

# HUC 041505 St. Francois River

## HUC 6 Watershed Climate Change Atlas Tree Species

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

### Current and Potential Future Habitat, Capability, and Migration

	sq. km	sq. mi	FIA Plots
Area of Region	7,993.5	3,086.3	49

### 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	16	12	Increase	15	15	Very Good	1	1	Likely	0	0
Hickory	0			Medium	18	26	No Change	4	4	Good	11	12	Infill	1	2
Maple	5	Abundant	1	Low	15	13	Decrease	10	10	Fair	5	4	Migrate	5	18
Oak	0	Common	11	FIA	2		New	19	19	Poor	7	6		6	20
Pine	1	Rare	19				Unknown	3	3	Very Poor	5	4			
Other	22	Absent	20							FIA Only	2	2			
	<b>31</b>		<b>51</b>		<b>51</b>	<b>51</b>		<b>51</b>	<b>51</b>	Unknown	1	1			
											<b>32</b>	<b>30</b>			

### Potential Changes in Climate Variables

#### Temperature (°F)

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	36.4	37.4	38.8	38.8	
	CCSM85	36.4	37.7	39.2	41.0	
	GFDL45	36.4	38.1	39.9	40.7	
	GFDL85	36.4	38.3	40.7	43.5	
	HAD45	36.4	38.1	39.8	40.7	
	HAD85	36.4	38.2	40.3	43.4	
Growing Season (May—Sep)	CCSM45	46.1	47.2	48.2	48.4	
	CCSM85	46.1	47.3	48.7	50.7	
	GFDL45	46.1	47.9	49.8	50.8	
	GFDL85	46.1	48.2	50.7	53.6	
	HAD45	46.1	47.7	49.1	50.3	
	HAD85	46.1	47.5	49.9	53.1	
Coldest Month Average	CCSM45	21.0	22.0	23.2	23.3	
	CCSM85	21.0	22.6	23.3	24.7	
	GFDL45	21.0	22.6	24.0	24.7	
	GFDL85	21.0	23.2	24.6	26.3	
	HAD45	21.0	22.5	24.2	24.4	
	HAD85	21.0	23.3	24.7	26.7	
Warmest Month Average	CCSM45	49.2	50.4	51.1	51.1	
	CCSM85	49.2	50.7	51.6	52.7	
	GFDL45	49.2	50.8	51.9	52.6	
	GFDL85	49.2	51.2	52.8	54.3	
	HAD45	49.2	50.9	51.6	52.4	
	HAD85	49.2	50.7	52.1	54.4	

#### Precipitation (in)

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	24.1	23.5	23.3	25.3	
	CCSM85	24.1	24.6	24.4	25.1	
	GFDL45	24.1	26.3	27.5	26.9	
	GFDL85	24.1	25.4	26.7	27.2	
	HAD45	24.1	25.8	26.8	26.8	
	HAD85	24.1	26.5	26.2	28.2	
Growing Season (May—Sep)	CCSM45	11.8	11.7	11.0	11.9	
	CCSM85	11.8	11.8	11.7	11.1	
	GFDL45	11.8	12.0	11.6	11.7	
	GFDL85	11.8	11.9	11.7	10.9	
	HAD45	11.8	12.5	12.2	12.9	
	HAD85	11.8	12.3	11.9	13.1	

**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
sugar maple	Acer saccharum	WDH	High	96.9	632.9	14.8	Sm. dec.	Sm. dec.	High	Abundant	Good	Good			1	1
balsam fir	Abies balsamea	NDH	High	87	449.1	10.5	Sm. dec.	Sm. dec.	Low	Common	Poor	Poor			0	2
yellow birch	Betula alleghaniensis	NDL	High	83.9	218.8	6.1	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	3
red maple	Acer rubrum	WDH	High	86.9	215.5	6.3	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	4
northern white-cedar	Thuja occidentalis	WSH	High	71.7	193.3	7.4	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	5
American beech	Fagus grandifolia	WDH	High	84	148.4	4.0	Sm. inc.	No change	Medium	Common	Good	Fair			1	6
red spruce	Picea rubens	NDH	High	86.2	113.5	3.5	No change	No change	Low	Common	Poor	Poor			0	7
eastern white pine	Pinus strobus	WDH	High	35.5	104.5	10.3	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	8
white ash	Fraxinus americana	WDH	Medium	75.7	83.7	2.9	Sm. inc.	Lg. inc.	Low	Common	Fair	Good			1	9
paper birch	Betula papyrifera	WDH	High	68.6	82.7	2.8	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	10
white spruce	Picea glauca	NSL	Medium	46.7	68.5	4.5	No change	No change	Medium	Common	Fair	Fair			1	11
black cherry	Prunus serotina	WDL	Medium	71.5	60.5	1.6	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	12
quaking aspen	Populus tremuloides	WDH	High	54.5	45.8	3.4	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	13
striped maple	Acer pensylvanicum	NSL	Medium	58.4	38.9	1.3	Sm. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	14
pin cherry	Prunus pensylvanica	NSL	Low	53.5	38.0	1.8	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	15
eastern hemlock	Tsuga canadensis	NSH	High	36.9	31.1	3.8	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair			1	16
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	36.5	28.6	1.4	Sm. inc.	Sm. inc.	High	Rare	Good	Good			1	17
silver maple	Acer saccharinum	NSH	Low	6.2	23.8	17.9	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			1	18
balsam poplar	Populus balsamifera	NSH	Medium	25.6	20.4	2.7	Lg. dec.	Very Lg. dec.	Medium	Rare	Very Poor	Lost			0	19
American elm	Ulmus americana	WDH	Medium	41	12.8	0.8	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	20
black ash	Fraxinus nigra	WSH	Medium	23.4	9.0	1.2	Lg. inc.	Sm. inc.	Low	Rare	Fair	Poor			1	21
gray birch	Betula populifolia	NSL	Low	37.4	7.7	1.0	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	22
bigtooth aspen	Populus grandidentata	NSL	Medium	13.1	7.5	3.0	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	23
American mountain-ash	Sorbus americana	NSL	Low	18.3	6.5	0.8	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	24
tamarack (native)	Larix laricina	NSH	High	8.3	2.4	0.8	No change	No change	Low	Rare	Very Poor	Very Poor			0	25
green ash	Fraxinus pennsylvanica	WSH	Low	6.5	1.3	1.0	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good		Infill ++	1	26
mountain maple	Acer spicatum	NSL	Low	15.4	0.9	0.2	Lg. dec.	Very Lg. dec.	High	Rare	Poor	Lost			1	27
butternut	Juglans cinerea	NSLX	FIA	6.5	0.6	0.5	Unknown	Unknown	Low	Rare	FIA Only	FIA Only			0	28
American basswood	Tilia americana	WSL	Medium	11.2	0.6	0.8	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good		Infill ++	1	29
chokecherry	Prunus virginiana	NSLX	FIA	6.5	0.6	0.5	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	30
serviceberry	Amelanchier spp.	NSL	Low	0.8	0.5	0.1	No change	Sm. inc.	Medium	Rare	Poor	Fair			1	31
Atlantic white-cedar	Chamaecyparis thyoides	NSH	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	32
eastern redcedar	Juniperus virginiana	WDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate ++	3	33
red pine	Pinus resinosa	NSH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat		Migrate +	3	34
sweet birch	Betula lenta	NDH	High	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	35
American hornbeam; muscle	Carpinus caroliniana	WSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	36
bitternut hickory	Carya cordiformis	WSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	37
pignut hickory	Carya glabra	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	38
shagbark hickory	Carya ovata	WSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	39
mockernut hickory	Carya alba	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	40
black walnut	Juglans nigra	WDH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	41
yellow-poplar	Liriodendron tulipifera	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	42
blackgum	Nyssa sylvatica	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	43
sycamore	Platanus occidentalis	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	44
white oak	Quercus alba	WDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	45
swamp white oak	Quercus bicolor	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	46
scarlet oak	Quercus coccinea	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	47



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chestnut oak	Quercus prinus	NDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate ++	3	48
northern red oak	Quercus rubra	WDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	49
black oak	Quercus velutina	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	50
black locust	Robinia pseudoacacia	NDH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	51