HUC 102802 Chariton

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

USDA Forest Service
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	sq. km	sq. mi	FIA Plots
Area of Region	7,952.7	3,070.6	75

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	2
Hickory	7
Maple	3
Oak	12
Pine	0
Other	22
	46

Abundance	
Abundant	2
Common	19
Rare	25
Absent	14
	60

	Model Reliability	Adaptability
High	8	21
Medium	24	31
Low	26	7
FIA	2	
	60	**59**

Potential Change in Habitat Suitability	Scenario RCP45	Scenario RCP85
Increase	15	20
No Change	14	9
Decrease	15	15
New	10	10
Unknown	6	6
	60	**60**

Capability to Cope or Persist	Scenario RCP45	Scenario RCP85
Very Good	7	7
Good	10	12
Fair	9	10
Poor	11	7
Very Poor	5	5
FIA Only	1	1
Unknown	4	4
	47	**46**

Migration Potential	SHIFT RCP45	SHIFT RCP85
Likely	0	0
Infill	14	12
Migrate	5	8
	19	**20**

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099
Annual Average	CCSM45	44.5	45.7	46.9	47.3
	CCSM85	44.5	46.2	47.7	49.5
	GFDL45	44.5	46.9	47.7	48.4
	GFDL85	44.5	46.3	48.3	50.9
	HAD45	44.5	46.1	48.2	49.2
	HAD85	44.5	46.4	49.4	51.9
Growing Season May—Sep	CCSM45	55.8	57.2	58.2	58.8
	CCSM85	55.8	57.9	59.4	61.5
	GFDL45	55.8	58.7	59.8	60.9
	GFDL85	55.8	58.2	60.4	63.7
	HAD45	55.8	57.5	59.2	60.5
	HAD85	55.8	57.8	61.3	63.6
Coldest Month Average	CCSM45	26.3	27.6	28.8	29.0
	CCSM85	26.3	28.2	29.0	30.0
	GFDL45	26.3	28.7	29.1	29.4
	GFDL85	26.3	28.2	29.2	30.0
	HAD45	26.3	27.0	29.0	29.1
	HAD85	26.3	28.7	30.6	32.0
Warmest Month Average	CCSM45	59.9	61.3	62.1	62.5
	CCSM85	59.9	62.3	63.3	64.3
	GFDL45	59.9	62.1	63.1	64.0
	GFDL85	59.9	62.5	63.4	65.8
	HAD45	59.9	61.5	62.7	63.3
	HAD85	59.9	62.6	64.6	65.8

Precipitation (in)

	Scenario	2009	2039	2069	2099
Annual Total	CCSM45	25.3	24.2	25.8	24.2
	CCSM85	25.3	24.2	25.3	25.0
	GFDL45	25.3	27.3	28.3	28.1
	GFDL85	25.3	27.4	30.5	29.9
	HAD45	25.3	26.9	27.6	27.1
	HAD85	25.3	26.4	25.8	27.4
Growing Season May—Sep	CCSM45	14.9	14.3	15.1	13.6
	CCSM85	14.9	13.8	14.4	13.8
	GFDL45	14.9	15.9	15.7	15.6
	GFDL85	14.9	16.1	17.0	16.1
	HAD45	14.9	15.1	15.0	15.1
	HAD85	14.9	14.9	13.6	13.6

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
white oak	Quercus alba	WDH	Medium	55.3	716.2	17.1	Lg. dec.	Lg. dec.	High	Abundant	Good	Good			1	1
American elm	Ulmus americana	WDH	Medium	80.8	574.8	11.1	No change	Sm. dec.	Medium	Abundant	Good	Fair			1	2
shingle oak	Quercus imbricaria	NDH	Medium	60	390.3	10.2	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	3
shagbark hickory	Carya ovata	WSL	Medium	55	386.1	8.9	Sm. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	4
black oak	Quercus velutina	WDH	High	34.8	199.0	7.0	No change	No change	Medium	Common	Fair	Fair			1	5
boxelder	Acer negundo	WSH	Low	24.9	172.9	10.7	Lg. dec.	Lg. dec.	High	Common	Fair	Fair	Infill +	Infill +	1	6
Osage-orange	Maclura pomifera	NDH	Medium	13.8	171.8	5.5	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	7
black walnut	Juglans nigra	WDH	Low	52.6	159.6	7.5	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	8
pin oak	Quercus palustris	NSH	Low	13.6	154.8	12.6	Sm. dec.	Sm. dec.	Low	Common	Poor	Poor			0	9
honeylocust	Gleditsia triacanthos	NSH	Low	40.5	152.7	6.3	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	10
hackberry	Celtis occidentalis	WDH	Medium	52.7	142.3	6.0	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	11
black cherry	Prunus serotina	WDL	Medium	39	129.8	4.8	Sm. dec.	Sm. dec.	Low	Common	Poor	Poor			0	12
slippery elm	Ulmus rubra	WSL	Low	38.8	110.9	3.0	No change	No change	Medium	Common	Fair	Fair			1	13
eastern redcedar	Juniperus virginiana	WDH	Medium	14.8	106.7	7.9	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	14
northern red oak	Quercus rubra	WDH	Medium	23.6	106.7	3.3	No change	No change	High	Common	Good	Good			1	15
white ash	Fraxinus americana	WDL	Medium	29.4	99.8	3.1	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	16
post oak	Quercus stellata	WDH	High	21	96.3	10.7	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good	Infill ++	Infill ++	1	17
green ash	Fraxinus pennsylvanica	WSH	Low	21.5	90.7	8.6	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	18
bitternut hickory	Carya cordiformis	WSL	Low	39.8	89.1	3.9	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	19
bur oak	Quercus macrocarpa	NDH	Medium	26.2	88.6	3.6	No change	No change	High	Common	Good	Good	Infill ++	Infill ++	1	20
black willow	Salix nigra	NSH	Low	13.5	69.5	16.0	Sm. dec.	Sm. inc.	Low	Common	Poor	Fair			1	21
silver maple	Acer saccharinum	NSH	Low	8.6	49.2	5.4	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	1	22
black locust	Robinia pseudoacacia	NDH	Low	10.9	48.2	4.6	No change	Sm. inc.	Medium	Rare	Poor	Fair	Infill +	Infill +	1	23
swamp white oak	Quercus bicolor	NSL	Low	14	37.6	2.7	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	24
river birch	Betula nigra	NSL	Low	2.7	35.9	9.4	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	25
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	21	35.1	2.1	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	1	26
mockernut hickory	Carya alba	WDL	Medium	12.7	34.5	5.7	Sm. dec.	Sm. inc.	High	Rare	Poor	Good	Infill +	Infill ++	1	27
American basswood	Tilia americana	WSL	Medium	11.1	28.0	5.9	Lg. dec.	Very Lg. dec.	Medium	Rare	Very Poor	Lost			0	28
white mulberry	Morus alba	NSL	FIA	3.5	22.3	5.7	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	29
red mulberry	Morus rubra	NSL	Low	11.6	21.4	1.7	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	30
Ohio buckeye	Aesculus glabra	NSL	Low	10	16.7	2.8	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	31
chinkapin oak	Quercus muehlenbergii	NSL	Medium	6.4	14.5	2.1	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	32
eastern redbud	Cercis canadensis	NSL	Low	4	12.6	2.2	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	1	33
blackjack oak	Quercus marilandica	NSL	Medium	1.8	8.8	2.5	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	34
sugar maple	Acer saccharum	WDH	High	0.2	7.3	1.1	No change	Sm. inc.	High	Rare	Fair	Good	Infill +		2	35
eastern cottonwood	Populus deltoides	NSH	Low	2	6.2	1.3	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	36
pecan	Carya illinoinensis	NSH	Low	2.9	5.8	10.6	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	2	37
sycamore	Platanus occidentalis	NSL	Low	5.5	5.6	4.1	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	38
pignut hickory	Carya glabra	WDL	Medium	0.8	4.2	0.5	No change	Sm. dec.	Medium	Rare	Poor	Very Poor	Infill +		2	39
black hickory	Carya texana	NDL	High	8.3	3.7	5.0	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	40
common persimmon	Diospyros virginiana	NSL	Low	1	3.5	2.3	Sm. inc.	Lg. inc.	High	Rare	Good	Good			2	41
shellbark hickory	Carya laciniosa	NSL	Low	0.2	2.7	0.4	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	42
wild plum	Prunus americana	NSLX	FIA	1.7	2.4	0.9	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	43
northern pin oak	Quercus ellipsoidalis	NSH	Medium	5	2.1	6.7	Very Lg. dec.	Very Lg. dec.	High	Rare	Lost	Lost			0	44
Shumard oak	Quercus shumardii	NSL	Low	4.8	1.5	4.6	No change	Lg. inc.	High	Rare	Fair	Good			2	45
flowering dogwood	Cornus florida	WDL	Medium	1.5	0.9	0.9	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	46
red pine	Pinus resinosa	NSH	Medium	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	47

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loblolly pine	Pinus taeda	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate ++	3	48
red maple	Acer rubrum	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	49
serviceberry	Amelanchier spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	50
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	51
sugarberry	Celtis laevigata	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	52
silverbell	Halesia spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	53
sweetgum	Liquidambar styraciflua	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	54
blackgum	Nyssa sylvatica	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	55
pin cherry	Prunus pensylvanica	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	56
southern red oak	Quercus falcata	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	57
water oak	Quercus nigra	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	58
winged elm	Ulmus alata	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	59
cedar elm	Ulmus crassifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	60