

HUC 120601 Middle Brazos-Clear Fork

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	21,485	8,295.5	118

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			
		Model	Reliability	Adaptability	Scenario	Scenario	Scenario	Scenario	SHIFT	SHIFT			
		High	4	5	RCP45	RCP85	Very Good	RCP45	RCP85	RCP45	RCP85		
Ash	1				Increase	2	2			Likely	0	0	
Hickory	1				No Change	3	2	Good	0	0	Infill	4	4
Maple	0	Abundant	0		Decrease	9	10	Fair	4	4	Migrate	0	0
Oak	6	Common	7		New	0	0	Poor	4	3			
Pine	0	Rare	9		Unknown	4	4	Very Poor	4	5			
Other	8	Absent	1	FIA				FIA Only	2	2			
	16		17					Unknown	2	2			
						18	17						
									18	18			

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099	
Annual Average	CCSM45	57.4	58.5	59.8	60.4	
	CCSM85	57.4	59.1	60.5	62.7	
	GFDL45	57.4	60.4	61.0	62.4	
	GFDL85	57.4	59.9	62.3	65.5	
	HAD45	57.4	59.2	61.2	61.9	
	HAD85	57.4	59.6	62.7	65.0	
Growing Season (May-Sep)	CCSM45	69.1	70.1	71.5	72.1	
	CCSM85	69.1	70.9	72.3	74.9	
	GFDL45	69.1	72.9	73.5	75.8	
	GFDL85	69.1	72.7	75.5	79.7	
	HAD45	69.1	70.8	72.4	72.8	
	HAD85	69.1	71.3	74.5	76.5	
Coldest Month Average	CCSM45	40.0	41.9	42.4	43.0	
	CCSM85	40.0	41.7	42.4	43.6	
	GFDL45	40.0	42.5	42.5	42.7	
	GFDL85	40.0	40.7	41.7	41.9	
	HAD45	40.0	40.5	42.2	42.3	
	HAD85	40.0	42.8	44.1	45.3	
Warmest Month Average	CCSM45	73.7	74.6	75.6	75.8	
	CCSM85	73.7	75.3	75.9	77.4	
	GFDL45	73.7	78.1	78.3	80.0	
	GFDL85	73.7	78.4	79.8	83.3	
	HAD45	73.7	75.3	76.1	76.3	
	HAD85	73.7	76.0	77.6	78.5	

Precipitation (in)

	Scenario	2009	2039	2069	2099	
Annual Total	CCSM45	21.4	22.5	21.2	20.9	
	CCSM85	21.4	20.8	22.7	21.9	
	GFDL45	21.4	21.5	25.2	20.3	
	GFDL85	21.4	21.2	22.7	20.9	
	HAD45	21.4	22.5	21.6	22.7	
	HAD85	21.4	21.6	19.6	22.0	
Growing Season (May-Sep)	CCSM45	11.2	12.1	10.5	10.7	
	CCSM85	11.2	11.4	11.4	10.5	
	GFDL45	11.2	11.4	13.4	10.6	
	GFDL85	11.2	11.6	11.9	10.8	
	HAD45	11.2	11.6	11.5	12.1	
	HAD85	11.2	10.9	9.4	11.2	

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
post oak	<i>Quercus stellata</i>	WDH	High	14.4	347.5	24.9	Sm. dec.	Sm. dec.	High	Common	Fair	Fair	Infill +	Infill +	1	1
ashe juniper	<i>Juniperus ashei</i>	NDH	High	11.7	262.0	15.9	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			0	2
live oak	<i>Quercus virginiana</i>	NDH	High	12.1	247.2	21.0	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good	Infill ++	Infill ++	1	3
cittamwood/gum bumelia	<i>Sideroxylon lanuginosum</i> ssp.	NSL	Low	35.8	172.2	11.9	Sm. dec.	Sm. dec.	High	Common	Fair	Fair			1	4
American elm	<i>Ulmus americana</i>	WDH	Medium	17.1	90.2	18.2	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	5
cedar elm	<i>Ulmus crassifolia</i>	NDH	Medium	6.3	67.0	19.1	No change	No change	Low	Common	Poor	Poor	Infill +	Infill +	0	6
hackberry	<i>Celtis occidentalis</i>	WDH	Medium	11.8	61.5	12.3	Lg. dec.	Lg. dec.	High	Common	Fair	Fair	Infill +	Infill +	1	7
sugarberry	<i>Celtis laevigata</i>	NDH	Medium	18.8	37.2	6.7	No change	Sm. dec.	Medium	Rare	Poor	Very Poor			1	8
black willow	<i>Salix nigra</i>	NSH	Low	7.5	37.2	13.6	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	9
blackjack oak	<i>Quercus marilandica</i>	NSL	Medium	7.3	35.5	15.7	No change	No change	High	Rare	Fair	Fair			1	10
black oak	<i>Quercus velutina</i>	WDH	High	0.6	10.3	19.9	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	11
eastern redcedar	<i>Juniperus virginiana</i>	WDH	Medium	4.4	6.0	24.1	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	12
durand oak	<i>Quercus sinuata</i> var. <i>sinuata</i>	NSL	FIA	1.2	5.3	5.5	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	13
southern red oak	<i>Quercus falcata</i>	WDL	Medium	0.5	4.1	6.4	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	14
Texas ash	<i>Fraxinus texensis</i>	NDH	FIA	0.1	2.3	0.6	Unknown	Unknown	NA	Rare	FIA Only	FIA Only			0	15
pecan	<i>Carya illinoensis</i>	NSH	Low	2.7	1.8	1.0	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	16
shagbark hickory	<i>Carya ovata</i>	WSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	17
eastern redbud	<i>Cercis canadensis</i>	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	18