

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

Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIAiv	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
post oak	Quercus stellata	WDH	High	86.1	2454.8	21.6	Sm. dec.	Sm. dec.	High	Abundant	Good	Good			1	1
eastern redcedar	Juniperus virginiana	WDH	Medium	65.4	952.1	11.1	No change	No change	Medium	Abundant	Good	Good			1	2
black oak	Quercus velutina	WDH	High	64.7	599.1	7.6	Sm. dec.	Sm. dec.	Medium	Abundant	Fair	Fair			0	3
black hickory	Carya texana	NDL	High	67.1	575.3	6.6	No change	No change	Medium	Abundant	Good	Good			1	4
white oak	Quercus alba	WDH	Medium	37.9	563.5	10.4	No change	No change	High	Abundant	Very Good	Very Good			1	5
shortleaf pine	Pinus echinata	WDH	High	26.7	562.4	12.0	Lg. inc.	Lg. inc.	Medium	Abundant	Very Good	Very Good			1	6
winged elm	Ulmus alata	WDL	Medium	77.5	490.2	5.1	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	7
mockernut hickory	Carya alba	WDL	Medium	63	424.9	5.5	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	8
blackjack oak	Quercus marilandica	NSL	Medium	54.8	393.3	5.6	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	9
northern red oak	Quercus rubra	WDH	Medium	41.4	336.0	6.3	No change	No change	High	Common	Good	Good			1	10
green ash	Fraxinus pennsylvanica	WSH	Low	25.1	218.9	6.6	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	11
southern red oak	Quercus falcata	WDL	Medium	31.8	217.1	6.0	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	12
water oak	Quercus nigra	WDH	High	19.6	183.2	9.7	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good	Infill ++	Infill ++	1	13
white ash	Fraxinus americana	WDL	Medium	40.6	132.6	3.1	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	14
American elm	Ulmus americana	WDH	Medium	29.8	119.6	3.7	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	15
sweetgum	Liquidambar styraciflua	WDH	High	16.7	113.1	5.2	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	16
honeylocust	Gleditsia triacanthos	NSH	Low	18.2	108.3	6.0	No change	Sm. inc.	High	Common	Good	Very Good			1	17
black cherry	Prunus serotina	WDL	Medium	32.6	103.0	2.7	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	18
blackgum	Nyssa sylvatica	WDL	Medium	27.7	103.0	3.3	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	19
black walnut	Juglans nigra	WDH	Low	15.7	99.5	4.3	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	20
common persimmon	Diospyros virginiana	NSL	Low	24.8	99.2	3.0	Sm. dec.	Sm. inc.	High	Common	Fair	Very Good			1	21
slippery elm	Ulmus rubra	WDL	Low	22.7	94.1	3.1	No change	No change	Medium	Common	Fair	Fair			1	22
red maple	Acer rubrum	WDH	High	28.4	91.1	2.7	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	23
loblolly pine	Pinus taeda	WDH	High	4.7	86.3	7.6	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good	Infill ++	Infill ++	1	24
bitternut hickory	Carya cordiformis	WSL	Low	19.1	85.7	3.0	Sm. dec.	Sm. dec.	High	Common	Fair	Fair			1	25
hackberry	Celtis occidentalis	WDH	Medium	22.2	83.6	2.8	No change	No change	High	Common	Good	Good			1	26
sugarberry	Celtis laevigata	NDH	Medium	20.9	82.7	5.3	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	27
florida maple	Acer barbatum	NSL	Low	17.8	81.3	3.8	Lg. dec.	Sm. dec.	High	Common	Fair	Fair			1	28
sycamore	Platanus occidentalis	NSL	Low	17.3	78.2	4.4	No change	Sm. inc.	Medium	Common	Fair	Good			1	29
eastern cottonwood	Populus deltoides	NSH	Low	4.1	77.5	14.6	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	30
boxelder	Acer negundo	WSH	Low	10.9	74.2	5.3	No change	Sm. inc.	High	Common	Good	Very Good			1	31
pecan	Carya illinoensis	NSH	Low	8.7	72.3	5.5	No change	No change	Low	Common	Poor	Poor	Infill +	Infill +	0	32
black locust	Robinia pseudoacacia	NDH	Low	13.2	71.0	4.2	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	33
flowering dogwood	Cornus florida	WDL	Medium	27.5	70.0	2.0	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	34
river birch	Betula nigra	NSL	Low	5.7	69.6	3.4	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	35
silver maple	Acer saccharinum	NSH	Low	10.5	62.0	4.8	Lg. dec.	Lg. dec.	High	Common	Fair	Fair			1	36
black willow	Salix nigra	NSH	Low	3.4	59.9	12.5	No change	No change	Low	Common	Poor	Poor	Infill +	Infill +	0	37
Osage-orange	Maclura pomifera	NDH	Medium	7	51.1	7.4	No change	No change	High	Common	Good	Good	Infill ++	Infill ++	1	38
shagbark hickory	Carya ovata	WSL	Medium	7.3	39.6	3.2	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	39
chinkapin oak	Quercus muehlenbergii	NSL	Medium	18.5	37.6	1.9	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	1	40
Shumard oak	Quercus shumardii	NSL	Low	7.2	36.4	3.1	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	1	41
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	19.9	30.9	1.4	Lg. inc.	Lg. inc.	High	Rare	Good	Good			1	42
sassafras	Sassafras albidum	WSL	Low	20.4	29.7	2.2	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	43
red mulberry	Morus rubra	NSL	Low	16.5	26.1	1.4	No change	Sm. inc.	Medium	Rare	Poor	Fair			1	44
eastern redbud	Cercis canadensis	NSL	Low	17.9	21.8	1.1	No change	Lg. inc.	Medium	Rare	Poor	Good			1	45
nuttall oak	Quercus texana	NSH	Medium	2	17.7	8.9	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	46
serviceberry	Amelanchier spp.	NSL	Low	10.6	14.1	1.1	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	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

Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIAiv	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
pignut hickory	<i>Carya glabra</i>	WDL	Medium	11.1	13.3	1.3	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good	Infill +	Infill ++	1	48
cedar elm	<i>Ulmus crassifolia</i>	NDH	Medium	7	11.4	3.2	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	2	49
willow oak	<i>Quercus phellos</i>	NSL	Low	2.2	11.4	3.1	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair	Infill +	Infill +	2	50
pin oak	<i>Quercus palustris</i>	NSH	Low	3.8	11.3	2.8	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	51
American basswood	<i>Tilia americana</i>	WSL	Medium	5.1	8.3	1.3	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	52
sugar maple	<i>Acer saccharum</i>	WDH	High	1.4	8.1	3.9	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			0	53
white mulberry	<i>Morus alba</i>	NSL	FIA	1	7.8	7.8	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	54
wild plum	<i>Prunus americana</i>	NSLX	FIA	3.5	6.4	0.7	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	55
bur oak	<i>Quercus macrocarpa</i>	NDH	Medium	1.9	6.4	3.2	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	56
pawpaw	<i>Asimina triloba</i>	NSL	Low	3	4.5	1.5	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	57
cherrybark oak; swamp red o.	<i>Quercus pagoda</i>	NSL	Medium	2.5	4.0	1.3	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good	Infill +		2	58
Kentucky coffeetree	<i>Gymnocladus dioicus</i>	NSLX	FIA	1.9	4.0	2.0	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	59
overcup oak	<i>Quercus lyrata</i>	NSL	Medium	1	3.5	3.5	No change	No change	Low	Rare	Very Poor	Very Poor			2	60
swamp chestnut oak	<i>Quercus michauxii</i>	NSL	Low	0.1	3.1	0.2	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	61
paulownia	<i>Paulownia tomentosa</i>	NSL	FIA	1	2.9	3.0	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	62
cucumbertree	<i>Magnolia acuminata</i>	NSL	Low	1	2.7	2.6	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	63
waterlocust	<i>Gleditsia aquatica</i>	NSLX	FIA	1	2.2	2.3	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	64
bluejack oak	<i>Quercus incana</i>	NSL	Low	0.5	1.4	0.7	No change	Sm. inc.	Medium	Rare	Poor	Fair		Infill +	2	65
American beech	<i>Fagus grandifolia</i>	WDH	High	1	1.1	1.2	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good	Infill +		2	66
cittamwood/gum bumelia	<i>Sideroxylon lanuginosum ssp.</i>	NSL	Low	2.2	1.1	0.6	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	67
shellbark hickory	<i>Carya laciniosa</i>	NSL	Low	0.6	0.2	0.1	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	68
ashe juniper	<i>Juniperus ashei</i>	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	69
slash pine	<i>Pinus elliotii</i>	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate ++	3	70
longleaf pine	<i>Pinus palustris</i>	NSH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	71
Virginia pine	<i>Pinus virginiana</i>	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	72
striped maple	<i>Acer pensylvanicum</i>	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	73
American hornbeam; musclev	<i>Carpinus caroliniana</i>	WSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	74
black ash	<i>Fraxinus nigra</i>	WSH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	75
silverbell	<i>Halesia spp.</i>	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	76
American holly	<i>Ilex opaca</i>	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	77
yellow-poplar	<i>Liriodendron tulipifera</i>	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	78
southern magnolia	<i>Magnolia grandiflora</i>	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	79
sweetbay	<i>Magnolia virginiana</i>	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	80
bigleaf magnolia	<i>Magnolia macrophylla</i>	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	81
mountain or Fraser magnolia	<i>Magnolia fraseri</i>	NSL	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	82
sourwood	<i>Oxydendrum arboreum</i>	NDL	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	83
pin cherry	<i>Prunus pensylvanica</i>	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	84
laurel oak	<i>Quercus laurifolia</i>	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	85
chestnut oak	<i>Quercus prinus</i>	NDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	86
live oak	<i>Quercus virginiana</i>	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	87