

Current and Potential Future Habitat, Capability, and Migration

	sq. km	sq. mi	FIA Plots
Area of Region	7,113.3	2,746.4	5

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	1			High	5	12	Increase	3	2	Very Good	0	0	Likely	1	1
Hickory	0			Medium	12	18	No Change	5	6	Good	2	2	Infill	6	6
Maple	1	Abundant	0	Low	14	2	Decrease	1	1	Fair	4	3	Migrate	6	5
Oak	1	Common	2	FIA	1		New	20	21	Poor	3	4			
Pine	0	Rare	8				Unknown	3	2	Very Poor	0	0			
Other	7	Absent	21							FIA Only	1	1			
	10		31		32	32		32	32	Unknown	2	1			
											12	11			

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	47.7	49.5	51.8	52.6	
	CCSM85	47.7	50.1	52.7	56.0	
	GFDL45	47.7	53.6	52.1	53.6	
	GFDL85	47.7	50.4	53.4	57.9	
	HAD45	47.7	50.7	54.4	55.7	
	HAD85	47.7	51.2	56.4	60.4	
Growing Season May—Sep	CCSM45	67.6	69.6	72.3	73.0	
	CCSM85	67.6	70.5	73.1	77.2	
	GFDL45	67.6	75.4	73.4	75.4	
	GFDL85	67.6	71.0	74.6	80.3	
	HAD45	67.6	70.2	73.0	74.7	
	HAD85	67.6	70.4	74.9	79.3	
Coldest Month Average	CCSM45	17.6	19.6	20.8	21.7	
	CCSM85	17.6	18.9	20.3	22.4	
	GFDL45	17.6	20.8	21.3	21.9	
	GFDL85	17.6	20.6	21.9	23.6	
	HAD45	17.6	20.1	23.9	23.2	
	HAD85	17.6	23.2	27.9	29.6	
Warmest Month Average	CCSM45	75.2	77.9	79.8	80.5	
	CCSM85	75.2	79.1	80.9	83.9	
	GFDL45	75.2	79.0	80.4	81.6	
	GFDL85	75.2	79.7	81.3	85.0	
	HAD45	75.2	78.5	80.2	81.3	
	HAD85	75.2	79.0	81.6	84.6	

Precipitation (in)

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	21.5	22.0	21.3	20.9	
	CCSM85	21.5	21.1	22.1	22.4	
	GFDL45	21.5	25.5	27.7	26.7	
	GFDL85	21.5	24.8	28.2	27.8	
	HAD45	21.5	24.2	23.4	24.4	
	HAD85	21.5	23.3	23.9	25.7	
Growing Season May—Sep	CCSM45	14.2	13.9	13.1	12.5	
	CCSM85	14.2	12.8	13.8	13.0	
	GFDL45	14.2	17.0	18.4	17.2	
	GFDL85	14.2	16.6	18.1	17.4	
	HAD45	14.2	14.9	13.9	14.0	
	HAD85	14.2	13.9	13.5	12.8	

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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Section 331F

EcoMap 2007
Climate Change Atlas Tree Species

USDA Forest Service
Northern Research Station
Landscape Change Research Group
Iverson, Peters, Prasad, Matthews

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Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIAiv	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
eastern cottonwood	Populus deltoides	NSH	Low	10.9	102.7	32.3	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor	Infill +	Infill +	2	1
eastern redcedar	Juniperus virginiana	WDH	Medium	8.1	86.3	15.6	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	2	2
bur oak	Quercus macrocarpa	NDH	Medium	11.4	45.8	18.2	Sm. inc.	Sm. inc.	High	Rare	Good	Good			2	3
American elm	Ulmus americana	WDH	Medium	4.1	38.3	6.6	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	4
green ash	Fraxinus pennsylvanica	WSH	Low	16.6	32.9	20.4	Sm. inc.	No change	Medium	Rare	Fair	Poor	Infill +	Infill +	2	5
peachleaf willow	Salix amygdaloides	NSLX	FIA	5.9	12.6	35.9	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	6
black walnut	Juglans nigra	WDH	Low	3.3	10.6	16.8	No change	No change	Medium	Rare	Poor	Poor		Infill +	2	7
hackberry	Celtis occidentalis	WDH	Medium	4.4	3.5	2.6	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	8
boxelder	Acer negundo	WSH	Low	3.6	2.2	3.8	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	9
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	4.9	1.6	1.2	No change	No change	High	Rare	Fair	Fair	Infill +		2	10
ashe juniper	Juniperus ashei	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	11
sugar maple	Acer saccharum	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	12
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			0	13
black hickory	Carya texana	NDL	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	14
sugarberry	Celtis laevigata	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	15
eastern redbud	Cercis canadensis	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	16
flowering dogwood	Cornus florida	WDL	Medium	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	17
white ash	Fraxinus americana	WDL	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	18
honeylocust	Gleditsia triacanthos	NSH	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	19
Osage-orange	Maclura pomifera	NDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	20
red mulberry	Morus rubra	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +		3	21
sycamore	Platanus occidentalis	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	22
blackjack oak	Quercus marilandica	NSL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			0	23
chinkapin oak	Quercus muehlenbergii	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	24
northern red oak	Quercus rubra	WDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	25
Shumard oak	Quercus shumardii	NSL	Low	0	0	0	Unknown	New Habitat	High	Absent	Unknown	New Habitat			0	26
post oak	Quercus stellata	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			0	27
live oak	Quercus virginiana	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	28
black locust	Robinia pseudoacacia	NDH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	29
black willow	Salix nigra	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	30
American basswood	Tilia americana	WSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	31
slippery elm	Ulmus rubra	WSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	32

