanuginosum ssp.</i>	NSL	Low	0	0	0	Unknown	New Habitat	High	Absent	Unknown	New Habitat			0	55
pignut hickory	<i>Carya glabra</i>	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	56
shagbark hickory	<i>Carya ovata</i>	WSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	57
black hickory	<i>Carya texana</i>	NDL	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	58
mockernut hickory	<i>Carya alba</i>	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	59
sugarberry	<i>Celtis laevigata</i>	NDH	Medium	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat			0	60
eastern redbud	<i>Cercis canadensis</i>	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	61
American beech	<i>Fagus grandifolia</i>	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	62
honeylocust	<i>Gleditsia triacanthos</i>	NSH	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	63
yellow-poplar	<i>Liriodendron tulipifera</i>	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	64
Osage-orange	<i>Maclura pomifera</i>	NDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	65
bigleaf magnolia	<i>Magnolia macrophylla</i>	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	66
blackgum	<i>Nyssa sylvatica</i>	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	67
sycamore	<i>Platanus occidentalis</i>	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	68
scarlet oak	<i>Quercus coccinea</i>	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	69
blackjack oak	<i>Quercus marilandica</i>	NSL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			0	70
Shumard oak	<i>Quercus shumardii</i>	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			0	71
post oak	<i>Quercus stellata</i>	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	72
sassafras	<i>Sassafras albidum</i>	WSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	73