

One x One Degree
Climate Change Atlas Tree Species
 Current and Potential Future Habitat, Capability, and Migration

sq. km sq. mi FIA Plots
 Area of Region 8,208.4 3,169.3 10

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	7	9	Increase	0	0	Very Good	0	0
Hickory	0			Medium	11	18	No Change	2	3	Good	0	0
Maple	1	Abundant	0	Low	12	4	Decrease	6	5	Fair	3	3
Oak	1	Common	4	FIA	1		New	20	20	Poor	2	3
Pine	0	Rare	5				Unknown	3	3	Very Poor	2	0
Other	6	Absent	22							FIA Only	1	1
	9		31		31	31		31	31	Unknown	2	2
											10	9

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099
Annual Average	CCSM45	38.6	40.4	42.8	43.5
	CCSM85	38.6	40.9	44.5	48.0
	GFDL45	38.6	44.7	43.4	45.0
	GFDL85	38.6	41.4	44.9	49.9
	HAD45	38.6	42.2	46.0	48.1
HAD85	38.6	42.6	47.6	53.5	
Growing Season (May—Sep)	CCSM45	60.9	63.1	65.3	66.1
	CCSM85	60.9	63.9	67.0	70.9
	GFDL45	60.9	68.5	67.0	68.9
	GFDL85	60.9	64.4	68.1	73.8
	HAD45	60.9	64.2	67.0	69.6
HAD85	60.9	64.0	68.2	74.1	
Coldest Month (Average)	CCSM45	3.3	4.9	7.1	7.2
	CCSM85	3.3	4.3	6.7	9.1
	GFDL45	3.3	6.4	7.5	8.2
	GFDL85	3.3	7.0	8.7	11.8
	HAD45	3.3	6.4	10.2	10.1
HAD85	3.3	9.0	13.7	16.7	
Warmest Month (Average)	CCSM45	68.0	70.9	72.1	72.7
	CCSM85	68.0	71.5	73.7	75.9
	GFDL45	68.0	72.0	73.5	74.8
	GFDL85	68.0	71.9	74.1	77.6
	HAD45	68.0	72.0	73.4	75.4
HAD85	68.0	71.4	74.2	77.9	

Precipitation (in)

	Scenario	2009	2039	2069	2099
Annual Total	CCSM45	18.3	17.1	18.0	17.3
	CCSM85	18.3	17.6	18.1	18.3
	GFDL45	18.3	19.8	21.8	21.4
	GFDL85	18.3	21.0	22.9	22.6
	HAD45	18.3	18.8	17.4	18.0
HAD85	18.3	18.0	18.1	19.5	
Growing Season (May—Sep)	CCSM45	13.0	11.7	12.6	11.6
	CCSM85	13.0	12.0	12.1	11.9
	GFDL45	13.0	14.2	15.5	14.7
	GFDL85	13.0	14.4	15.6	14.7
	HAD45	13.0	12.7	11.1	11.1
HAD85	13.0	11.9	11.0	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-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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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
quaking aspen	Populus tremuloides	WDH	High	5.8	388.9	39.4	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor	Infill +	Infill +	2	1
bur oak	Quercus macrocarpa	NDH	Medium	6.1	252.3	23.9	Sm. dec.	Sm. dec.	High	Common	Fair	Fair	Infill +	Infill +	2	2
green ash	Fraxinus pennsylvanica	WSH	Low	6.1	88.8	6.8	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	2	3
balsam poplar	Populus balsamifera	NSH	Medium	5.8	64.6	6.7	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor	Infill +	Infill +	2	4
eastern cottonwood	Populus deltoides	NSH	Low	1.4	30.5	28.3	Lg. dec.	No change	Medium	Rare	Very Poor	Poor			2	5
boxelder	Acer negundo	WSH	Low	3.4	17.1	2.2	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	6
chokecherry	Prunus virginiana	NSLX	FIA	3.2	6.7	0.7	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	7
pin cherry	Prunus pensylvanica	NSL	Low	2	1.7	0.5	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	8
serviceberry	Amelanchier spp.	NSL	Low	2.3	1.3	0.2	Lg. dec.	Very Lg. dec.	Medium	Rare	Very Poor	Lost			0	9
balsam fir	Abies balsamea	NDH	High	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	10
ashe juniper	Juniperus ashei	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	11
eastern redcedar	Juniperus virginiana	WDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	12
white spruce	Picea glauca	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	13
red maple	Acer rubrum	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	14
sugar maple	Acer saccharum	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	15
pawpaw	Asimina triloba	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	16
yellow birch	Betula alleghaniensis	NDL	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	17
paper birch	Betula papyrifera	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	18
bitternut hickory	Carya cordiformis	WSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			0	19
shagbark hickory	Carya ovata	WSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	20
hackberry	Celtis occidentalis	WDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	21
black ash	Fraxinus nigra	WSH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	22
honeylocust	Gleditsia triacanthos	NSH	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			0	23
black walnut	Juglans nigra	WDH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	24
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	25
black cherry	Prunus serotina	WDL	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	26
northern red oak	Quercus rubra	WDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	27
American mountain-ash	Sorbus americana	NSL	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	28
American basswood	Tilia americana	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate +	3	29
American elm	Ulmus americana	WDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	30
slippery elm	Ulmus rubra	WSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	31