One x One Degree

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 10,533 4,066.9 392

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						Potentia	al Change	in Habitat Suitability	Capability	to Cope o	r Persist	Migratio	n Potent	tial
Ash	3				Model			Scenario	Scenario		Scenario	Scenario		SHIFT	SHIFT
Hickory	6	Abu	ndance		Reliability	Adaptability		RCP45	RCP85		RCP45	RCP85		RCP45	RCP85
Maple	3	Abundant	4	High	15	26	Increase	36	39	Very Good	16	19	Likely	1	0
Oak	20	Common	29	Medium	37	56	No Change	15	15	Good	21	20	Infill	12	14
Pine	6	Rare	45	Low	38	10	Decrease	24	21	Fair	7	6	Migrate	1	3
Other	40	Absent	15	FIA	3		New	9	10	Poor	13	14	·	14	17
•	78	_	93	•	93	92	Unknown	9	8	Very Poor	18	15			
							-	93	93	FIA Only	3	3			
										Unknown	6	5			
Potentia	Potential Changes in Climate Variables										9/	92			

Potential Changes in Climate Variables

Scenario 2009 2039 2069 2099	
Annual CCSM45 65.1 66.7 68.6 68.6	→
Average CCSM85 65.1 66.9 69.4 71.8	•
GFDL45 65.1 67.7 69.5 70.3	•
GFDL85 65.1 67.5 70.5 73.9	•
HAD45 65.1 67.2 69.9 71.3	*
HAD85 65.1 67.5 71.2 75.1	•
Growing CCSM45 77.5 79.0 80.5 80.9	
Season CCSM85 77.5 79.0 81.5 84.5	
May—Sep GFDL45 77.5 80.2 81.8 83.2	
GFDL85 77.5 80.0 83.1 87.0	•
HAD45 77.5 80.6 82.9 84.3	
HAD85 77.5 80.5 85.8 89.2	•
11AD65 77.5 60.5 65.6 65.2	
Coldest CCSM45 46.2 48.3 49.2 48.9 • •	•
Month CCSM85 46.2 48.4 49.7 50.8	•
Average GFDL45 46.2 49.6 49.8 49.9	•
GFDL85 46.2 47.8 48.9 49.4	•
HAD45 46.2 46.2 47.9 48.6	•
HAD85 46.2 47.4 48.6 50.4 🛶 🗡	•
Warmest CCSM45 81.0 82.5 83.1 83.3	_
Month CCSM85 81.0 82.4 83.7 85.5	•
Average GFDL45 81.0 83.9 84.4 85.2	•
GFDL85 81.0 83.1 84.5 86.7	•
HAD45 81.0 84.9 86.4 87.0	•
HAD85 81.0 85.1 88.4 89.9	•

Precipitati	on (in)				
	Scenario	2009	2039	2069	2099
Annual	CCSM45	59.3	61.4	66.1	65.3
Total	CCSM85	59.3	63.5	64.5	70.5
	GFDL45	59.3	65.6	70.0	70.5
	GFDL85	59.3	65.5	68.2	68.4
	HAD45	59.3	58.1	63.9	64.4
	HAD85	59.3	64.5	57.7	59.9
Growing	CCSM45	25.0	26.6	28.2	27.8 • • •
Season	CCSM85	25.0	25.1	26.2	28.4
May—Sep	GFDL45	25.0	29.8	32.8	31.2
	GFDL85	25.0	30.6	33.4	33.9
	HAD45	25.0	24.1	26.1	25.8 ◆◆◆◆
	HAD85	25.0	26.8	20.7	21.5

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

Selbelly pine Phus taefad WPH High 92 497.77 39.3 No change No	Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIAiv	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO N
Materials Quercus ligns	loblolly pine	Pinus taeda	WDH	High	92	4677.7	35.3	No change	No change	Medium	Abundant	Good	Good			1 1
Segles Pinus palustris NSH Medium 34.8 XOS 30.1 E. Binc. Seg. Inc. Medium Abundant Very Good Very	sweetgum	Liquidambar styraciflua	WDH	High	93.7	1035.6	8.3	No change	No change	Medium	Abundant	Good	Good			1 2
Substripte Phus celliotti NPH High 956 8774 8.1 kg inc. 15 kg inc.	water oak	Quercus nigra	WDH	High	94.3	878.6	6.4	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			1 3
Sewerthan Magnolia wrightnam NDH Medium S1,9 \$61,4 \$2.5 m.i.e. Sm. inc. Medium Common Good Good Good 1 1 5 5 5 5 5 5 5 5	longleaf pine	Pinus palustris	NSH	Medium	34.8	500.3	10.0	Lg. inc.	Lg. inc.	Medium	Abundant	Very Good	Very Good			1 4
Semestray Magnolla virginiana NSI Medium 45.8 270.5 3.5 lg.n.c. 12, inc. 15, inc. 16, inc. 17, inc. 18, inc.	slash pine	Pinus elliottii	NDH	High	29.6	437.1	. 8.1	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1 5
blackgum Nyssa sylvalica WDI Medium 64.6 259.9 2.5 m.inc. Sm. inc. High Common Very Good Very Good 1.5 m. of margine Acer unbrum WDH High 39.2 21.5 m. of margine Acer unbrum WDH High 39.2 21.5 m. of margine 21.5 m. of margine Pinus echinata WDH High 39.2 21.5 m. of margine 21.5 m. of	laurel oak	Quercus laurifolia	NDH	Medium	51.9	361.4	5.2	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1 6
Text	sweetbay	Magnolia virginiana	NSL	Medium	45.8	270.5	3.6	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1 7
September Pinus echimata WoH High Sp. 20.05 3.7 g.m.c. Ug. inc. Wedlum Common Very Good Very Good 1.10 Yes Good 1.11 Yes mash Frazinus pennsylvanica WSH Low 31.6 35.5 3.4 Ug. dec. Ug.	blackgum	Nyssa sylvatica	WDL	Medium	64.6	259.9	2.6	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1 8
yellow-papiar Lindendront ulijuffera WDH High 96.5 20.06 2 3.5 m.in.c. Mgh Common Very Good Very Good 1 12 grace pine Pinus glabra NSL Low 34.1 16.1 15.5 3.4 1g. dec. Medium Common Good Good 1 12 grace pine Pinus glabra NDH Medium 24.1 13.5 3.4 1g. dec. Lg. inc. Lg. inc. Lg. inc. Lg. inc. Mgh Common Good Good 1 14 southern red oak Quercus ficiata WDL Medium 54.1 31.5 3.4 1g. inc. Lg. inc. High Common Very Good Very Good 1 14 southern red oak Quercus ficiata WDL Medium 54.3 13.2 2.0 Lg. inc. Lg. inc. High Common Very Good Very Good Very Good NGC Very Good Ver	red maple	Acer rubrum	WDH	High	77.8	252.8	2.3	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1 9
green ah Fraxinus pennsykanica WSH Low 34.1 16.02 3.5 Sm. inc. Medium Common Good Good Good Good Spruce pine Pinus glabra NSL Low 31.6 31.5 3.4 tt g.dec Lg. dec. Lg.	shortleaf pine	Pinus echinata	WDH	High	39.2	210.5	3.7	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1 10
Spruce pine Pinus glabra NSL Low 31.5 33.5 3.4 Lg dec. Lg	yellow-poplar	Liriodendron tulipifera	WDH	High	56.5	200.6	2.3	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1 11
Sample Nysa brillora Nys	green ash	Fraxinus pennsylvanica	WSH	Low	34.1	160.2	3.5	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1 12
Southern red oak Quercus falcatata WDL Medium S43 312,2 2.0 Lg. inc. Lg. inc. High Common Very Good Very Good 1 15	spruce pine	Pinus glabra	NSL	Low	31.6	135.5	3.4	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0 13
Medium Model Medium Model Medium Model Medium Model Medium Mediu	swamp tupelo	Nyssa biflora	NDH	Medium	24.1	134.6	3.5	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1 14
American holly liex opaca NSL Medium S4.5 127.8 1.8 Sm. inc. Lg. inc. Medium Common Good Good 1.1 1.7	southern red oak	Quercus falcata	WDL	Medium	54.3	132.2	2.0	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1 15
Meretican hornbeam; muscle: Carpinus caroliniana WSL Low 41.2 12.27 2.4 Sm. inc. Lg. inc. High Common Good Very Good 1 18	flowering dogwood	Cornus florida	WDL	Medium	58.4	131.6	1.8	No change	No change	Medium	Common	Fair	Fair			1 16
White oak Quercus alba WDH Medium 14 116.2 2.3 Sm.in.c. Lg. inc. High Common Very Good Very Good 1 19	American holly	Ilex opaca	NSL	Medium	54.5	127.8	1.8	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1 17
Bald cypress Taxodium distichum NSH Medium 13.9 11.4 6.1 Sm. inc. Lg. inc. Medium Common Good Very Good 1.2 1.	American hornbeam; muscle	\ Carpinus caroliniana	WSL	Low	41.2	122.7	2.4	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1 18
Water tupelo Nyssa aquatica NSH Medium 51,7 114,2 11,1 No change No change Low Common Poor Poor Infill + Infill + 0 21	white oak	Quercus alba	WDH	Medium	41	116.2	2.3	Sm. inc.	Lg. inc.	High	Common	Very Good	Very Good			1 19
Black cherry Prunus serotina WOL Medium S1.7 10.00 1.4 Lg. inc. Lg. inc. Lg. inc. Lg. inc. High Common Very Good Very Good 1.28	bald cypress	Taxodium distichum	NSH	Medium	13.9	114.6	6.1	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1 20
Restern hophornbeam; ironw Ostrya virginiana WSL Low 23.4 85.6 2.6 Sm. inc. Sm. inc. High Common Very Good Very Good 1 24	water tupelo	Nyssa aquatica	NSH	Medium	5.1	114.2	11.1	No change	No change	Low	Common	Poor	Poor	Infill +	Infill +	0 21
American beech Fagus grandifolia WDH High 26.5 77.8 2.2 Lg. inc. Lg. inc. Medium Common Very Good Very Good 1 25	black cherry	Prunus serotina	WDL	Medium	51.7	100.0	1.4	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1 22
Winged elm Ulmus alata WDL Medium 32.1 73.3 1.8 Lg. inc. Lg. inc. Medium Common Very Good Very Good 25 25 25 25 25 25 25 2	eastern hophornbeam; ironv	v Ostrya virginiana	WSL	Low	23.4	85.6	2.6	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1 23
Seasem Peasem Peasem Suniperus virginiana WDH Medium 26.5 71.6 1.7 Sm. inc. Lg. inc. Medium Common Good Very Good 1 26	American beech	Fagus grandifolia	WDH	High	26.5	77.8	2.2	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1 24
sugarberry Celtis laevigata NDH Medium 17.2 71.0 3.2 Lg. inc. Lg. inc. Medium Common Very Good Very Good Very Good 1 27 southern magnolia Magnolia grandiflora NSL Low 25.6 69.5 1.9 Lg. inc. Lg. inc. Medium Common Very Good Very Good Very Good Very Good 1 28 overcup oak Quercus Iyrata NSL Medium 21.4 58.5 1.6 Sm. inc. Low Common Good Good 1 30 water hickory Carya aquatica NSL Medium 9.2 57.5 4.2 No change No change Medium Common Fair Fair Infill + Infill + 1 31 sourwood Oxydendrum arboreum NDL High 30.9 56.3 1.4 Sm. dec. Sm. dec. High Common Fair Fair Infill + Infill + 1 31 sourwood Oxydendrum arboreum NDL Medium 29.2	winged elm	Ulmus alata	WDL	Medium	32.1	73.3	1.8	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1 25
southern magnolia Magnolia grandiflora NSL Low 25.6 69.5 1.9 Lg, inc. Lg, inc. Medium Common Very Good Very Good 1 28 overcup oak Quercus lyrata NSL Medium 13.5 66.3 3.7 No change Sm. inc. Low Common Poor Fair Infill + I	eastern redcedar	Juniperus virginiana	WDH	Medium	26.5	71.6	1.7	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1 26
overcup oak Quercus lyrata NSL Medium Medium 21.4 ss.5 ss.5 ss. inc. 66.3 ss. inc. ss. inc. Low Common Poor Good Good Good Good Sood Soury 1 30 ss. inc. ss. inc. ss. inc. Medium Common Good Good Good Soury 1 30 ss. inc. ss. inc. Medium Common Good Good Good Soury 1 30 ss. inc. ss. inc. ss. inc. Medium Common Good Good Good Soury 1 30 ss. inc. ss. inc. Medium Common Fair Fair Infill I	sugarberry	Celtis laevigata	NDH	Medium	17.2	71.0	3.2	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1 27
pignut hickory Carya glabra WDL Medium 21.4 58.5 1.6 Sm. inc. Sm. inc. Medium Common Good Good 1 30 water hickory Carya aquatica NSL Medium 9.2 57.5 4.2 No change No change Medium Common Fair Fair Infill + Infill + 1 31 sourwood Oxydendrum arboreum NDL High 30.9 56.3 1.4 Sm. dec. Sm. dec. High Common Fair Fair 1 32 post oak Quercus stellata WDH High 24.1 53.2 1.1 Lg. inc. Lg. inc. High Common Very Good Very Good Very Good 1 33 mockernut hickory Carya alba WDL Medium 29.2 43.4 1.1 Lg. inc. Lg. inc. High Rare Good Good Good 1 35 willow oak Quercus phellos NSL Low 19.3 39.5 1.4 Lg. inc. Lg. inc. Medium Rare Good Good Good 1 36 florida maple Acer barbatum NSL Low 19.3 39.5 1.4 Lg. inc. Lg. inc. High Rare Poor Poor 1 37 common persimmon Diospyros virginiana NSL Low 34.4 37.3 0.8 No change Sm. inc. High Rare Fair Good Good Infill + Infill + 1 40 nuttall oak Quercus pagoda NSL Medium 16 34.9 1.7 Lg. inc. Lg. inc. Medium Rare Good Good Infill + Infill + 1 40 nuttall oak Quercus texana NSH Low 5.5 26.3 3.1 No change Nm. inc. Low Rare Very Poor Very Poor Infill + Infill + 1 43 pic. NSH Low 5.5 26.3 3.1 No change Sm. inc. Low Rare Very Poor Very Poor Infill + Infill + 1 43 pic. NSH Low 5.5 26.3 3.1 No change Sm. inc. Low Rare Very Poor Very Poor Infill + Infill + 1 43 pic. NSH Low 5.5 26.3 3.1 No change Sm. inc. Low Rare Very Poor Very Poor Very Poor Infill + Infill + 1 43 pic. NSH Low 5.5 26.3 3.1 No change Sm. inc. Low Rare Very Poor Very Po	southern magnolia	Magnolia grandiflora	NSL	Low	25.6	69.5	1.9	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1 28
water hickory Carya aquatica NSL Medium 9.2 57.5 4.2 No change No change Medium Common Fair Fair Infill + Infill + 1 31 sourwood Oxydendrum arboreum NDL High 30.9 56.3 1.4 Sm. dec. Sm. dec. High Common Fair Fair Fair 1 32 post oak Quercus stellata WDH High 24.1 53.2 1.1 Lg. inc. Lg. inc. High Common Very Good Very Good 1 33 American elm Ulmus americana WDH Medium 22.2 39.8 1.4 Lg. inc. Lg. inc. High Rare Good Good 1 35 willow oak Quercus phellos NSL Low 19.3 39.5 1.4 Lg. inc. Lg. inc. Medium Rare Good Good 1 35 willow oak Quercus phellos NSL Low 10.5 39.2 2.4 Sm. dec. Sm. dec. High Rare Foor <td>overcup oak</td> <td>Quercus lyrata</td> <td>NSL</td> <td>Medium</td> <td>13.5</td> <td>66.3</td> <td>3.7</td> <td>No change</td> <td>Sm. inc.</td> <td>Low</td> <td>Common</td> <td>Poor</td> <td>Fair</td> <td>Infill +</td> <td>Infill +</td> <td>1 29</td>	overcup oak	Quercus lyrata	NSL	Medium	13.5	66.3	3.7	No change	Sm. inc.	Low	Common	Poor	Fair	Infill +	Infill +	1 29
Sourwood Oxydendrum arboreum NDL High 30.9 56.3 1.4 Sm. dec. Sm. dec. High Common Fair Fair 1 32 post oak Quercus stellata WDH High 24.1 53.2 1.1 Lg. inc. Lg. inc. High Common Very Good Very Good 1 33 mockernut hickory Carya alba WDL Medium 29.2 43.4 1.1 Lg. inc. Lg. inc. High Rare Good Good 1 34 American elm Ulmus americana WDH Medium 22.5 39.8 1.4 Lg. inc. Lg. inc. Medium Rare Good Good 1 35 willow oak Quercus phellos NSL Low 19.3 39.5 1.4 Lg. inc. Lg. inc. Medium Rare Good Good 1 36 florida maple Acer barbatum NSL Low 10.5 39.2 2.4 Sm. dec. Sm. dec. High Rare Poor Poor Poor 1 37 common persimmon Diospyros virginiana NSL Low 34.4 37.3 0.8 No change Sm. inc. High Rare Fair Good Infill + Infill + 1 40 nuttall oak Quercus pagoda NSL Medium 4.9 33.6 5.5 Sm. dec. Sm. dec. High Rare Poor Poor Poor 0 41 pecan Carya illinoinensis NSH Low 8.1 29.2 3.3 No change Sm. inc. High Rare Poor Poor Poor Infill + 1 43 slippery elm Ulmus rubra WSL Low 13 22.0 1.4 Sm. dec. Sm. dec. Medium Rare Very Poor Very Poor Very Poor Infill + Infill + 1 45 bigleaf magnolia Magnolia macrophylla NSL Low 12.5 21.2 1.6 Lg. dec. Lg. dec. Medium Rare Very Poor Very Poor Very Poor Very Poor O 44 Very Poor Very Poo	pignut hickory	Carya glabra	WDL	Medium	21.4	58.5	1.6	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1 30
post oak Quercus stellata WDH High 24.1 53.2 1.1 Lg. inc. Lg. inc. High Common Very Good Very Good 1 33 mockernut hickory Carya alba WDL Medium 29.2 43.4 1.1 Lg. inc. Lg. inc. High Rare Good Good 1 34 American elm Ulmus americana WDH Medium 22.5 39.8 1.4 Lg. inc. Lg. inc. Medium Rare Good Good 1 35 willow oak Quercus phellos NSL Low 19.3 39.5 1.4 Lg. inc. Lg. inc. Medium Rare Good Good 1 36 Florida maple Acer barbatum NSL Low 10.5 39.2 2.4 Sm. dec. Sm. dec. High Rare Poor Poor 1 37 Common persimmon Diospyros virginiana NSL Low 34.4 37.3 0.8 No change Sm. inc. High Rare Fair Good 1 38 bluejack oak Quercus incana NSL Low 2.3 35.2 8.1 Sm. dec. Sm. dec. Medium Rare Very Poor Very Poor Very Poor 0 39 Cherrybark oak; swamp red o. Quercus pagoda NSL Medium 16 34.9 1.7 Lg. inc. Lg. inc. Medium Rare Good Good Infill ++ Infill ++ 1 40 nuttall oak Quercus texana NSH Medium 4.9 33.6 5.5 Sm. dec. Sm. dec. High Rare Poor Poor Poor 0 41 pecan Carya illinoinensis NSH Low 8.1 29.2 3.3 No change No change No change Low Rare Very Poor Very Poor 1 Infill + 1 43 slippery elm Ulmus rubra WSL Low 13 22.0 1.4 Sm. dec. Sm. dec. Medium Rare Very Poor Very Poor Very Poor 1 Infill + Infill + 1 45 bigleaf magnolia Magnolia macrophylla NSL Low 12.5 21.2 1.6 Lg. dec. Lg. dec. Medium Rare Very Poor Very Poo	water hickory	Carya aquatica	NSL	Medium	9.2	57.5	4.2	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1 31
mockernut hickory Carya alba WDL Medium 29.2 43.4 1.1 Lg. inc. Lg. inc. High Rare Good Good 1 34 American elm Ulmus americana WDH Medium 22.5 39.8 1.4 Lg. inc. Lg. inc. Medium Rare Good Good 1 35 willow oak Quercus phellos NSL Low 19.3 39.5 1.4 Lg. inc. Lg. inc. Medium Rare Good Good 1 36 florida maple Acer barbatum NSL Low 10.5 39.2 2.4 Sm. dec. Sm. dec. High Rare Poor Poor 1 37 common persimmon Diospyros virginiana NSL Low 34.4 37.3 0.8 No change Sm. inc. High Rare Fair Good 1 38 bluejack oak Quercus incana NSL Low 2.3 35.2 8.1 Sm. dec. Sm. dec. Medium Rare Very Poor Very Poor 0 39 cherrybark oak; swamp red o Quercus pagoda NSL Medium 4.9 33.6 5.5 Sm. dec. Sm. dec. High Rare Good Good Infill ++ Infill ++ 1 40 nuttall oak Quercus texana NSH Medium 4.9 33.6 5.5 Sm. dec. Sm. dec. High Rare Poor Poor 0 42 black willow Salix nigra NSH Low 8.1 29.2 3.3 No change No change Sm. inc. Low Rare Very Poor Very Poor 0 42 sycamore Platanus occidentalis NSL Low 12.5 21.2 1.6 Lg. dec. Lg. dec. Medium Rare Very Poor Very Poor Very Poor 0 46 bigleaf magnolia Magnolia macrophylla NSL Low 12.5 21.2 1.6 Lg. dec. Lg. dec. Medium Rare Very Poor Very Poor Very Poor 0 46 1 34 1 35 1 36 1 36 1 36 1 37 1 37 1 38 1 39 1 30	sourwood	Oxydendrum arboreum	NDL	High	30.9	56.3	1.4	Sm. dec.	Sm. dec.	High	Common	Fair	Fair			1 32
American elm Ulmus americana WDH Medium 22.5 39.8 1.4 Lg. inc. Lg. inc. Medium Rare Good Good 1 35 willow oak Quercus phellos NSL Low 19.3 39.5 1.4 Lg. inc. Lg. inc. Medium Rare Good Good 1 36 florida maple Acer barbatum NSL Low 10.5 39.2 2.4 Sm. dec. Sm. dec. High Rare Poor Poor 1 37 common persimmon Diospyros virginiana NSL Low 34.4 37.3 0.8 No change Sm. inc. High Rare Fair Good 1 38 bluejack oak Quercus incana NSL Low 2.3 35.2 8.1 Sm. dec. Sm. dec. Medium Rare Very Poor Very Poor 0 39 cherrybark oak; swamp red o Quercus pagoda NSL Medium 16 34.9 1.7 Lg. inc. Lg. inc. Medium Rare Good Good Infill ++ Infill ++ 1 40 nuttall oak Quercus texana NSH Medium 4.9 33.6 5.5 Sm. dec. Sm. dec. High Rare Poor Poor 0 41 pecan Carya illinoinensis NSH Low 8.1 29.2 3.3 No change No change Low Rare Very Poor Very Poor 0 42 black willow Salix nigra NSH Low 5.5 26.3 3.1 No change Sm. inc. Low Rare Very Poor Very Poor 1 Infill + 1 43 slippery elm Ulmus rubra WSL Low 13 22.0 1.4 Sm. dec. Sm. dec. Medium Rare Poor Poor Infill + Infill + 1 45 bigleaf magnolia Magnolia macrophylla NSL Low 12.5 21.2 1.6 Lg. dec. Lg. dec. Medium Rare Very Poor Very Poor Very Poor 0 46	post oak	Quercus stellata	WDH	High	24.1	53.2	1.1	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1 33
willow oak Quercus phellos NSL Low 19.3 39.5 1.4 Lg. inc. Lg. inc. Medium Rare Good Good 1 36 florida maple Acer barbatum NSL Low 10.5 39.2 2.4 Sm. dec. Sm. dec. High Rare Poor Poor 1 37 common persimmon Diospyros virginiana NSL Low 34.4 37.3 0.8 No change Sm. inc. High Rare Fair Good 1 38 bluejack oak Quercus incana NSL Low 2.3 35.2 8.1 Sm. dec. Sm. dec. Medium Rare Very Poor Very Poor Very Poor 0 39 cherrybark oak; swamp red o Quercus pagoda NSL Medium 16 34.9 1.7 Lg. inc. Lg. inc. Medium Rare Good Good Infill ++ Infill ++ 1 40 nuttall oak Quercus texana NSH Medium 4.9 33.6 5.5 Sm. dec. Sm. dec. High Rare Poor Poor 0 41 pecan Carya illinoinensis NSH Low 8.1 29.2 3.3 No change No change Low Rare Very Poor Very Poor 0 42 black willow Salix nigra NSH Low 5.5 26.3 3.1 No change Sm. inc. Low Rare Very Poor Poor Infill + 1 43 slippery elm Ulmus rubra WSL Low 13 22.0 1.4 Sm. dec. Sm. dec. Medium Rare Poor Poor Infill + Infill + 1 45 bigleaf magnolia Magnolia macrophylla NSL Low 12.5 21.2 1.6 Lg. dec. Lg. dec. Medium Rare Very Poor Very Poor Very Poor Very Poor 0 46	mockernut hickory	Carya alba	WDL	Medium	29.2	43.4	1.1	Lg. inc.	Lg. inc.	High	Rare	Good	Good			1 34
florida maple Acer barbatum NSL Low 10.5 39.2 2.4 Sm. dec. Sm. dec. High Rare Poor Poor 1 37 common persimmon Diospyros virginiana NSL Low 34.4 37.3 0.8 No change Sm. inc. High Rare Fair Good 1 38 bluejack oak Quercus incana NSL Low 2.3 35.2 8.1 Sm. dec. Sm. dec. Medium Rare Very Poor Very Poor 0 39 cherrybark oak; swamp red o. Quercus pagoda NSL Medium 16 34.9 1.7 Lg. inc. Lg. inc. Medium Rare Good Good Infill ++ Infill ++ 1 40 nuttall oak Quercus texana NSH Medium 4.9 33.6 5.5 Sm. dec. Sm. dec. High Rare Poor Poor Poor 0 41 pecan Carya illinoinensis NSH Low 8.1 29.2 3.3 No change No change Low Rare Very Poor Very Poor 0 42 black willow Salix nigra NSH Low 5.5 26.3 3.1 No change Sm. inc. Low Rare Very Poor Poor Infill + 1 43 slippery elm Ulmus rubra WSL Low 13 22.0 1.4 Sm. dec. Sm. dec. Medium Rare Poor Poor Infill + Infill + 1 45 bigleaf magnolia Magnolia macrophylla NSL Low 12.5 21.2 1.6 Lg. dec. Lg. dec. Medium Rare Very Poor Very Poor Very Poor Very Poor 0 46	American elm	Ulmus americana	WDH	Medium	22.5	39.8	1.4	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1 35
common persimmon Diospyros virginiana NSL Low 34.4 37.3 0.8 No change Sm. inc. High Rare Fair Good 1 38 bluejack oak Quercus incana NSL Low 2.3 35.2 8.1 Sm. dec. Sm. dec. Medium Rare Very Poor Very Poor 0 39 cherrybark oak; swamp red o. Quercus pagoda NSL Medium 16 34.9 1.7 Lg. inc. Lg. inc. Medium Rare Good Good Infill ++ Infill ++ 1 40 nuttall oak Quercus texana NSH Medium 4.9 33.6 5.5 Sm. dec. Sm. dec. High Rare Poor Poor 0 41 pecan Carya illinoinensis NSH Low 8.1 29.2 3.3 No change No change Low Rare Very Poor Very Poor 0 42 black willow Salix nigra NSH Low 5.5 26.3 3.1 No change Sm. inc. Low Rare Very Poor Poor Infill + 1 43 slippery elm Ulmus rubra WSL Low 13 22.0 1.4 Sm. dec. Sm. dec. Medium Rare Very Poor Very Poor 0 44 sycamore Platanus occidentalis NSL Low 8.4 21.5 2.0 No change No change Medium Rare Poor Poor Infill + Infill + 1 45 bigleaf magnolia Magnolia macrophylla NSL Low 12.5 21.2 1.6 Lg. dec. Lg. dec. Medium Rare Very Poor Very Poor Very Poor 0 46	willow oak	Quercus phellos	NSL	Low	19.3	39.5	1.4	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1 36
bluejack oak Quercus incana NSL Low 2.3 35.2 8.1 Sm. dec. Sm. dec. Medium Rare Very Poor Very Poor 0 39 cherrybark oak; swamp red o Quercus pagoda NSL Medium 16 34.9 1.7 Lg. inc. Lg. inc. Medium Rare Good Good Infill ++ Infill ++ 1 40 nuttall oak Quercus texana NSH Medium 4.9 33.6 5.5 Sm. dec. Sm. dec. High Rare Poor Poor Poor 0 41 pecan Carya illinoinensis NSH Low 8.1 29.2 3.3 No change No change Low Rare Very Poor Very Poor 0 42 black willow Salix nigra NSH Low 5.5 26.3 3.1 No change Sm. inc. Low Rare Very Poor Poor Infill + 1 43 slippery elm Ulmus rubra WSL Low 13 22.0 1.4 Sm. dec. Sm. dec. Medium Rare Very Poor Very Poor 0 44 sycamore Platanus occidentalis NSL Low 8.4 21.5 2.0 No change No change Medium Rare Poor Poor Infill + Infill + 1 45 bigleaf magnolia Magnolia macrophylla NSL Low 12.5 21.2 1.6 Lg. dec. Lg. dec. Medium Rare Very Poor Very Poor 0 46	florida maple	Acer barbatum	NSL	Low	10.5	39.2	2.4	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			1 37
cherrybark oak; swamp red o Quercus pagoda NSL Medium 16 34.9 1.7 Lg. inc. Lg. inc. Medium Rare Good Good Infill ++ Infill ++ 1 40 nuttall oak Quercus texana NSH Medium 4.9 33.6 5.5 Sm. dec. Sm. dec. High Rare Poor Poor 0 41 pecan Carya illinoinensis NSH Low 8.1 29.2 3.3 No change No change Low Rare Very Poor Very Poor Very Poor 1 1 43 slippery elm Ulmus rubra WSL Low 13 22.0 1.4 Sm. dec. Sm. dec. Medium Rare Very Poor Very Poor Very Poor 0 44 sycamore Platanus occidentalis NSL Low 8.4 21.5 2.0 No change No change Medium Rare Poor Poor Infill + Infill + 1 45 bigleaf magnolia Magnolia macrophylla NSL Low 12.5 21.2 1.6 Lg. dec. Lg. dec. Medium Rare Very Poor Very Poor Very Poor 0 46	common persimmon	Diospyros virginiana	NSL	Low	34.4	37.3	0.8	No change	Sm. inc.	High	Rare	Fair	Good			1 38
nuttall oak Quercus texana NSH Medium 4.9 33.6 5.5 Sm. dec. Sm. dec. High Rare Poor Poor 0 41 pecan Carya illinoinensis NSH Low 8.1 29.2 3.3 No change No change Low Rare Very Poor Very Poor 0 42 black willow Salix nigra NSH Low 5.5 26.3 3.1 No change Sm. inc. Low Rare Very Poor Poor Infill + 1 43 slippery elm Ulmus rubra WSL Low 13 22.0 1.4 Sm. dec. Sm. dec. Medium Rare Very Poor Very Poor 0 44 sycamore Platanus occidentalis NSL Low 8.4 21.5 2.0 No change No change Medium Rare Poor Poor Infill + Infill + 1 45 bigleaf magnolia Magnolia macrophylla NSL Low 12.5 21.2 1.6 Lg. dec. Lg. dec. Medium Rare Very Poor Very Poor 0 46	bluejack oak	Quercus incana	NSL	Low	2.3	35.2	8.1	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0 39
pecan Carya illinoinensis NSH Low 8.1 29.2 3.3 No change No change Low Rare Very Poor Very Poor 0 42 black willow Salix nigra NSH Low 5.5 26.3 3.1 No change Sm. inc. Low Rare Very Poor Poor Infill + 1 43 slippery elm Ulmus rubra WSL Low 13 22.0 1.4 Sm. dec. Sm. dec. Medium Rare Very Poor Very Poor 0 44 sycamore Platanus occidentalis NSL Low 8.4 21.5 2.0 No change No change Medium Rare Poor Poor Infill + Infill + 1 45 bigleaf magnolia Magnolia macrophylla NSL Low 12.5 21.2 1.6 Lg. dec. Lg. dec. Medium Rare Very Poor Very Poor 0 46	cherrybark oak; swamp red o	Quercus pagoda	NSL	Medium	16	34.9	1.7	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1 40
black willow Salix nigra NSH Low 5.5 26.3 3.1 No change Sm. inc. Low Rare Very Poor Poor Infill + 1 43 slippery elm Ulmus rubra WSL Low 13 22.0 1.4 Sm. dec. Sm. dec. Medium Rare Very Poor Very Poor 0 44 sycamore Platanus occidentalis NSL Low 8.4 21.5 2.0 No change No change Medium Rare Poor Poor Infill + Infill + 1 45 bigleaf magnolia Magnolia macrophylla NSL Low 12.5 21.2 1.6 Lg. dec. Lg. dec. Medium Rare Very Poor Very Poor 0 46	nuttall oak	Quercus texana	NSH	Medium	4.9	33.6	5.5	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0 41
slippery elm Ulmus rubra WSL Low 13 22.0 1.4 Sm. dec. Sm. dec. Medium Rare Very Poor Very Poor 0 44 sycamore Platanus occidentalis NSL Low 8.4 21.5 2.0 No change No change Medium Rare Poor Poor Infill + Infill + 1 45 bigleaf magnolia Magnolia macrophylla NSL Low 12.5 21.2 1.6 Lg. dec. Lg. dec. Medium Rare Very Poor Very Poor 0 46	pecan	Carya illinoinensis	NSH	Low	8.1	29.2	3.3	No change	No change	Low	Rare	Very Poor	Very Poor			0 42
sycamore Platanus occidentalis NSL Low 8.4 21.5 2.0 No change No change Medium Rare Poor Poor Infill + Infill + 1 45 bigleaf magnolia Magnolia macrophylla NSL Low 12.5 21.2 1.6 Lg. dec. Lg. dec. Medium Rare Very Poor Very Poor 0 46	black willow	Salix nigra	NSH	Low	5.5	26.3	3.1	No change	Sm. inc.	Low	Rare	Very Poor	Poor		Infill +	1 43
bigleaf magnolia Magnolia macrophylla NSL Low 12.5 21.2 1.6 Lg. dec. Lg. dec. Medium Rare Very Poor Very Poor 0 46	slippery elm	Ulmus rubra	WSL	Low	13	22.0	1.4	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0 44
	sycamore	Platanus occidentalis	NSL	Low	8.4	21.5	2.0	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	1 45
cucumbertree Magnolia acuminata NSL Low 6.1 18.7 2.1 Sm. dec. Sm. dec. Medium Rare Very Poor Very Poor 0 47	bigleaf magnolia	Magnolia macrophylla	NSL	Low	12.5	21.2	1.6	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0 46
	cucumbertree	Magnolia acuminata	NSL	Low	6.1	18.7	2.1	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0 47



One x One Degree

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

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	3.3	17.7	4.3	1 No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2 48
shagbark hickory	Carya ovata	WSL	Medium	7.3	17.5	1.8	8 Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0 49
redbay	Persea borbonia	NSL	Low	14.1	17.4	0.9	9 Sm. inc.	Lg. inc.	High	Rare	Good	Good			1 50
swamp chestnut oak	Quercus michauxii	NSL	Low	10.7	15.7	0.9	9 Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1 51
blackjack oak	Quercus marilandica	NSL	Medium	6	15.1	1.4	4 Sm. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	1 52
river birch	Betula nigra	NSL	Low	3.4	12.4	1.4	4 Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good	Infill +	Infill ++	1 53
white ash	Fraxinus americana	WDL	Medium	6.1	12.0	1.3	1 Sm. dec.	No change	Low	Rare	Very Poor	Very Poor			0 54
turkey oak	Quercus laevis	NSH	Medium	2.2	11.2	2.0	No change	No change	High	Rare	Fair	Fair	Infill +		2 55
bitternut hickory	Carya cordiformis	WSL	Low	6.7	11.0	1.4	4 Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0 56
live oak	Quercus virginiana	NDH	High	0.8	9.6	8.8	8 Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2 57
Shumard oak	Quercus shumardii	NSL	Low	3.9	9.4	0.9	9 Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0 58
black oak	Quercus velutina	WDH	High	4.8	9.4	0.9	9 Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0 59
chinkapin oak	Quercus muehlenbergii	NSL	Medium	2.8	8.6	3.0	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0 60
Atlantic white-cedar	Chamaecyparis thyoides	NSH	Low	1.8	8.4	3.9	9 No change	No change	Low	Rare	Very Poor	Very Poor			2 61
black walnut	Juglans nigra	WDH	Low	2.4	8.4	2.8	8 Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0 62
boxelder	Acer negundo	WSH	Low	3.4	7.9	1.8	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2 63
sassafras	Sassafras albidum	WSL	Low	11.5	6.6	0.4	4 Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1 64
northern red oak	Quercus rubra	WDH	Medium	2	6.2	1.6	5 Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0 65
eastern redbud	Cercis canadensis	NSL	Low	7.6	6.1	0.6	5 Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0 66
red mulberry	Morus rubra	NSL	Low	5.1	5.4	0.6	5 Sm. dec.	No change	Medium	Rare	Very Poor	Poor		Infill +	1 67
water elm	Planera aquatica	NSL	Low	2.6	5.1	0.8	No change	No change	Medium	Rare	Poor	Poor		Infill +	2 68
pond cypress	Taxodium ascendens	NSH	Medium	0.3	4.3	1.6	6 Lg. dec.	No change	Medium	Rare	Very Poor	Poor			0 69
American basswood	Tilia americana	WSL	Medium	0.6	2.6	1.7	7 Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0 70
wild plum	Prunus americana	NSLX	FIA	5.7	2.6	0.5	5 Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0 71
honeylocust	Gleditsia triacanthos	NSH	Low	1.9	2.5	1.3	3 Sm. inc.	Sm. inc.	High	Rare	Good	Good			2 72
pumpkin ash	Fraxinus profunda	NSH	FIA	0.9	2.5	2.6	5 Unknown	Unknown	NA	Rare	FIA Only	FIA Only			0 73
hackberry	Celtis occidentalis	WDH	Medium	2.4	2.4	0.8	8 Lg. dec.	Very Lg. dec.	High	Rare	Poor	Lost			0 74
Virginia pine	Pinus virginiana	NDH	High	0.9	2.4	2.5	5 Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0 75
black locust	Robinia pseudoacacia	NDH	Low	0.9	0.5	0.5	5 Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0 76
durand oak	Quercus sinuata var. sinuata	NSL	FIA	0.6	0.4	0.2	2 Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0 77
bur oak	Quercus macrocarpa	NDH	Medium	0.9	0.3	0.3	3 Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			0 78
Table Mountain pine	Pinus pungens	NSL	Low	0	0	() Unknown	New Habitat	High	Absent	Unknown	New Habitat			3 79
striped maple	Acer pensylvanicum	NSL	Medium	0	0	(Unknown	New Habitat	Medium	Absent	Unknown	New Habitat			3 80
silver maple	Acer saccharinum	NSH	Low	0	0	(New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3 81
sugar maple	Acer saccharum	WDH	High	0	0	(Unknown	Unknown	High	Absent	Unknown	Unknown			0 82
serviceberry	Amelanchier spp.	NSL	Low	0	0	(New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3 83
pawpaw	Asimina triloba	NSL	Low	0	0	(Unknown	Unknown	Medium	Absent	Unknown	Unknown			0 84
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp	. NSL	Low	0	0	(New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3 85
shellbark hickory	Carya laciniosa	NSL	Low	0	0	(Unknown	Unknown	Medium	Absent	Unknown	Unknown			0 86
black hickory	Carya texana	NDL	High	0	0	(New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3 87
black ash	Fraxinus nigra	WSH	Medium	0	0	(New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	- T		3 88
silverbell	Halesia spp.	NSL	Low	0	0	(New Habitat		Medium	Absent	New Habitat	New Habitat			3 89
pin cherry	Prunus pensylvanica	NSL	Low	0	0		New Habitat		Medium	Absent	New Habitat	Unknown	Likely +		3 90
scarlet oak	Quercus coccinea	WDL	Medium	0	0	() Unknown	Unknown	Medium	Absent	Unknown	Unknown			0 91
cabbage palmetto	Sabal palmetto	NDH	Medium	0	0	(New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0 92
cedar elm	Ulmus crassifolia	NDH	Medium	0	0	(New Habitat	New Habitat	Low	Absent		New Habitat		Migrate ++	
														0	

