

# HUC 120500 Brazos Headwaters

## 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	37,559	14,502	2

### 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	0		High	2	Increase	1	1	Very Good	0	0
Hickory	0		Medium	4	No Change	1	1	Good	1	1
Maple	0	Abundant	Low	1	Decrease	3	3	Fair	0	0
Oak	0	Common	FIA	0	New	2	2	Poor	3	3
Pine	0	Rare			Unknown	0	0	Very Poor	1	1
Other	5	Absent						FIA Only	0	0
								Unknown	0	0
									5	5

### Potential Changes in Climate Variables

#### Temperature (°F)

Scenario	2009	2039	2069	2099		
Annual	CCSM45	35.3	35.4	35.6	35.7	
Average	CCSM85	35.3	35.5	35.7	36.0	
	GFDL45	35.3	36.0	35.8	36.0	
	GFDL85	35.3	35.6	36.0	36.4	
	HAD45	35.3	35.5	35.8	35.9	
	HAD85	35.3	35.6	36.0	36.3	
Growing Season	CCSM45	36.9	37.0	37.2	37.3	
	CCSM85	36.9	37.1	37.3	37.7	
May—Sep	GFDL45	36.9	37.8	37.5	37.8	
	GFDL85	36.9	37.4	37.7	38.3	
	HAD45	36.9	37.1	37.3	37.4	
	HAD85	36.9	37.2	37.6	37.9	
Coldest Month	CCSM45	33.0	33.2	33.3	33.4	
	CCSM85	33.0	33.2	33.3	33.5	
Average	GFDL45	33.0	33.3	33.3	33.3	
	GFDL85	33.0	33.1	33.2	33.2	
	HAD45	33.0	33.1	33.3	33.3	
	HAD85	33.0	33.3	33.5	33.7	
Warmest Month	CCSM45	37.5	37.6	37.8	37.8	
	CCSM85	37.5	37.7	37.8	38.0	
Average	GFDL45	37.5	38.1	38.1	38.3	
	GFDL85	37.5	38.1	38.3	38.8	
	HAD45	37.5	37.7	37.8	37.8	
	HAD85	37.5	37.8	38.0	38.1	

#### Precipitation (in)

Scenario	2009	2039	2069	2099		
Annual	CCSM45	2.5	2.7	2.5	2.5	
Total	CCSM85	2.5	2.6	2.7	2.6	
	GFDL45	2.5	2.6	3.0	2.4	
	GFDL85	2.5	2.5	2.7	2.4	
	HAD45	2.5	2.8	2.6	2.7	
	HAD85	2.5	2.6	2.4	2.6	
Growing Season	CCSM45	1.4	1.5	1.3	1.3	
	CCSM85	1.4	1.5	1.4	1.3	
May—Sep	GFDL45	1.4	1.4	1.6	1.3	
	GFDL85	1.4	1.5	1.5	1.3	
	HAD45	1.4	1.5	1.5	1.5	
	HAD85	1.4	1.4	1.2	1.4	

**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
American elm	<i>Ulmus americana</i>	WDH	Medium	4.2	4.1	1.1	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	1
cittamwood/gum bumelia	<i>Sideroxylon lanuginosum</i> ssp. NSL	NSL	Low	68.2	1.7	1.8	Sm. dec.	Lg. dec.	High	Rare	Poor	Poor			1	2
ashe juniper	<i>Juniperus ashei</i>	NDH	High	32.5	0.7	1.4	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			0	3
sugarberry	<i>Celtis laevigata</i>	NDH	Medium	4.2	0.5	0.1	No change	No change	Medium	Rare	Poor	Poor			1	4
hackberry	<i>Celtis occidentalis</i>	WDH	Medium	32.5	0.2	0.3	Lg. dec.	Sm. dec.	High	Rare	Poor	Poor			1	5
live oak	<i>Quercus virginiana</i>	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	6
cedar elm	<i>Ulmus crassifolia</i>	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	7