#### 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 9,941.4 3,838.4 162

#### **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	Migration Potential				
Ash	3				Model			Scenario	Scenario		Scenario	Scenario		SHIFT	SHIFT
Hickory	6	Abu	ndance		Reliability	Adaptability		RCP45	RCP85		RCP45	RCP85		RCP45	RCP85
Maple	5	Abundant	3	High	16	23	Increase	24	28	Very Good	16	17	Likely	0	0
Oak	12	Common	37	Medium	25	44	No Change	11	9	Good	11	13	Infill	6	8
Pine	2	Rare	25	Low	32	9	Decrease	24	22	Fair	7	7	Migrate	5	7
Other	37	Absent	14	FIA	6		New	10	12	Poor	17	14	•	11	15
-	65	_	79	-	79	76	Unknown	10	8	Very Poor	8	7			
							-	79	79	FIA Only	3	3			
										Unknown	4	2			
Potentia	Potential Changes in Climate Variables											63			

#### **Potential Changes in Climate Variables**

Temperatu	ıre (°F)				
	Scenario	2009	2039	2069	2099
Annual	CCSM45	57.9	59.7	62.1	62.3
Average	CCSM85	57.9	60.2	63.0	66.0
	GFDL45	57.9	61.4	63.0	63.7
	GFDL85	57.9	60.6	64.0	67.5
	HAD45	57.9	60.5	63.7	65.0
	HAD85	57.9	60.9	65.5	69.4
Growing	CCSM45	73.3	75.0	77.1	77.6
Season	CCSM85	73.3	75.4	78.4	82.4
May—Sep	GFDL45	73.3	77.3	79.1	80.4
, ,	GFDL85	73.3	76.5	80.6	84.7
	HAD45	73.3	76.6	79.8	81.4
	HAD85	73.3	77.0	83.7	87.2
Coldest	CCSM45	34.3	36.1	37.7	38.0
Month	CCSM85	34.3	37.5	38.6	40.2
Average	GFDL45	34.3	38.1	38.0	38.3
_	GFDL85	34.3	35.8	37.0	37.5 → → →
	HAD45	34.3	34.8	37.0	37.3
	HAD85	34.3	36.2	38.0	39.6
Warmest	CCSM45	78.5	80.1	81.4	81.5
Month	CCSM85	78.5	80.7	82.4	84.2
Average	GFDL45	78.5	81.5	83.1	83.9
	GFDL85	78.5	81.7	84.1	86.5
	HAD45	78.5	82.9	85.6	86.2

Precipitati	on (in)				
	Scenario	2009	2039	2069	2099
Annual	CCSM45	50.4	52.0	57.2	55.4
Total	CCSM85	50.4	56.7	56.6	60.8
	GFDL45	50.4	57.2	60.3	63.2
	GFDL85	50.4	57.4	61.0	64.3
	HAD45	50.4	48.4	52.3	52.5
	HAD85	50.4	50.5	47.1	52.0
Growing	CCSM45	21.0	20.3	21.8	21.2
Season	CCSM85	21.0	22.3	19.8	21.4
May—Sep	GFDL45	21.0	24.0	24.2	25.0
	GFDL85	21.0	23.8	24.6	25.2
	HAD45	21.0	19.8	18.9	19.2
	HAD85	21.0	20.4	15.8	17.0

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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HAD85

78.5

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# 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

Sestem redecéard   Juniperus Virginitan   Wilt   Medium   Sol.   173   139   No hange   No change   Medium   Aundrant   Good   Good     1   2   2   2   2   2   2   2   2	Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIAiv ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO N
	eastern redcedar	Juniperus virginiana	WDH	Medium	65.1	1173.0	13.9 No change	No change	Medium	Abundant	Good	Good			1 1
Month   Celbs occidentals   WOH   Medjum   49   4830   8.1 Sm. dec.   Worknage   High   Common   Forr   Good     1	sugar maple	Acer saccharum	WDH	High	68.4	864.5	10.2 Lg. dec.	Lg. dec.	High	Abundant	Good	Good			1 2
White she   Faximus americans   Will,   Wordum   Si.7   298,   5.4 No change	yellow-poplar	Liriodendron tulipifera	WDH	High	50.1	590.1	10.9 Lg. dec.	Lg. dec.	High	Abundant	Good	Good			1 3
Sapaban hickory   Carya ovata   WSI	hackberry	Celtis occidentalis	WDH	Medium	49	463.0	8.1 Sm. dec.	No change	High	Common	Fair	Good			
Medium   Model   Mod	white ash	Fraxinus americana	WDL	Medium	51.7	299.4	5.4 No change	No change	Low	Common	Poor	Poor			0 5
Sessificate	shagbark hickory	Carya ovata	WSL	Medium	47.3	288.7	5.0 Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0 6
Chinakani nak   Quercus muehinehregii   NSL   Medium   41,9   210,8   24,7   3,9	winged elm	Ulmus alata	WDL	Medium	56.6	280.3	3.7 Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1 7
Dignate Nichary   Carya glabra   WDH   W	sassafras	Sassafras albidum	WSL	Low	38.1	274.8	6.4 Lg. dec.	Sm. dec.	Medium	Common	Poor	Poor			0 8
Black walnut   Juglans nigra   WPI   Low   43   2093   4.4 Sm. dec.   No. change   Medium Common   Poor   Fair	chinkapin oak	Quercus muehlenbergii	NSL	Medium	44.6	234.7	3.9 Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0 9
Devokalder   Acer negundo   Work   Low   30,00   20,00   20,00   20,00   1,00   1,00   20,00   1,0	pignut hickory	Carya glabra	WDL	Medium	41.9	210.6	4.4 Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0 10
Borthern red oak   Quercus nibra   WDH   Medium   25,7   191,5   6,8 No change   No change   High   Common   Good   Good     1   12   13   14   14   14   13   15   14   14   14   14   14   14   14	black walnut	Juglans nigra	WDH	Low	43	209.3	4.4 Sm. dec.	No change	Medium	Common	Poor	Fair			1 11
White pack   Cuercus alba    WPH   Medium   Me	boxelder	Acer negundo	WSH	Low	32.9	201.0	7.3 No change	Sm. inc.	High	Common	Good	Very Good			1 12
Section   Linear Sect	northern red oak	Quercus rubra	WDH	Medium	25.7	191.5	6.6 No change	No change	High	Common	Good	Good			1 13
American beech   Fagus grandifolia   WDH   High   38.8   1612   3.9 Sm. dec.   Sm. inc.   Medium   Common   Foor   Poor	white oak	Quercus alba	WDH	Medium	40.1	189.8	4.7 Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1 14
Seminant   Segus grandifolia   WOH   High   Sal.   146.5   3.1 No change   Sm. dec.   Medium   Common   Poor   Poor     1.18	American elm	Ulmus americana	WDH	Medium	49.9	175.8	3.0 Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1 15
Sipperyelm	black oak	Quercus velutina	WDH	High	32	165.6	4.7 Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1 16
Black locust   Robinia pseudoacacia   NDH   Low   19.9   136-3   5.0 Lg. dec.   Sm. dec.   Medium   Common   Poor   Poor     1.2	American beech	Fagus grandifolia	WDH	High	38.8	161.2	3.9 Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0 17
Seen ash   Fraxinus pennsylvanica   WSH   Low   41   131.6   3.3   E. inc.   Le. inc.   Le. inc.   Medium   Common   Very Good   Very Good   1   20	slippery elm	Ulmus rubra	WSL	Low	35	146.5	3.1 No change	Sm. inc.	Medium	Common	Fair	Good			1 18
Sugarberry   Celtis laevigata   NDH   Medium   23.8   130.7   4.7   g. inc.   Lg. inc.   Lg. inc.   High   Common   Very Good   Very Good   1   21	black locust	Robinia pseudoacacia	NDH	Low	19.9	136.3	5.0 Lg. dec.	Sm. dec.	Medium	Common	Poor	Poor			0 19
Medium   Medium   Mote   Med	green ash	Fraxinus pennsylvanica	WSH	Low	41	131.6	3.3 Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1 20
bitternut hickory   Carya cordiformis   WSL   Low   32   117.7   3.5 No change   No change   High   Common   Good   Good     2   2   3   1   2   3   1   3   3   3   3   3   3   3   3	sugarberry	Celtis laevigata	NDH	Medium	23.8	130.7	4.7 Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1 21
Flowering dogwood   Cormus florida   WDL   Medium   33   114,9   3.3 Sm. dec.   Sm. dec.   Medium   Common   Poor   Poor   Poor   O 24	mockernut hickory	Carya alba	WDL	Medium	37.4	118.0	3.3 Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1 22
Dasge-orange	bitternut hickory	Carya cordiformis	WSL	Low	32	117.7	3.5 No change	No change	High	Common	Good	Good			1 23
Post oak   Quercus stellata   WDH   High   24.3   109.9   5.2   Lg. inc.   Lg. inc.   High   Common   Very Good   Very Good   1 26   Very Good   1 27   Very Good   Very Good   1 28   Very Good   Very Good   Very Good   1 28   Very Good   Very Good   Very Good   Very Good   1 28   Very Good   Ve	flowering dogwood	Cornus florida	WDL	Medium	33	114.9	3.3 Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0 24
Red maple   Acer rubrum   WDH   High   27.1   108.5   4.5 Sm. inc.   Sm. inc.   High   Common   Very Good   Very Good   1 27	Osage-orange	Maclura pomifera	NDH	Medium	12.4	114.8	5.3 Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1 25
Sweetgum   Liquidambar styraciflua   WDH   High   24   106.9   7.8   Lg. inc.   Lg. inc.   Medium   Common   Very Good   Very Good   1   28	post oak	Quercus stellata	WDH	High	24.3	109.9	5.2 Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1 26
black cherry Prunus serotina WDL Medium 38 104.5 3.8 Sm. inc. Sm. inc. Low Common Fair Fair 1 29 ailanthus Ailanthus altissima NSL FIA 16 101.8 4.0 Unknown Unknown NA Common NNIS NNIS 0 30 scarlet oak Quercus coccinea WDL Medium 19.3 97.1 4.0 Lg. dec. Lg. dec. Medium Common Poor Poor 0 31 blackgum Nyssa sylvatica WDL Medium 46 90.4 2.7 Sm. inc. Lg. inc. High Common Very Good Very Good 1 32 sycamore Platanus occidentalis NSL Low 26.9 78.8 4.0 Lg. inc. Lg. inc. Medium Common Very Good Very Good 1 33 blue ash Fraxinus quadrangulata NSL Low 26.9 78.8 4.0 Lg. inc. Lg. inc. High Common Very Good Very Good 1 33 eastern hophornbeam; ironw Ostrya virginiana WSL Low 32 69.5 1.7 Sm. inc. Sm. inc. High Common Very Good Very Good 1 35 silver maple Acer saccharinum NSH Low 3.1 66.8 13.0 Sm. dec. Sm. dec. High Common Very Good Very Good 1 37 southern red oak Quercus falcata WDL Medium 16.8 56.8 4.4 Lg. inc. Lg. inc. High Common Very Good Very Good 1 38 red mulberry Morus rubra NSL Low 28.5 53.5 2.3 Sm. dec. Sm. dec. Medium Common Very Good Very Good 1 38 red mulberry Morus rubra NSL Low 28.5 53.5 2.3 Sm. dec. Sm. dec. Medium Common Very Good Very Good 1 38 red mulberry Morus rubra NSL Low 28.5 53.5 2.3 Sm. dec. Sm. dec. Medium Common Very Good Very Good 1 38 red mulberry Morus rubra NSL Low 28.5 53.5 2.3 Sm. dec. Sm. dec. Medium Common Poor Poor 0 39 honeylocust Gleditsia triacanthos NSH Low 12.4 52.0 1,7 Lg. inc. Lg. inc. High Common Very Good Very Good 1 1 38 red mulberry Aesturbus NSL Low 7 43.5 4.9 Lg. inc. Lg. inc. High Common Very Good Very Good 1 1 34 yellow buckeye Aesculus flava NSL Low 7 43.5 4.9 Lg. dec. Lg. dec. Low Rare Very Poor Very Poor Very Poor 0 42 chestnut oak Quercus prinus NDH High 10.1 32.8 2.9 Sm. inc. Sm. inc. Medium Rare Poor Poor Infill + Infill + 2 43 Shumard oak Quercus shumardii NSL Low 4.7 22.8 3.4 No change No change No change High Rare Fair Fair Fair 1 1 41 41 41 41 41 41 41 41 41 41 41 41	red maple	Acer rubrum	WDH	High	27.1	108.5	4.5 Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1 27
ailanthus Ailanthus altissima NSL FIA 16 101.8 4.0 Unknown Unknown NA Common NNIS NNIS 0 30 scarlet oak Quercus coccinea WDL Medium 19.3 97.1 4.0 Lg. dec. Lg. dec. Medium Common Poor Poor Poor 0 31 blackgum Nyssa sylvatica WDL Medium 46 90.4 2.7 Sm. inc. Lg. inc. High Common Very Good Very Good 1 32 sycamore Platanus occidentalis NSL Low 26.6 73.1 3.2 Sm. dec. Sm. dec. Low Common Poor Poor Poor 0 34 eastern hophornbeam; ironw Ostrya virginiana WSL Low 32 69.5 1.7 Sm. inc. Sm. inc. High Common Very Good Very Good 1 35 silver maple Acer saccharinum NSH Low 3.1 66.8 13.0 Sm. dec. Sm. dec. High Common Very Good Very Good 1 35 common persimmon Diospyros virginiana NSL Low 29.2 58.3 2.0 Lg. inc. Lg. inc. High Common Very Good Very Good 1 36 common persimmon Diospyros virginiana NSL Low 29.2 58.3 2.0 Lg. inc. Lg. inc. High Common Very Good Very Good 1 37 southern red oak Quercus falcata WDL Medium 16.8 56.8 4.4 Lg. inc. Lg. inc. High Common Very Good Very Good 1 37 seathern red oak Quercus falcata NSL Low 28.5 53.5 2.3 Sm. dec. Sm. dec. Medium Common Poor Poor Poor 0 39 honeylocust Gleditsia triacanthos NSH Low 28.5 53.5 2.3 Sm. dec. Sm. dec. Medium Rare Poor Poor Poor 0 39 honeylocust Gleditsia triacanthos NSH Low 28.4 44.7 1.3 No change Sm. inc. Medium Rare Poor Poor Very Good Infill + Infill + 2 43 sellow Dockeye Aesculus flava NSL Low 28.4 44.7 1.3 No change Ns. inc. Medium Rare Poor Poor Nor Very Good Infill + Infill + 2 43 sellow Dockeye Aesculus flava NSL Low 3.4 28.4 4.5 No change No change Medium Rare Poor Poor Poor Infill + Infill + 2 45 shumard oak Quercus shumardii NSL Low 4.7 22.8 3.4 No change No change Medium Rare Poor Poor Poor Infill + Infill + 2 45 shumard oak Quercus shumardii NSL Low 4.7 22.8 3.4 No change Sm. inc. High Rare Fair Fair Good Infill + Infill + 1 40 shumard oak Quercus shumardii NSL Low 4.7 22.8 3.4 No change Sm. inc. High Rare Fair Fair Good Infill + Infill + 1 40 shumard oak Quercus shumardii NSL Low 4.7 22.8 3.4 No change Sm. inc. High Rare Fair Fair Fair Fair Fair Law 1 40 shumard	sweetgum	Liquidambar styraciflua	WDH	High	24	106.9	7.8 Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1 28
Scarlet oak Quercus coccinea WDL Medium 19.3 97.1 4.0 Lg. dec. Lg. dec. Medium Common Poor Poor 0 31 1 32 1 32 1 32 1 32 1 32 1 32 1 32	black cherry	Prunus serotina	WDL	Medium	38	104.5	3.8 Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1 29
blackgum Nyssa sylvatica WDL Medium 46 90.4 2.7 Sm. inc. Lg. inc. High Common Very Good Very Good 1 32 sycamore Platanus occidentalis NSL Low 26.9 78.8 4.0 Lg. inc. Lg. inc. Medium Common Very Good Very Good 1 33 blue ash Fraxinus quadrangulata NSL Low 20.6 73.1 3.2 Sm. dec. Sm. dec. Low Common Poor Poor Poor 0 34 eastern hophornbeam; ironw Ostrya virginiana WSL Low 32 69.5 1.7 Sm. inc. Sm. inc. High Common Very Good Very Good Very Good 1 35 silver maple Acer saccharinum NSH Low 3.1 66.8 13.0 Sm. dec. Sm. dec. High Common Very Good Very Goo	ailanthus	Ailanthus altissima	NSL	FIA	16	101.8	4.0 Unknown	Unknown	NA	Common	NNIS	NNIS			0 30
sycamore Platanus occidentalis NSL Low 26.9 78.8 4.0 Lg. inc. Lg. inc. Medium Common Very Good Very Good Very Good 1 33 blue ash Fraxinus quadrangulata NSL Low 20.6 73.1 3.2 Sm. dec. Sm. dec. Low Common Poor Poor 0 34 eastern hophornbeam; ironw Ostrya virginiana WSL Low 32 69.5 1.7 Sm. inc. Sm. inc. High Common Very Good Very Good 1 35 silver maple Acer saccharinum NSH Low 3.1 66.8 13.0 Sm. dec. Sm. dec. High Common Fair Fair 1 36 common persimmon Diospyros virginiana NSL Low 29.2 58.3 2.0 Lg. inc. Lg. inc. High Common Very Good Very Good Very Good 1 37 southern red oak Quercus falcata WDL Medium 16.8 56.8 4.4 Lg. inc. Lg. inc. High Common Very Good Very Good Very Good 1 38 red mulberry Morus rubra NSL Low 28.5 53.5 2.3 Sm. dec. Sm. dec. Medium Common Poor Poor Poor 1 39 honeylocust Gleditsia triacanthos NSH Low 28.5 53.5 2.3 Sm. dec. Sm. dec. Medium Common Poor Poor Poor 0 39 honeylocust Gleditsia triacanthos NSH Low 28.4 44.7 1.3 No change Sm. inc. Medium Rare Poor Fair 1 41 vellow buckeye Aesculus flava NSL Low 7 43.5 4.9 Lg. dec. Lg. dec. Low Rare Very Poor Very Poor Very Ood Infill + Infill + 2 43 sourwood Oxydendrum arboreum NDL High 10.1 32.8 2.9 Sm. inc. Sm. inc. High Rare Good Infill + Infill + 1 44 shellbark hickory Carya laciniosa NSL Low 3.4 28.4 4.5 No change No change Medium Rare Poor Poor Infill + Infill + 1 46 Shumard oak Quercus shumardii NSL Low 4.7 22.8 3.4 No change Sm. inc. High Rare Fair Good Infill + Infill + 1 46	scarlet oak	Quercus coccinea	WDL	Medium	19.3	97.1	4.0 Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0 31
blue ash Fraxinus quadrangulata NSL Low 20.6 73.1 3.2 Sm. dec. Sm. dec. Low Common Poor Poor Poor 0 34 eastern hophornbeam; ironw Ostrya virginiana WSL Low 32 69.5 1.7 Sm. inc. Sm. inc. High Common Very Good Very Good 1 35 silver maple Acer saccharinum NSH Low 3.1 66.8 13.0 Sm. dec. Sm. dec. High Common Fair Fair 1 36 common persimmon Diospyros virginiana NSL Low 29.2 58.3 2.0 Lg. inc. Lg. inc. High Common Very Good Very Good 1 37 southern red oak Quercus falcata WDL Medium 16.8 56.8 4.4 Lg. inc. Lg. inc. High Common Very Good Very Good 1 38 red mulberry Morus rubra NSL Low 28.5 53.5 2.3 Sm. dec. Sm. dec. Medium Common Poor Poor Poor 0 39 honeylocust Gleditsia triacanthos NSH Low 12.4 52.0 1.7 Lg. inc. Lg. inc. High Common Very Good Very Good Infill ++ Infill ++ 1 40 eastern redbud Cercis canadensis NSL Low 28.4 44.7 1.3 No change Sm. inc. Medium Rare Poor Fair Fair 1 41 vellow buckeye Aesculus flava NSL Low 7 43.5 4.9 Lg. dec. Lg. dec. Low Rare Very Poor Very Poor Very Poor Very Poor Very Poor Nord Nord Good Infill ++ Infill ++ 2 43 sourwood Oxydendrum arboreum NDL High 9.7 29.1 2.2 No change No change High Rare Fair Fair Fair Fair 1 44 shellbark hickory Carya laciniosa NSL Low 4.7 22.8 3.4 No change Sm. inc. High Rare Fair Good Infill + Infill ++ 1 46	blackgum	Nyssa sylvatica	WDL	Medium	46	90.4	2.7 Sm. inc.	Lg. inc.	High	Common	Very Good	Very Good			1 32
eastern hophornbeam; ironw Ostrya virginiana WSL Low 32 69.5 1.7 Sm. inc. Sm. inc. High Common Very Good Very Good 1 35 silver maple Acer saccharinum NSH Low 3.1 66.8 13.0 Sm. dec. Sm. dec. High Common Fair Fair Fair 1 36 common persimmon Diospyros virginiana NSL Low 29.2 58.3 2.0 Lg. inc. Lg. inc. High Common Very Good Very Good Very Good 1 37 southern red oak Quercus falcata WDL Medium 16.8 56.8 4.4 Lg. inc. Lg. inc. High Common Very Good Very Good Very Good 1 38 red mulberry Morus rubra NSL Low 28.5 53.5 2.3 Sm. dec. Sm. dec. Medium Common Poor Poor Poor 0 39 honeylocust Gleditsia triacanthos NSH Low 12.4 52.0 1.7 Lg. inc. Lg. inc. High Common Very Good Very Good Infill + Infill ++ 1 40 eastern redbud Cercis canadensis NSL Low 28.4 44.7 1.3 No change Sm. inc. Medium Rare Poor Fair 1 41 yellow buckeye Aesculus flava NSL Low 7 43.5 4.9 Lg. dec. Lg. dec. Low Rare Very Poor Very Poor Very Poor 0 42 chestnut oak Quercus prinus NDH High 10.1 32.8 2.9 Sm. inc. Sm. inc. High Rare Good Good Infill + Infill ++ 1 44 shellbark hickory Carya laciniosa NSL Low 4.7 22.8 3.4 No change Sm. inc. High Rare Fair Good Infill + Infill ++ 1 46 Shumard oak Quercus shumardii NSL Low 4.7 22.8 3.4 No change Sm. inc. High Rare Fair Good Infill + Infill ++ 1 46	sycamore	Platanus occidentalis	NSL	Low	26.9	78.8	4.0 Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1 33
silver maple Acer saccharinum NSH Low 3.1 66.8 13.0 Sm. dec. Sm. dec. High Common Fair Fair Fair 1 36 common persimmon Diospyros virginiana NSL Low 29.2 58.3 2.0 Lg. inc. Lg. inc. High Common Very Good Very	blue ash	Fraxinus quadrangulata	NSL	Low	20.6	73.1	3.2 Sm. dec.	Sm. dec.	Low	Common	Poor	Poor			0 34
common persimmon Diospyros virginiana NSL Low 29.2 58.3 2.0 Lg. inc. Lg. inc. High Common Very Good Very Good Very Good 1 37 southern red oak Quercus falcata WDL Medium 16.8 56.8 4.4 Lg. inc. Lg. inc. High Common Very Good Very Good Very Good 1 38 red mulberry Morus rubra NSL Low 28.5 53.5 2.3 Sm. dec. Sm. dec. Medium Common Poor Poor Poor 0 39 honeylocust Gleditsia triacanthos NSH Low 12.4 52.0 1.7 Lg. inc. Lg. inc. High Common Very Good Very Good Infill ++ Infill ++ 1 40 eastern redbud Cercis canadensis NSL Low 28.4 44.7 1.3 No change Sm. inc. Medium Rare Poor Fair 1 41 yellow buckeye Aesculus flava NSL Low 7 43.5 4.9 Lg. dec. Lg. dec. Low Rare Very Poor Very Poor 0 42 chestnut oak Quercus prinus NDH High 10.1 32.8 2.9 Sm. inc. Sm. inc. High Rare Good Good Infill ++ Infill ++ 2 43 sourwood Oxydendrum arboreum NDL High 9.7 29.1 2.2 No change No change High Rare Fair Fair Fair 1 44 shellbark hickory Carya laciniosa NSL Low 4.7 22.8 3.4 No change Sm. inc. High Rare Fair Good Infill + Infill ++ 1 46	eastern hophornbeam; iro	nw Ostrya virginiana	WSL	Low	32	69.5	1.7 Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1 35
southern red oak Quercus falcata WDL Medium 16.8 56.8 4.4 Lg. inc. Lg. inc. Lg. inc. High Common Very Good Very Good Very Good Very Good North	silver maple	Acer saccharinum	NSH	Low	3.1	66.8	13.0 Sm. dec.	Sm. dec.	High	Common	Fair	Fair			1 36
red mulberry Morus rubra NSL Low 28.5 53.5 2.3 Sm. dec. Sm. dec. Medium Common Poor Poor Poor 0 39 honeylocust Gleditsia triacanthos NSH Low 12.4 52.0 1.7 Lg. inc. Lg. inc. High Common Very Good Very Good Infill ++ Infill ++ 1 40 eastern redbud Cercis canadensis NSL Low 28.4 44.7 1.3 No change Sm. inc. Medium Rare Poor Fair 1 41 yellow buckeye Aesculus flava NSL Low 7 43.5 4.9 Lg. dec. Lg. dec. Low Rare Very Poor Very Poor 0 42 chestnut oak Quercus prinus NDH High 10.1 32.8 2.9 Sm. inc. Sm. inc. High Rare Good Good Infill ++ Infill ++ 2 43 sourwood Oxydendrum arboreum NDL High 9.7 29.1 2.2 No change No change High Rare Fair Fair 1 44 shellbark hickory Carya laciniosa NSL Low 3.4 28.4 4.5 No change No change Medium Rare Poor Poor Infill + Infill ++ 2 45 Shumard oak Quercus shumardii NSL Low 4.7 22.8 3.4 No change Sm. inc. High Rare Fair Good Infill + Infill ++ 1 46	common persimmon	Diospyros virginiana	NSL	Low	29.2	58.3	2.0 Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1 37
honeylocust Gleditsia triacanthos NSH Low 12.4 52.0 1.7 Lg. inc. Lg. inc. High Common Very Good Very Good Infill ++ Infill ++ 1 40 eastern redbud Cercis canadensis NSL Low 28.4 44.7 1.3 No change Sm. inc. Medium Rare Poor Fair 1 41 yellow buckeye Aesculus flava NSL Low 7 43.5 4.9 Lg. dec. Lg. dec. Low Rare Very Poor Very Poor 0 42 chestnut oak Quercus prinus NDH High 10.1 32.8 2.9 Sm. inc. Sm. inc. High Rare Good Good Infill ++ Infill ++ 2 43 sourwood Oxydendrum arboreum NDL High 9.7 29.1 2.2 No change No change High Rare Fair Fair 1 44 shellbark hickory Carya laciniosa NSL Low 3.4 28.4 4.5 No change No change Medium Rare Poor Poor Infill + Infill ++ 2 45 Shumard oak Quercus shumardii NSL Low 4.7 22.8 3.4 No change Sm. inc. High Rare Fair Good Infill + Infill ++ 1 46	southern red oak	Quercus falcata	WDL	Medium	16.8	56.8	4.4 Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1 38
eastern redbud Cercis canadensis NSL Low 28.4 44.7 1.3 No change Sm. inc. Medium Rare Poor Fair 1 41 yellow buckeye Aesculus flava NSL Low 7 43.5 4.9 Lg. dec. Lg. dec. Low Rare Very Poor Very Poor Very Poor 0 42 chestnut oak Quercus prinus NDH High 10.1 32.8 2.9 Sm. inc. Sm. inc. High Rare Good Good Infill ++ Infill ++ 2 43 sourwood Oxydendrum arboreum NDL High 9.7 29.1 2.2 No change No change High Rare Fair Fair 1 44 shellbark hickory Carya laciniosa NSL Low 3.4 28.4 4.5 No change No change Medium Rare Poor Poor Infill + Infill ++ 2 45 Shumard oak Quercus shumardii NSL Low 4.7 22.8 3.4 No change Sm. inc. High Rare Fair Good Infill + Infill ++ 1 46	red mulberry	Morus rubra	NSL	Low	28.5	53.5	2.3 Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0 39
yellow buckeye Aesculus flava NSL Low 7 43.5 4.9 Lg. dec. Lg. dec. Low Rare Very Poor Very Poor 0 42 chestnut oak Quercus prinus NDH High 10.1 32.8 2.9 Sm. inc. Sm. inc. High Rare Good Good Infill ++ Infill ++ 2 43 sourwood Oxydendrum arboreum NDL High 9.7 29.1 2.2 No change No change High Rare Fair Fair 1 44 shellbark hickory Carya laciniosa NSL Low 3.4 28.4 4.5 No change No change Medium Rare Poor Poor Infill + Infill ++ 2 45 Shumard oak Quercus shumardii NSL Low 4.7 22.8 3.4 No change Sm. inc. High Rare Fair Good Infill + Infill ++ 1 46	honeylocust	Gleditsia triacanthos	NSH	Low	12.4	52.0	1.7 Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good	Infill ++	Infill ++	1 40
chestnut oak Quercus prinus NDH High 10.1 32.8 2.9 Sm. inc. Sm. inc. High Rare Good Good Infill + Infill ++ 2 43 sourwood Oxydendrum arboreum NDL High 9.7 29.1 2.2 No change No change High Rare Fair Fair 1 44 shellbark hickory Carya laciniosa NSL Low 3.4 28.4 4.5 No change No change Medium Rare Poor Poor Infill + Infill ++ 2 45 Shumard oak Quercus shumardii NSL Low 4.7 22.8 3.4 No change Sm. inc. High Rare Fair Good Infill + Infill ++ 1 46	eastern redbud	Cercis canadensis	NSL	Low	28.4	44.7	1.3 No change	Sm. inc.	Medium	Rare	Poor	Fair			1 41
sourwood Oxydendrum arboreum NDL High 9.7 29.1 2.2 No change No change High Rare Fair Fair 1 44 shellbark hickory Carya laciniosa NSL Low 3.4 28.4 4.5 No change No change Medium Rare Poor Poor Infill + Infill + 2 45 Shumard oak Quercus shumardii NSL Low 4.7 22.8 3.4 No change Sm. inc. High Rare Fair Good Infill + Infill + 1 46	yellow buckeye	Aesculus flava	NSL	Low	7	43.5	4.9 Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0 42
shellbark hickory Carya laciniosa NSL Low 3.4 28.4 4.5 No change No change Medium Rare Poor Poor Infill + Infill + 2 45 Shumard oak Quercus shumardii NSL Low 4.7 22.8 3.4 No change Sm. inc. High Rare Fair Good Infill + Infill + 1 46	chestnut oak	Quercus prinus	NDH	High	10.1	32.8	2.9 Sm. inc.	Sm. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2 43
Shumard oak Quercus shumardii NSL Low 4.7 22.8 3.4 No change Sm. inc. High Rare Fair Good Infill + Infill ++ 1 46	sourwood	Oxydendrum arboreum	NDL	High	9.7	29.1	2.2 No change	No change	High	Rare	Fair	Fair			1 44
	shellbark hickory	Carya laciniosa	NSL	Low	3.4	28.4	4.5 No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2 45
American hornbeam; muscle\ Carpinus caroliniana WSL Low 22.2 21.6 1.5 Lg. inc. Lg. inc. Medium Rare Good Good 1 47	Shumard oak	Quercus shumardii	NSL	Low	4.7	22.8	3.4 No change	Sm. inc.	High	Rare	Fair	Good	Infill +	Infill ++	1 46
	American hornbeam; musc	cles Carpinus caroliniana	WSL	Low	22.2	21.6	1.5 Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1 47



# One x One Degree

# 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

Semigle oak   Quercus imbricaria   NDH   Medium   1.7   7.6   3.3 Sm. dec.   Sm. dec.   Medium   Rare   Very Poor   Very Poor   0.9 Medium   Common   Comm	Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIAiv	/ ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO N
American basswood Tilia americana WSL Medium 2.5 6.7 2.1 Sm. dec. Sm. dec. Medium Rare Very Poor Very Poor O 51 0 50 0 50 0 50 0 50 0 50 0 50 0 50	eastern cottonwood	Populus deltoides	NSH	Low	1.4	12.5	5 1	3 Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0 48
Pasupawa   Asimina triloba   NSL   Low   Asymptotic   Asymptotic   Low   Asymptotic   Asymptotic   Low   Asymptotic   Asymptotic   Low   Asymptotic	shingle oak	Quercus imbricaria	NDH	Medium	1.7	7.6	3	3 Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0 49
Paulownia Paulownia tomentosa NSL FIA	American basswood	Tilia americana	WSL	Medium	2.5	6.7	7 2.	1 Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0 50
Samp white oak   Quercus bicolor   NSL   Low   1   6.2   6.2 Sm. dec.   Sm. dec.   Medium   Rare   Very Poor   Very Poor   1   1   1   1   1   1   1   1   1	pawpaw	Asimina triloba	NSL	Low	4.9	6.6	5 1.0	0 Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0 51
Dack willow   Salix nigra   NSH   Low   4   6.1   24.1 Sm. inc.   Lg. inc.   Low   Rare   Poor   Fair   Infill + 2   24   24   25   25   25   25   25	paulownia	Paulownia tomentosa	NSL	FIA	3	6.4	1 2.	1 Unknown	Unknown	NA	Rare	NNIS	NNIS			0 52
butternut butternut Juglans cinerea NSLX FIA 2 5.9 2.9 Unknown Unknown Low Rare FIA Only FIA Only 2 56 obloly pine Pinus virginiana NDH High 1 5.4 5.4 Ig., inc. Lg.,	swamp white oak	Quercus bicolor	NSL	Low	1	6.2	2 6.:	2 Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0 53
loblolly pine Pinus taeda WDH High 1.2 5.4 Lg. inc. Ug. inc. Medium Rare Good Good Fiffill 2 5.5 5.5 Lg. inc. Ug. inc. Medium Rare Poor Poor Infill 2 5.5 5.5 S. Ug. inc. Ug. inc. Medium Rare Poor Poor Infill 2 5.5 5.5 S. Ug. Infill Pinus Prunus americana NSLY FIA 0.1 3.7 0.4 Inknown Unknown Medium Rare FIA Only FIA Only 0.5 Serviceberry Amelanchier spp. NSL Low 1.6 2.8 0.5 Lg. dec. Very Lg. dec. Medium Rare FIA Only FIA Only 0.5 Solution of the Medium Rare FIA Only FIA Only 0.5 Solution of the Medium Rare Poor Poor Infill Pinus Prunus Proor Infill Pinus Prunus Pr	black willow	Salix nigra	NSH	Low	4	6.1	24.	1 Sm. inc.	Lg. inc.	Low	Rare	Poor	Fair		Infill +	2 54
Virginia pine Pinus virginiana NDH High 1.2 5.0 2.1 No change No change Medium Rare Poor Poor Infill + 2 57 wild plum Prunus americana NSLX FIA 0.1 3.7 0.4 Unknown Unknown Prunus americana NSLX FIA 0.1 3.0 3.0 Lg. inc. Lg. inc. Lg. inc. Lg. inc. Lg. inc. Low Rare Fial Only FIA Only FIA Only Service Diack maple Acer nigrum NSH Low 0.6 2.4 1.3 Sm. dec. Sm. dec. High Rare Poor Poor Lost 0 60 60 60 60 60 60 60 60 60 60 60 60 6	butternut	Juglans cinerea	NSLX	FIA	2	5.9	2.5	9 Unknown	Unknown	Low	Rare	FIA Only	FIA Only			0 55
wild plum Prunus americana NSLX FIA 0.1 3.7 0.4 Unknown Unknown Medium Rare FIA Only FIA Only 0.58 pecan Carya illinoinensis NSH Low 1. 3.0 3.0 Lg. inc. Lg. inc. Low Rare Fair Fair Infill + Infill + 2.59 pecan Carya illinoinensis NSH Low 1.6 2.8 0.5 Lg. dec. Very Lg. dec. Medium Rare Very Poor Lost Diack Marker North State Poor Poor Poor 0.6 0.6 0.4 1.3 Sm. dec. High Rare Poor Poor Poor 0.6 0.6 0.4 0.5 Nm. dec. High Rare Poor Poor Poor 0.6 0.6 0.4 0.5 Nm. dec. High Rare Poor Poor Poor 0.6 0.6 0.4 0.5 Nm. dec. High Rare Poor Poor Poor 0.6 0.6 0.4 0.5 Nm. dec. High Rare Poor Poor Poor 0.6 0.6 0.4 0.5 Nm. dec. High Rare Poor Poor Poor 0.6 0.6 0.4 0.5 Nm. dec. High Rare Poor Poor Poor 0.6 0.6 0.4 0.5 Nm. dec. High Rare Poor Poor Poor 0.6 0.6 0.4 0.5 Nm. dec. High Rare Poor Poor Poor 0.6 0.6 0.4 0.5 Nm. dec. High Rare Poor Poor Poor 0.6 0.6 0.4 0.5 Nm. dec. High Rare Poor Poor Poor 0.6 0.6 0.4 0.5 Nm. dec. High Rare Poor Poor Poor 0.6 0.6 0.4 0.5 Nm. dec. High Rare Poor Poor Poor 0.6 0.6 0.4 0.5 Nm. dec. High Rare Poor Poor Poor 0.6 0.6 0.6 0.4 0.5 0.6 0.6 0.4 0.5 0.6 0.6 0.4 0.5 0.6 0.6 0.4 0.5 0.6 0.5 0.5 0.1 Lg. dec. Lg. dec. Medium Rare Very Poor Very Poor 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6	loblolly pine	Pinus taeda	WDH	High	1	5.4	4 5. <sub>-</sub>	4 Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2 56
pecan Carya illinoinensis NSH Low 1 3.0 3.0 Lg. inc. Lg.	Virginia pine	Pinus virginiana	NDH	High	1.2	5.0	2.	1 No change	No change	Medium	Rare	Poor	Poor		Infill +	2 57
serviceberry Amelanchier spp. NSL Low 1.6 2.8 0.5 Lg. dec. Very Lg. dec. Medium Rare Very Poor Lost 0 60 60 60 60 60 60 60 60 60 60 60 60 6	wild plum	Prunus americana	NSLX	FIA	0.1	3.7	7 0.	4 Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0 58
black maple Acer nigrum NSH Low 0.6 2.4 1.3 Sm. dec. Sm. dec. High Rare Poor Poor 0 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	pecan	Carya illinoinensis	NSH	Low	1	3.0	3.0	0 Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	2 59
white mulberry Morus alba NSL FIA 2 2.0 1.0 Unknown Unknown NA Rare NNIS NNIS 0 62 62 64 64 64 64 64 64 64 64 64 64 64 64 64	serviceberry	Amelanchier spp.	NSL	Low	1.6	2.8	3 0.	5 Lg. dec.	Very Lg. dec.	Medium	Rare	Very Poor	Lost			0 60
Kentucky coffeetree Gymnocladus dioicus NSLX FIA 1 1.2 1.2 Unknown Unknown Medium Rare FIA Only FIA Only 0 63 pin cherry Prunus pensylvanica NSL Low 0.2 0.5 0.1 Lg. dec. Lg. dec. Medium Rare Very Poor Very Poor 0 64 cherrybark oak; swamp red o. Quercus pagoda NSL Medium 4 0.5 2.0 Lg. inc. Lg. inc. Medium Rare Good Good Infill ++ Infill ++ 2 65 asshe juniper Juniperus ashei NDH High 0 0 0 New Habitat	black maple	Acer nigrum	NSH	Low	0.6	2.4	1 1.	3 Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0 61
pin cherry Prunus pensylvanica NSL Low 0.2 0.5 0.1 Lg. dec. Lg. dec. Medium Rare Very Poor Very Poor 0 64 0 0 0 65 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	white mulberry	Morus alba	NSL	FIA	2	2.0	1.0	0 Unknown	Unknown	NA	Rare	NNIS	NNIS			0 62
cherrybark oak; swamp red o. Quercus pagoda NSL Medium 4 0.5 2.0 lg. inc. Lg. inc. Lg. inc. Medium Rare Good Good Infill ++ Infill ++ 2 65 ashe juniper Juniperus ashei NDH High 0 0 0 New Habitat New	Kentucky coffeetree	Gymnocladus dioicus	NSLX	FIA	1	1.2	2 1	2 Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0 63
ashe juniper Juniperus ashei NDH High 0 0 New Habitat	pin cherry	Prunus pensylvanica	NSL	Low	0.2	0.5	5 0.	1 Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0 64
shortleaf pine Pinus echinata WDH High 0 0 0 New Habitat New Habitat Medium Absent New Habitat New Habitat Medium Absent Unknown New Habitat New Habit	cherrybark oak; swamp red	o: Quercus pagoda	NSL	Medium	4	0.5	5 2.0	0 Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2 65
Acer pensylvanicum NSL Medium 0 0 0 Unknown New Habitat Medium Absent Unknown New Habitat Unknown Unknown Unknown Unknown Unknown Medium Absent Unknown New Habitat New Ha	ashe juniper	Juniperus ashei	NDH	High	0	0	) (	0 New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0 66
Ohio buckeye Aesculus glabra NSL Low 0 0 0 Unknown Unknown Medium Absent Unknown New Habitat New Habit	shortleaf pine	Pinus echinata	WDH	High	0	0	) (	0 New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3 67
river birch Betula nigra NSL Low 0 0 0 New Habitat New	striped maple	Acer pensylvanicum	NSL	Medium	0	0	) (	0 Unknown	New Habitat	Medium	Absent	Unknown	New Habitat			3 68
cittamwood/gum bumelia Sideroxylon lanuginosum ssp. NSL Low 0 0 New Habitat Ne	Ohio buckeye	Aesculus glabra	NSL	Low	0	0	) (	0 Unknown	Unknown	Medium	Absent	Unknown	Unknown			0 69
black hickory Carya texana NDL High 0 0 0 New Habitat	river birch	Betula nigra	NSL	Low	0	0	) (	0 New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3 70
black ash Fraxinus nigra WSH Medium 0 0 0 Unknown New Habitat Low Absent Unknown New Habitat 3 73 bigleaf magnolia Magnolia macrophylla NSL Low 0 0 0 Unknown Unknown Medium Absent Unknown O 74 black jack oak Quercus marilandica NSL Medium O 0 New Habitat New Habitat High Absent New Habitat	cittamwood/gum bumelia	Sideroxylon lanuginosum ssp	. NSL	Low	0	0	) (	0 New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate ++	3 71
bigleaf magnolia Magnolia macrophylla NSL Low 0 0 0 Unknown Unknown Medium Absent Unknown Unknown Unknown 0 74 blackjack oak Quercus marilandica NSL Medium 0 0 0 New Habitat New Habitat High Absent New Habitat	black hickory	Carya texana	NDL	High	0	0	) (	0 New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3 72
blackjack oak Quercus marilandica NSL Medium 0 0 0 New Habitat New Habitat High Absent New Habitat New	black ash	Fraxinus nigra	WSH	Medium	0	0	) (	0 Unknown	New Habitat	Low	Absent	Unknown	New Habitat			3 73
water oak Quercus nigra WDH High 0 0 0 New Habitat New Habitat Medium Absent New Habitat N	bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	) (	0 Unknown	Unknown	Medium	Absent	Unknown	Unknown			0 74
willow oak Quercus phellos NSL Low 0 0 0 New Habitat New Habitat Medium Absent New Habitat	blackjack oak	Quercus marilandica	NSL	Medium	0	0	) (	0 New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3 75
live oak Quercus virginiana NDH <mark>High</mark> 0 0 0 New Habitat New Habitat <mark>Medium</mark> Absent New Habitat New Habitat 3 78	water oak	Quercus nigra	WDH	High	0	0	) (	0 New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3 76
	willow oak	Quercus phellos	NSL	Low	0	0	) (	0 New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3 77
cedar elm Ulmus crassifolia NDH <mark>Medium</mark> 0 0 0 New Habitat New Habitat Low Absent New Habitat New Habitat S 79	live oak	Quercus virginiana	NDH	High	0	0	)	0 New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3 78
	cedar elm	Ulmus crassifolia	NDH	Medium	0	0	) (	0 New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3 79

