

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
chestnut oak	Quercus prinus	NDH	High	77.2	1148.9	10.4	No change	No change	High	Abundant	Very Good	Very Good			1	1
red maple	Acer rubrum	WDH	High	86.1	1125.1	8.9	No change	No change	High	Abundant	Very Good	Very Good			1	2
yellow-poplar	Liriodendron tulipifera	WDH	High	79.9	988.4	8.3	No change	Sm. dec.	High	Abundant	Very Good	Good			1	3
northern red oak	Quercus rubra	WDH	Medium	72.2	556.6	5.4	Sm. inc.	Sm. inc.	High	Abundant	Very Good	Very Good			1	4
scarlet oak	Quercus coccinea	WDL	Medium	69.2	555.2	5.3	No change	No change	Medium	Abundant	Good	Good			1	5
eastern hemlock	Tsuga canadensis	NSH	High	62.9	513.6	5.9	No change	No change	Low	Abundant	Fair	Fair			0	6
sourwood	Oxydendrum arboreum	NDL	High	80.6	506.5	4.3	No change	No change	High	Abundant	Very Good	Very Good			1	7
Virginia pine	Pinus virginiana	NDH	High	45.4	452.9	7.6	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	8
white oak	Quercus alba	WDH	Medium	70.4	435.7	4.1	Sm. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	9
sweet birch	Betula lenta	NDH	High	68.3	395.8	4.5	No change	Sm. dec.	Low	Common	Poor	Poor			0	10
pignut hickory	Carya glabra	WDL	Medium	65.1	339.2	3.5	No change	No change	Medium	Common	Fair	Fair			1	11
eastern white pine	Pinus strobus	WDH	High	42.4	335.9	4.5	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	12
black locust	Robinia pseudoacacia	NDH	Low	64.3	292.6	3.2	No change	No change	Medium	Common	Fair	Fair			1	13
blackgum	Nyssa sylvatica	WDL	Medium	69.5	230.4	2.2	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	14
black oak	Quercus velutina	WDH	High	58.2	223.3	2.7	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	15
mockernut hickory	Carya alba	WDL	Medium	50.9	219.4	3.7	Sm. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	16
shortleaf pine	Pinus echinata	WDH	High	37.8	213.5	4.2	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	17
pitch pine	Pinus rigida	NSH	High	37.7	203.0	3.5	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	18
yellow birch	Betula alleghaniensis	NDL	High	28.9	184.9	5.0	No change	No change	Medium	Common	Fair	Fair			1	19
red spruce	Picea rubens	NDH	High	8.1	181.4	20.2	Sm. dec.	Sm. dec.	Low	Common	Poor	Poor			0	20
flowering dogwood	Cornus florida	WDL	Medium	54.1	164.6	2.2	No change	No change	Medium	Common	Fair	Fair			1	21
sugar maple	Acer saccharum	WDH	High	39.3	145.8	2.7	No change	Sm. dec.	High	Common	Good	Fair			1	22
eastern redcedar	Juniperus virginiana	WDH	Medium	19.8	142.9	6.0	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	23
white ash	Fraxinus americana	WDL	Medium	31.8	141.5	3.1	No change	Sm. inc.	Low	Common	Poor	Fair			1	24
American beech	Fagus grandifolia	WDH	High	36.3	139.2	2.7	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	25
southern red oak	Quercus falcata	WDL	Medium	21.6	124.7	4.1	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	26
black cherry	Prunus serotina	WDL	Medium	34.2	95.0	1.8	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	27
silverbell	Halesia spp.	NSL	Low	28	88.3	2.5	No change	No change	Medium	Common	Fair	Fair			1	28
serviceberry	Amelanchier spp.	NSL	Low	38.3	83.3	1.4	No change	No change	Medium	Common	Fair	Fair			1	29
winged elm	Ulmus alata	WDL	Medium	10.9	78.3	5.8	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good	Infill ++	Infill ++	1	30
American basswood	Tilia americana	WSL	Medium	23.5	77.2	2.5	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	31
post oak	Quercus stellata	WDH	High	13.6	75.6	4.4	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good	Infill ++	Infill ++	1	32
mountain or Fraser magnolia	Magnolia fraseri	NSL	Low	28.1	72.6	2.0	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			0	33
sassafras	Sassafras albidum	WSL	Low	34.3	66.6	1.6	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	34
shagbark hickory	Carya ovata	WSL	Medium	17.6	66.5	3.0	Sm. dec.	No change	Medium	Common	Poor	Fair			1	35
American elm	Ulmus americana	WDH	Medium	10.4	62.5	4.5	No change	Sm. inc.	Medium	Common	Fair	Good	Infill +	Infill ++	1	36
sycamore	Platanus occidentalis	NSL	Low	2.4	58.4	17.0	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	2	37
black walnut	Juglans nigra	WDH	Low	18.9	58.1	2.5	No change	Sm. inc.	Medium	Common	Fair	Good			1	38
yellow buckeye	Aesculus flava	NSL	Low	16.6	54.9	2.3	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	39
loblolly pine	Pinus taeda	WDH	High	6.3	52.3	2.2	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good	Infill ++	Infill ++	1	40
striped maple	Acer pensylvanicum	NSL	Medium	28.8	50.8	1.1	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	41
Osage-orange	Maclura pomifera	NDH	Medium	0.9	49.7	44.1	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor		Infill +	2	42
eastern redbud	Cercis canadensis	NSL	Low	11.2	39.8	2.4	Sm. dec.	No change	Medium	Rare	Very Poor	Poor			1	43
American holly	Ilex opaca	NSL	Medium	11.8	37.6	2.4	Lg. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	44
green ash	Fraxinus pennsylvanica	WSH	Low	12	36.8	2.3	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	45
hackberry	Celtis occidentalis	WDH	Medium	8.2	34.6	3.1	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	1	46
bitternut hickory	Carya cordiformis	WSL	Low	11.6	32.3	1.7	Sm. dec.	No change	High	Rare	Poor	Fair			1	47



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eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	9	30.8	2.5	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	1	48
cucumber tree	Magnolia acuminata	NSL	Low	16.2	28.7	1.1	Sm. inc.	Sm. inc.	Medium	Rare	Fair	Fair			1	49
pin cherry	Prunus pensylvanica	NSL	Low	6.4	22.1	2.4	No change	No change	Medium	Rare	Poor	Poor			1	50
sweetgum	Liquidambar styraciflua	WDH	High	9.3	20.7	1.9	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1	51
boxelder	Acer negundo	WSH	Low	6.3	18.7	2.5	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	1	52
Table Mountain pine	Pinus pungens	NSL	Low	6	17.9	3.0	No change	No change	High	Rare	Fair	Fair			1	53
American hornbeam; musclev	Carpinus caroliniana	WSL	Low	11.7	16.0	1.3	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good			1	54
American chestnut	Castanea dentata	NSLX	FIA	15.7	15.5	0.8	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	55
slippery elm	Ulmus rubra	WSL	Low	5.5	11.7	1.4	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	1	56
common persimmon	Diospyros virginiana	NSL	Low	5	7.4	0.8	No change	Sm. inc.	High	Rare	Fair	Good			1	57
red mulberry	Morus rubra	NSL	Low	4	5.1	0.7	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	1	58
river birch	Betula nigra	NSL	Low	1	4.4	4.4	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			2	59
white mulberry	Morus alba	NSL	FIA	1.8	4.0	1.8	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	60
chokecherry	Prunus virginiana	NSLX	FIA	1	3.2	3.2	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	61
shingle oak	Quercus imbricaria	NDH	Medium	1	3.0	3.0	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	62
bigleaf magnolia	Magnolia macrophylla	NSL	Low	1	2.3	2.3	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	63
ailanthus	Ailanthus altissima	NSL	FIA	2.1	2.2	0.6	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	64
shellbark hickory	Carya laciniosa	NSL	Low	0.8	1.9	1.7	Very Lg. dec.	Lg. dec.	Medium	Rare	Lost	Very Poor			0	65
bigtooth aspen	Populus grandidentata	NSL	Medium	1	1.9	1.9	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	66
blackjack oak	Quercus marilandica	NSL	Medium	1	1.7	1.7	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	67
mountain maple	Acer spicatum	NSL	Low	1	1.2	1.2	No change	No change	High	Rare	Fair	Fair			0	68
sugarberry	Celtis laevigata	NDH	Medium	1	1.0	1.0	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	69
honeylocust	Gleditsia triacanthos	NSH	Low	1	0.8	0.8	Sm. inc.	Lg. inc.	High	Rare	Good	Good			2	70
black maple	Acer nigrum	NSH	Low	0.9	0.4	0.3	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	71
pawpaw	Asimina triloba	NSL	Low	1	0.4	0.4	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	72
paulownia	Paulownia tomentosa	NSL	FIA	0.9	0.3	0.3	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	73
American mountain-ash	Sorbus americana	NSL	Low	1	0.3	0.3	Sm. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	74
ashe juniper	Juniperus ashei	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	75
longleaf pine	Pinus palustris	NSH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	76
pond cypress	Taxodium ascendens	NSH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++		3	77
northern white-cedar	Thuja occidentalis	WSH	High	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat			3	78
florida maple	Acer barbatum	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	79
silver maple	Acer saccharinum	NSH	Low	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	80
Ohio buckeye	Aesculus glabra	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	81
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	82
pecan	Carya illinoensis	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat		Migrate +	3	83
black hickory	Carya texana	NDL	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	84
black ash	Fraxinus nigra	WSH	Medium	0	0	0	Unknown	New Habitat	Low	Absent	Unknown	New Habitat			3	85
southern magnolia	Magnolia grandiflora	NSL	Low	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat		Migrate +	3	86
sweetbay	Magnolia virginiana	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	87
swamp tupelo	Nyssa biflora	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat		Migrate +	3	88
swamp white oak	Quercus bicolor	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	89
cherrybark oak; swamp red o.	Quercus pagoda	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	90
overcup oak	Quercus lyrata	NSL	Medium	0	0	0	Unknown	New Habitat	Low	Absent	Unknown	New Habitat		Migrate +	3	91
chinkapin oak	Quercus muehlenbergii	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	92
water oak	Quercus nigra	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	93
willow oak	Quercus phellos	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	94



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Shumard oak	Quercus shumardii	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	95
live oak	Quercus virginiana	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate ++	3	96
bluejack oak	Quercus incana	NSL	Low	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat		Migrate +	3	97
black willow	Salix nigra	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat		Migrate +	3	98
cedar elm	Ulmus crassifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			0	99