

HUC 010802 Lower Connecticut

HUC 6 Watershed Climate Change Atlas Tree Species

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Landscape Change Research Group
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Current and Potential Future Habitat, Capability, and Migration

	sq. km	sq. mi	FIA Plots
Area of Region	12,959	5,003.4	405

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	25	21	Increase	17	23	Very Good	9	8	Likely	0	0
Hickory	4		Medium	25	45	No Change	14	13	Good	8	17	Infill	11	14
Maple	7	Abundant	Low	30	15	Decrease	22	17	Fair	11	7	Migrate	4	12
Oak	7	Common	FIA	4		New	20	23	Poor	9	10		15	26
Pine	3	Rare				Unknown	11	8	Very Poor	12	7			
Other	33	Absent							FIA Only	1	1			
	57	84		84	81		84	84	Unknown	7	4			
										57	54			

Potential Changes in Climate Variables

Temperature (°F)

	Scenario	2009	2039	2069	2099
Annual Average	CCSM45	43.2	44.6	46.3	46.5
	CCSM85	43.2	45.0	46.9	49.2
	GFDL45	43.2	45.3	47.7	48.6
	GFDL85	43.2	45.7	48.7	52.0
	HAD45	43.2	45.3	47.8	49.0
	HAD85	43.2	45.3	48.5	52.4
Growing Season (May—Sep)	CCSM45	56.1	57.7	59.0	59.4
	CCSM85	56.1	57.8	59.7	62.5
	GFDL45	56.1	58.3	61.0	62.0
	GFDL85	56.1	58.8	62.1	65.6
	HAD45	56.1	58.2	60.3	62.0
	HAD85	56.1	57.8	61.3	65.6
Coldest Month (Average)	CCSM45	23.5	24.8	26.2	26.6
	CCSM85	23.5	25.6	26.4	28.1
	GFDL45	23.5	26.1	27.4	28.2
	GFDL85	23.5	26.4	27.8	29.6
	HAD45	23.5	25.2	27.3	27.5
	HAD85	23.5	26.0	27.7	30.1
Warmest Month (Average)	CCSM45	60.7	62.7	63.4	63.5
	CCSM85	60.7	62.9	64.1	65.5
	GFDL45	60.7	62.9	64.3	65.2
	GFDL85	60.7	63.7	65.6	67.7
	HAD45	60.7	63.1	64.1	65.1
	HAD85	60.7	62.6	64.5	67.4

Precipitation (in)

	Scenario	2009	2039	2069	2099
Annual Total	CCSM45	38.0	37.7	36.5	41.0
	CCSM85	38.0	38.0	39.9	42.6
	GFDL45	38.0	41.4	43.4	41.9
	GFDL85	38.0	40.1	42.4	44.9
	HAD45	38.0	39.3	41.2	40.6
	HAD85	38.0	40.8	41.2	42.6
Growing Season (May—Sep)	CCSM45	16.4	17.4	16.2	17.5
	CCSM85	16.4	16.5	17.7	17.4
	GFDL45	16.4	16.4	15.9	16.3
	GFDL85	16.4	16.5	16.1	16.2
	HAD45	16.4	17.3	16.6	16.9
	HAD85	16.4	16.5	16.5	17.1

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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Current and Potential Future Habitat, Capability, and Migration

Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIAiv	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
red maple	Acer rubrum	WDH	High	97.7	2315.4	15.5	No change	Sm. dec.	High	Abundant	Very Good	Good			1	1
eastern hemlock	Tsuga canadensis	NSH	High	76.3	1447.6	12.9	Lg. dec.	Lg. dec.	Low	Abundant	Poor	Poor			0	2
eastern white pine	Pinus strobus	WDH	High	75.6	1327.9	13.3	Sm. dec.	Lg. dec.	Low	Abundant	Fair	Poor			0	3
northern red oak	Quercus rubra	WDH	Medium	79	1059.6	9.2	No change	No change	High	Abundant	Very Good	Very Good			1	4
sugar maple	Acer saccharum	WDH	High	63.6	698.5	6.8	Sm. inc.	No change	High	Abundant	Very Good	Very Good			1	5
sweet birch	Betula lenta	NDH	High	72.6	608.7	5.8	No change	Sm. dec.	Low	Abundant	Fair	Fair			0	6
American beech	Fagus grandifolia	WDH	High	64.6	605.4	5.3	No change	No change	Medium	Abundant	Good	Good			1	7
white ash	Fraxinus americana	WDL	Medium	62.1	452.7	4.4	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	8
yellow birch	Betula alleghaniensis	NDL	High	62.7	417.8	4.2	No change	No change	Medium	Common	Fair	Fair			1	9
black cherry	Prunus serotina	WDL	Medium	66.7	365.9	3.5	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	10
black oak	Quercus velutina	WDH	High	43.7	342.8	6.0	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	11
white oak	Quercus alba	WDH	Medium	48	326.2	4.6	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	12
paper birch	Betula papyrifera	WDH	High	55.3	249.4	2.7	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	13
red spruce	Picea rubens	NDH	High	20.2	211.6	5.1	Lg. dec.	Lg. dec.	Low	Common	Very Poor	Very Poor			0	14
scarlet oak	Quercus coccinea	WDL	Medium	26.7	154.2	4.5	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	15
eastern redcedar	Juniperus virginiana	WDL	Medium	8.4	140.1	10.7	No change	Sm. inc.	Medium	Common	Fair	Good	Infill +	Infill ++	1	16
pignut hickory	Carya glabra	WDL	Medium	24.1	112.2	2.8	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	17
balsam fir	Abies balsamea	NDH	High	13.4	110.5	3.6	Lg. dec.	Lg. dec.	Low	Common	Very Poor	Very Poor			0	18
American elm	Ulmus americana	WDH	Medium	24	97.5	3.3	Sm. dec.	No change	Medium	Common	Poor	Fair			1	19
quaking aspen	Populus tremuloides	WDH	High	18.3	94.6	4.0	No change	No change	Medium	Common	Fair	Fair			1	20
bigtooth aspen	Populus grandidentata	NSL	Medium	16.8	77.5	3.9	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	21
chestnut oak	Quercus prinus	NDH	High	12.4	64.0	4.1	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good	Infill ++	Infill ++	1	22
shagbark hickory	Carya ovata	WSL	Medium	18.1	60.5	1.9	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	23
silver maple	Acer saccharinum	NSH	Low	5.4	50.4	17.0	Sm. dec.	No change	High	Common	Fair	Good		Infill ++	1	24
yellow-poplar	Liriodendron tulipifera	WDH	High	5.2	41.9	3.6	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	1	25
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	22.2	35.1	1.0	No change	Lg. inc.	High	Rare	Fair	Good			1	26
striped maple	Acer pensylvanicum	NSL	Medium	19.4	34.2	0.9	Sm. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	27
gray birch	Betula populifolia	NSL	Low	16.2	31.2	1.6	Sm. dec.	No change	Medium	Rare	Very Poor	Poor			1	28
black locust	Robinia pseudoacacia	NDH	Low	2.7	30.7	7.5	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good	Infill +	Infill ++	1	29
eastern cottonwood	Populus deltoides	NSH	Low	4.1	22.0	4.4	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			2	30
sassafras	Sassafras albidum	WSL	Low	10.1	21.2	1.6	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1	31
blackgum	Nyssa sylvatica	WDL	Medium	9.2	18.2	1.4	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	1	32
American hornbeam; musclev	Carpinus caroliniana	WSL	Low	12.2	17.7	1.1	Sm. dec.	Lg. inc.	Medium	Rare	Very Poor	Good			1	33
bitternut hickory	Carya cordiformis	WSL	Low	2.1	17.2	0.5	No change	Sm. inc.	High	Rare	Fair	Good	Infill +	Infill ++	2	34
mockernut hickory	Carya alba	WDL	Medium	6.5	16.4	1.8	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	1	35
Norway spruce	Picea abies	NSH	FIA	2.7	14.7	3.0	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	36
American chestnut	Castanea dentata	NSLX	FIA	10.3	14.1	1.3	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	37
Norway maple	Acer platanoides	NSL	FIA	4.1	13.0	1.7	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	38
American basswood	Tilia americana	WSL	Medium	5.9	12.6	1.1	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1	39
pin cherry	Prunus pensylvanica	NSL	Low	6.7	12.6	1.1	Sm. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	40
serviceberry	Amelanchier spp.	NSL	Low	6.9	12.4	0.8	No change	No change	Medium	Rare	Poor	Poor			1	41
sycamore	Platanus occidentalis	NSL	Low	0.5	10.2	8.4	No change	Lg. inc.	Medium	Rare	Poor	Good	Infill +		2	42
pitch pine	Pinus rigida	NSH	High	4.3	9.8	2.1	No change	No change	Medium	Rare	Poor	Poor			1	43
black walnut	Juglans nigra	WDH	Low	1.5	7.6	4.9	Sm. dec.	No change	Medium	Rare	Very Poor	Poor		Infill +	2	44
swamp white oak	Quercus bicolor	NSL	Low	1.4	6.9	3.7	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	45
red pine	Pinus resinosa	NSH	Medium	5.5	6.5	1.4	Very Lg. dec.	Very Lg. dec.	Low	Rare	Lost	Lost			0	46
slippery elm	Ulmus rubra	WSL	Low	2.5	5.7	1.1	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	47

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Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIAiv	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
ailanthus	Ailanthus altissima	NSL	FIA	1.2	4.9	3.1	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	48
green ash	Fraxinus pennsylvanica	WSH	Low	1.5	4.4	2.8	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	49
mountain maple	Acer spicatum	NSL	Low	2.5	1.8	0.5	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			0	50
swamp chestnut oak	Quercus michauxii	NSL	Low	0.8	1.6	2.1	Sm. dec.	No change	Medium	Rare	Very Poor	Poor		Infill +	2	51
black ash	Fraxinus nigra	WSH	Medium	0.8	1.5	1.9	Sm. dec.	Very Lg. dec.	Low	Rare	Very Poor	Lost			2	52
tamarack (native)	Larix laricina	NSH	High	1.1	1.1	0.3	Very Lg. dec.	Very Lg. dec.	Low	Rare	Lost	Lost			0	53
American mountain-ash	Sorbus americana	NSL	Low	0.7	1.0	0.2	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	54
boxelder	Acer negundo	WSH	Low	0.8	0.6	0.8	Very Lg. dec.	Sm. inc.	High	Rare	Lost	Good			2	55
black spruce	Picea mariana	NSH	High	0.8	0.6	0.7	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	56
flowering dogwood	Cornus florida	WDL	Medium	0.7	0.5	0.2	No change	Sm. inc.	Medium	Rare	Poor	Fair		Infill +	2	57
shortleaf pine	Pinus echinata	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate ++	3	58
loblolly pine	Pinus taeda	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate ++	3	59
Virginia pine	Pinus virginiana	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate ++	3	60
florida maple	Acer barbatum	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			0	61
Ohio buckeye	Aesculus glabra	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	62
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	63
pecan	Carya illinoensis	NSH	Low	0	0	0	Unknown	New Habitat	Low	Absent	Unknown	New Habitat			3	64
black hickory	Carya texana	NDL	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	65
sugarberry	Celtis laevigata	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	66
eastern redbud	Cercis canadensis	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	67
common persimmon	Diospyros virginiana	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	68
American holly	Ilex opaca	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	69
sweetgum	Liquidambar styraciflua	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	70
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	71
mountain or Fraser magnolia	Magnolia fraseri	NSL	Low	0	0	0	Unknown	New Habitat	Low	Absent	Unknown	New Habitat			0	72
swamp tupelo	Nyssa biflora	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	73
sourwood	Oxydendrum arboreum	NDL	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	74
redbay	Persea borbonia	NSL	Low	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	75
southern red oak	Quercus falcata	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	76
cherrybark oak; swamp red o.	Quercus pagoda	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	77
blackjack oak	Quercus marilandica	NSL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	78
chinkapin oak	Quercus muehlenbergii	NSL	Medium	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat		Migrate +	3	79
water oak	Quercus nigra	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	80
pin oak	Quercus palustris	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	81
willow oak	Quercus phellos	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	82
post oak	Quercus stellata	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	83
winged elm	Ulmus alata	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	84