Acadia

National Park

Climate Change Atlas Tree Species

Current and Potential Future Habitat, Capability, and Migration

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	sq. km	sq. mi	FIA Plots
Area of Region	8,646.9	3,338.6	307

Species Information

The columns below provide breif 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
Ash	3
Hickory	0
Maple	5
Oak	2
Pine	3
Other	23
	36

Abundance	
Abundant	5
Common	17
Rare	14
Absent	27
	63

	Model Reliability	Adaptability
High	20	13
Medium	21	33
Low	18	14
FIA	4	
	63	**60**

Potential Change in Habitat Suitability	Scenario RCP45	Scenario RCP85
Increase	15	12
No Change	1	4
Decrease	16	16
New	22	24
Unknown	9	7
	63	**63**

Capability to Cope or Persist	Scenario RCP45	Scenario RCP85
Very Good	4	4
Good	9	8
Fair	4	5
Poor	9	9
Very Poor	6	5
FIA Only	1	1
Unknown	5	3
	38	**35**

Migration Potential	SHIFT RCP45	SHIFT RCP85
Likely	3	3
Infill	2	2
Migrate	8	7
	13	**12**

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099
Annual Average	CCSM45	43.8	45.5	47.6	47.8
	CCSM85	43.8	46.1	48.5	51.6
	GFDL45	43.8	46.8	49.8	51.3
	GFDL85	43.8	47.0	51.2	56.1
	HAD45	43.8	46.7	49.7	51.3
	HAD85	43.8	47.0	51.1	56.1
Growing Season May—Sep	CCSM45	60.8	62.7	64.4	64.6
	CCSM85	60.8	63.0	65.1	68.5
	GFDL45	60.8	64.2	67.2	68.9
	GFDL85	60.8	64.1	68.6	73.6
	HAD45	60.8	63.6	66.2	68.3
	HAD85	60.8	63.4	68.0	73.1
Coldest Month Average	CCSM45	16.8	18.1	19.6	20.3
	CCSM85	16.8	19.3	20.6	22.8
	GFDL45	16.8	19.4	21.9	23.2
	GFDL85	16.8	20.5	23.0	25.5
	HAD45	16.8	19.3	21.7	22.4
	HAD85	16.8	20.5	22.9	26.1
Warmest Month Average	CCSM45	67.1	69.2	70.1	70.1
	CCSM85	67.1	69.4	71.0	72.6
	GFDL45	67.1	70.3	72.0	73.2
	GFDL85	67.1	70.1	73.0	75.7
	HAD45	67.1	70.0	71.3	72.6
	HAD85	67.1	69.9	72.3	75.5

Precipitation (in)

	Scenario	2009	2039	2069	2099
Annual Total	CCSM45	47.1	46.9	44.9	52.2
	CCSM85	47.1	47.9	48.4	50.1
	GFDL45	47.1	50.6	53.8	52.0
	GFDL85	47.1	49.7	51.8	53.1
	HAD45	47.1	50.1	55.1	52.8
	HAD85	47.1	51.5	52.5	54.6
Growing Season May—Sep	CCSM45	18.2	18.7	16.8	19.2
	CCSM85	18.2	18.8	18.8	18.2
	GFDL45	18.2	17.1	17.2	16.4
	GFDL85	18.2	18.2	16.9	15.7
	HAD45	18.2	19.3	20.3	20.0
	HAD85	18.2	18.5	19.8	20.4

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
balsam fir	Abies balsamea	NDH	High	89.7	1872.5	16.2	Sm. dec.	Sm. dec.	Low	Abundant	Fair	Fair			0	1
red maple	Acer rubrum	WDH	High	93.8	1581.0	13.6	Sm. inc.	No change	High	Abundant	Very Good	Very Good			1	2
red spruce	Picea rubens	NDH	High	85.5	1295.3	11.0	Lg. dec.	Lg. dec.	Low	Abundant	Poor	Poor			0	3
eastern white pine	Pinus strobus	WDH	High	85.6	890.2	9.4	Sm. inc.	No change	Low	Abundant	Good	Fair			1	4
paper birch	Betula papyrifera	WDH	High	83.9	601.8	5.3	Sm. dec.	Sm. dec.	Medium	Abundant	Fair	Fair			0	5
eastern hemlock	Tsuga canadensis	NSH	High	46.3	473.8	9.6	Sm. inc.	No change	Low	Common	Fair	Poor			1	6
northern red oak	Quercus rubra	WDH	Medium	47	467.8	9.3	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	7
northern white-cedar	Thuja occidentalis	WSH	High	57	463.1	6.3	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	8
white spruce	Picea glauca	NSL	Medium	55.6	401.8	4.5	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	9
black spruce	Picea mariana	NSH	High	27.9	369.6	10.8	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	10
American beech	Fagus grandifolia	WDH	High	39.1	314.6	8.0	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	11
gray birch	Betula populifolia	NSL	Low	52.6	252.1	3.9	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	12
quaking aspen	Populus tremuloides	WDH	High	49.9	235.7	4.3	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	13
tamarack (native)	Larix laricina	NSH	High	34	217.9	5.0	Lg. dec.	Lg. dec.	Low	Common	Very Poor	Very Poor			0	14
yellow birch	Betula alleghaniensis	NDL	High	54.8	206.3	3.0	Sm. inc.	No change	Medium	Common	Good	Fair			1	15
white ash	Fraxinus americana	WDL	Medium	40.4	166.9	3.2	Sm. inc.	Lg. inc.	Low	Common	Fair	Good			1	16
sugar maple	Acer saccharum	WDH	High	26.2	151.6	5.7	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	17
bigtooth aspen	Populus grandidentata	NSL	Medium	41.6	150.4	3.0	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	18
black cherry	Prunus serotina	WDL	Medium	20.3	110.1	4.6	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	19
red pine	Pinus resinosa	NSH	Medium	12.2	69.5	5.4	Sm. dec.	Sm. dec.	Low	Common	Poor	Poor	Infill +	Infill +	0	20
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	13.8	61.6	4.4	Sm. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	21
striped maple	Acer pensylvanicum	NSL	Medium	34.3	51.3	1.4	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	22
chokecherry	Prunus virginiana	NSLX	FIA	5	41.8	5.8	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	23
pin cherry	Prunus pensylvanica	NSL	Low	13.6	25.9	1.6	Lg. dec.	Very Lg. dec.	Medium	Rare	Very Poor	Lost			0	24
black ash	Fraxinus nigra	WSH	Medium	8.9	18.1	1.9	Sm. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	25
Scots pine	Pinus sylvestris	NSH	FIA	1.2	17.0	14.7	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	26
serviceberry	Amelanchier spp.	NSL	Low	10.6	12.8	0.7	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	27
mountain maple	Acer spicatum	NSL	Low	5.3	12.6	2.0	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			1	28
American elm	Ulmus americana	WDH	Medium	6.9	12.4	1.8	No change	Sm. inc.	Medium	Rare	Poor	Fair	Infill +	Infill +	2	29
Norway spruce	Picea abies	NSH	FIA	1.8	10.6	3.9	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	30
balsam poplar	Populus balsamifera	NSH	Medium	1.2	3.9	3.3	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	31
green ash	Fraxinus pennsylvanica	WSH	Low	0.4	3.7	1.0	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	32
American mountain-ash	Sorbus americana	NSL	Low	1.1	3.6	0.5	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	33
Norway maple	Acer platanoides	NSL	FIA	1.1	1.9	1.5	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	34
swamp white oak	Quercus bicolor	NSL	Low	1.2	1.3	1.1	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	35
American basswood	Tilia americana	WSL	Medium	1.2	0.5	0.5	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	36
eastern redcedar	Juniperus virginiana	WDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	37
pitch pine	Pinus rigida	NSH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +		3	38
Virginia pine	Pinus virginiana	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	39
boxelder	Acer negundo	WSH	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Likely +	Likely +	3	40
sweet birch	Betula lenta	NDH	High	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	41
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	42
American hornbeam; muscle	Carpinus caroliniana	WSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	43
pignut hickory	Carya glabra	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	44
shagbark hickory	Carya ovata	WSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	45
mockernut hickory	Carya alba	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			0	46
flowering dogwood	Cornus florida	WDL	Medium	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat			0	47

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American holly	Ilex opaca	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	48
black walnut	Juglans nigra	WDH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	49
yellow-poplar	Liriodendron tulipifera	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			0	50
cucumbertree	Magnolia acuminata	NSL	Low	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat			0	51
mountain or Fraser magnolia	Magnolia fraseri	NSL	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	52
blackgum	Nyssa sylvatica	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	53
sycamore	Platanus occidentalis	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	54
white oak	Quercus alba	WDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Likely +	Likely +	3	55
scarlet oak	Quercus coccinea	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	56
overcup oak	Quercus lyrata	NSL	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			0	57
pin oak	Quercus palustris	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			0	58
chestnut oak	Quercus prinus	NDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	59
post oak	Quercus stellata	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			0	60
black oak	Quercus velutina	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	61
black locust	Robinia pseudoacacia	NDH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	62
sassafras	Sassafras albidum	WSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	63