

# HUC 102002 Lower Platte

## HUC 6 Watershed Climate Change Atlas Tree Species Current and Potential Future Habitat, Capability, and Migration

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

	sq. km	sq. mi	FIA Plots
Area of Region	7,855.0	3,032.8	19

### 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	3	12	Increase	5	5	Very Good	1	1
Hickory	2			Medium	16	17	No Change	11	11	Good	2	2
Maple	2	Abundant	0	Low	16	7	Decrease	6	6	Fair	9	8
Oak	4	Common	6	FIA	3		New	12	12	Poor	6	8
Pine	1	Rare	19				Unknown	4	4	Very Poor	4	3
Other	15	Absent	12							FIA Only	1	1
	<b>25</b>		<b>37</b>		<b>38</b>	<b>36</b>		<b>38</b>	<b>38</b>	Unknown	1	1
											<b>24</b>	<b>24</b>

### Potential Changes in Climate Variables

#### Temperature (°F)

	Scenario	2009	2039	2069	2099
Annual Average	CCSM45	40.9	41.8	42.8	43.1
	CCSM85	40.9	42.0	43.2	44.7
	GFDL45	40.9	43.8	43.1	43.8
	GFDL85	40.9	42.2	43.7	45.8
	HAD45	40.9	42.1	43.7	44.3
	HAD85	40.9	42.4	44.7	46.4
Growing Season (May—Sep)	CCSM45	50.0	51.0	52.1	52.5
	CCSM85	50.0	51.4	52.6	54.3
	GFDL45	50.0	53.9	52.9	53.9
	GFDL85	50.0	51.8	53.5	56.1
	HAD45	50.0	51.0	52.3	52.8
	HAD85	50.0	51.4	53.7	55.2
Coldest Month (Average)	CCSM45	26.7	27.9	28.5	28.9
	CCSM85	26.7	28.0	28.5	29.5
	GFDL45	26.7	28.3	28.6	28.7
	GFDL85	26.7	27.9	28.6	29.4
	HAD45	26.7	27.8	29.4	29.3
	HAD85	26.7	29.3	31.0	32.1
Warmest Month (Average)	CCSM45	53.1	54.2	55.1	55.4
	CCSM85	53.1	55.0	55.8	56.9
	GFDL45	53.1	54.9	55.5	56.2
	GFDL85	53.1	55.2	55.9	57.7
	HAD45	53.1	54.1	55.0	55.2
	HAD85	53.1	54.9	56.2	57.2

#### Precipitation (in)

	Scenario	2009	2039	2069	2099
Annual Total	CCSM45	14.2	14.6	14.4	14.0
	CCSM85	14.2	14.4	14.5	14.8
	GFDL45	14.2	16.1	17.3	16.7
	GFDL85	14.2	16.1	17.7	17.0
	HAD45	14.2	16.3	16.0	16.2
	HAD85	14.2	15.3	15.1	16.5
Growing Season (May—Sep)	CCSM45	9.1	9.0	8.6	8.5
	CCSM85	9.1	8.5	8.3	8.5
	GFDL45	9.1	10.4	10.9	10.1
	GFDL85	9.1	10.3	11.0	10.2
	HAD45	9.1	9.9	9.7	9.8
	HAD85	9.1	9.4	8.8	8.6

**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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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	21.6	84.0	22.8	Sm. dec.	No change	Medium	Common	Poor	Fair	Infill +	Infill +	2	1
green ash	Fraxinus pennsylvanica	WSH	Low	34.6	83.1	10.3	No change	Sm. dec.	Medium	Common	Fair	Poor	Infill +	Infill +	2	2
red mulberry	Morus rubra	NSL	Low	33.3	74.5	10.8	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor	Infill +	Infill +	2	3
American elm	Ulmus americana	WDH	Medium	26	72.2	12.1	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	2	4
hackberry	Celtis occidentalis	WDH	Medium	38.8	68.3	10.0	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good	Infill ++	Infill ++	2	5
black willow	Salix nigra	NSH	Low	12.6	65.3	24.2	Lg. dec.	Lg. dec.	Low	Common	Very Poor	Very Poor			2	6
eastern redcedar	Juniperus virginiana	WDH	Medium	16.3	45.9	21.7	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	2	7
Siberian elm	Ulmus pumila	NDH	FIA	15.1	41.6	42.9	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	8
bur oak	Quercus macrocarpa	NDH	Medium	16.6	27.3	8.6	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	9
white mulberry	Morus alba	NSL	FIA	5	24.9	76.3	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	10
honeylocust	Gleditsia triacanthos	NSH	Low	17.6	17.4	5.9	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	11
peachleaf willow	Salix amygdaloides	NSLX	FIA	0.1	9.2	0.5	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	12
boxelder	Acer negundo	WSH	Low	7.3	9.2	5.0	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	13
black walnut	Juglans nigra	WDH	Low	6	7.6	2.7	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	2	14
bitternut hickory	Carya cordiformis	WSL	Low	5.7	6.9	1.6	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	15
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	2.2	4.9	1.6	No change	Sm. dec.	High	Rare	Fair	Poor	Infill +	Infill +	2	16
slippery elm	Ulmus rubra	WSL	Low	2.9	4.9	0.8	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	17
silver maple	Acer saccharinum	NSH	Low	5.8	4.3	2.5	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	18
northern red oak	Quercus rubra	WDH	Medium	2.2	2.4	0.6	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	19
eastern redbud	Cercis canadensis	NSL	Low	0.5	2.3	0.8	Sm. dec.	No change	Medium	Rare	Very Poor	Poor		Infill +	2	20
sycamore	Platanus occidentalis	NSL	Low	1.7	1.8	1.8	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	21
red pine	Pinus resinosa	NSH	Medium	1.7	1.2	1.2	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	22
overcup oak	Quercus lyrata	NSL	Medium	2.6	1.0	1.7	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	23
shagbark hickory	Carya ovata	WSL	Medium	0.5	0.9	0.3	No change	No change	Medium	Rare	Poor	Poor		Infill +	2	24
chinkapin oak	Quercus muehlenbergii	NSL	Medium	5.1	0.5	1.7	No change	No change	Medium	Rare	Poor	Poor			0	25
yellow birch	Betula alleghaniensis	NDL	High	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	26
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	27
pecan	Carya illinoensis	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	28
sugarberry	Celtis laevigata	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	29
white ash	Fraxinus americana	WDL	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	30
Osage-orange	Maclura pomifera	NDH	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	31
black cherry	Prunus serotina	WDL	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat		Migrate ++	3	32
blackjack oak	Quercus marilandica	NSL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	33
post oak	Quercus stellata	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	34
black oak	Quercus velutina	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	35
black locust	Robinia pseudoacacia	NDH	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	36
American basswood	Tilia americana	WSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	37
cedar elm	Ulmus crassifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			0	38