

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
yellow-poplar	Liriodendron tulipifera	WDH	High	87.2	1573.7	11.8	Sm. dec.	Lg. dec.	High	Abundant	Good	Good			1	1
red maple	Acer rubrum	WDH	High	75.8	958.5	8.1	No change	Sm. dec.	High	Abundant	Very Good	Good			1	2
chestnut oak	Quercus prinus	NDH	High	63.9	912.5	9.4	No change	No change	High	Abundant	Very Good	Very Good			1	3
sugar maple	Acer saccharum	WDH	High	64.9	565.8	6.2	Sm. dec.	Lg. dec.	High	Abundant	Good	Good			1	4
northern red oak	Quercus rubra	WDH	Medium	72.6	507.4	4.3	Sm. inc.	Sm. inc.	High	Abundant	Very Good	Very Good			1	5
eastern redcedar	Juniperus virginiana	WDH	Medium	40.7	494.0	9.9	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	6
black locust	Robinia pseudoacacia	NDH	Low	70.3	466.3	4.1	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	7
white oak	Quercus alba	WDH	Medium	62.3	441.1	5.1	Sm. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	8
eastern white pine	Pinus strobus	WDH	High	32.5	363.6	6.1	No change	No change	Low	Common	Poor	Poor			0	9
scarlet oak	Quercus coccinea	WDL	Medium	46.7	355.4	4.3	No change	Sm. dec.	Medium	Common	Fair	Poor			1	10
Virginia pine	Pinus virginiana	NDH	High	43.9	325.2	5.6	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	11
American beech	Fagus grandifolia	WDH	High	59.4	321.3	3.6	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	12
eastern hemlock	Tsuga canadensis	NSH	High	36.8	308.8	4.7	No change	Sm. dec.	Low	Common	Poor	Poor			0	13
sourwood	Oxydendrum arboreum	NDL	High	62.1	299.2	3.1	No change	No change	High	Common	Good	Good			1	14
black cherry	Prunus serotina	WDL	Medium	48.8	285.3	4.1	No change	No change	Low	Common	Poor	Poor			0	15
pignut hickory	Carya glabra	WDL	Medium	58.3	278.7	3.1	No change	No change	Medium	Common	Fair	Fair			1	16
black oak	Quercus velutina	WDH	High	52.8	268.5	3.5	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	17
white ash	Fraxinus americana	WDL	Medium	47.1	257.2	3.8	No change	No change	Low	Common	Poor	Poor			0	18
mockernut hickory	Carya alba	WDL	Medium	42	246.4	4.0	Sm. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	19
sweet birch	Betula lenta	NDH	High	43.1	239.1	3.0	Sm. dec.	Sm. dec.	Low	Common	Poor	Poor			0	20
sassafras	Sassafras albidum	WSL	Low	52	234.1	3.5	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	21
blackgum	Nyssa sylvatica	WDL	Medium	61.8	207.9	2.3	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	22
yellow buckeye	Aesculus flava	NSL	Low	26	133.4	3.6	Lg. dec.	Lg. dec.	Low	Common	Very Poor	Very Poor			0	23
shagbark hickory	Carya ovata	WSL	Medium	29.2	129.9	3.5	No change	No change	Medium	Common	Fair	Fair			1	24
American elm	Ulmus americana	WDH	Medium	30.1	128.8	3.6	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	25
American basswood	Tilia americana	WSL	Medium	31.3	114.8	2.5	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	26
cucumbertree	Magnolia acuminata	NSL	Low	32.3	103.8	1.8	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	27
black walnut	Juglans nigra	WDH	Low	28.7	101.8	2.6	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	28
mountain or Fraser magnolia	Magnolia fraseri	NSL	Low	24.4	100.7	2.3	Sm. dec.	Sm. dec.	Low	Common	Poor	Poor			0	29
Osage-orange	Maclura pomifera	NDH	Medium	2	89.8	44.6	Lg. dec.	Lg. dec.	High	Common	Fair	Fair	Infill +		2	30
chinkapin oak	Quercus muehlenbergii	NSL	Medium	19.4	74.8	2.9	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	31
pitch pine	Pinus rigida	NSH	High	18.8	71.1	2.7	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	32
boxelder	Acer negundo	WSH	Low	6.2	70.8	9.9	Lg. dec.	No change	High	Common	Fair	Good			1	33
flowering dogwood	Cornus florida	WDL	Medium	37.6	67.9	1.3	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	34
green ash	Fraxinus pennsylvanica	WSH	Low	18.3	67.8	2.8	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	35
eastern redbud	Cercis canadensis	NSL	Low	24.2	65.3	2.2	No change	Sm. inc.	Medium	Common	Fair	Good			1	36
sweetgum	Liquidambar styraciflua	WDH	High	7.1	59.4	6.6	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good	Infill ++	Infill ++	1	37
bitternut hickory	Carya cordiformis	WSL	Low	19.4	59.0	2.1	Sm. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	38
shortleaf pine	Pinus echinata	WDH	High	11	46.6	3.8	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	39
common persimmon	Diospyros virginiana	NSL	Low	4.8	43.2	7.1	No change	Sm. inc.	High	Rare	Fair	Good			1	40
sycamore	Platanus occidentalis	NSL	Low	9.1	39.5	3.6	No change	Sm. inc.	Medium	Rare	Poor	Fair			1	41
serviceberry	Amelanchier spp.	NSL	Low	26.9	38.3	0.8	Sm. dec.	No change	Medium	Rare	Very Poor	Poor			1	42
southern red oak	Quercus falcata	WDL	Medium	11.2	37.7	2.9	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	1	43
yellow birch	Betula alleghaniensis	NDL	High	10.1	36.4	1.9	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	1	44
red mulberry	Morus rubra	NSL	Low	13.1	34.7	2.2	No change	No change	Medium	Rare	Poor	Poor			1	45
striped maple	Acer pensylvanicum	NSL	Medium	16.2	33.5	0.7	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	46
slippery elm	Ulmus rubra	WSL	Low	10.7	32.0	1.7	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good			1	47



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Table Mountain pine	Pinus pungens	NSL	Low	5	29.3	5.8	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			1	48
ailanthus	Ailanthus altissima	NSL	FIA	9.6	28.9	2.8	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	49
winged elm	Ulmus alata	WDL	Medium	10.4	27.5	2.5	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1	50
hackberry	Celtis occidentalis	WDH	Medium	8.3	20.3	1.8	Sm. inc.	Sm. inc.	High	Rare	Good	Good	Infill ++	Infill ++	1	51
paulownia	Paulownia tomentosa	NSL	FIA	3	20.3	6.7	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	52
black willow	Salix nigra	NSH	Low	2.8	18.4	5.0	Sm. dec.	No change	Low	Rare	Very Poor	Very Poor			2	53
loblolly pine	Pinus taeda	WDH	High	4	17.3	2.7	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	54
American hornbeam; muscle	Carpinus caroliniana	WSL	Low	6.1	14.9	0.6	Sm. dec.	No change	Medium	Rare	Very Poor	Poor			1	55
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	12	14.5	0.9	Lg. inc.	Lg. inc.	High	Rare	Good	Good			1	56
pawpaw	Asimina triloba	NSL	Low	5.7	14.4	2.2	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	57
post oak	Quercus stellata	WDH	High	2.7	9.5	1.6	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	58
black maple	Acer nigrum	NSH	Low	0.8	7.7	6.3	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	59
pin cherry	Prunus pensylvanica	NSL	Low	3.8	6.5	0.7	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	60
bigleaf magnolia	Magnolia macrophylla	NSL	Low	3.5	3.6	0.7	Lg. dec.	Very Lg. dec.	Medium	Rare	Very Poor	Lost			0	61
honeylocust	Gleditsia triacanthos	NSH	Low	0.3	3.4	0.9	Sm. dec.	Lg. inc.	High	Rare	Poor	Good			2	62
American holly	Ilex opaca	NSL	Medium	2.3	3.3	1.0	Lg. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	63
American chestnut	Castanea dentata	NSLX	FIA	2.4	2.4	0.4	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	64
Ohio buckeye	Aesculus glabra	NSL	Low	0.5	1.9	0.9	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	65
blackjack oak	Quercus marilandica	NSL	Medium	0.7	0.8	0.5	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	66
blue ash	Fraxinus quadrangulata	NSL	Low	1	0.8	0.8	Lg. dec.	Very Lg. dec.	Low	Rare	Very Poor	Lost			0	67
swamp white oak	Quercus bicolor	NSL	Low	1	0.8	0.8	Lg. dec.	Very Lg. dec.	Medium	Rare	Very Poor	Lost			0	68
northern white-cedar	Thuja occidentalis	WSH	High	1	0.7	0.7	No change	No change	Medium	Rare	Poor	Poor			0	69
southern magnolia	Magnolia grandiflora	NSL	Low	1	0.7	0.7	Sm. dec.	No change	Medium	Rare	Very Poor	Poor			0	70
wild plum	Prunus americana	NSLX	FIA	1	0.5	0.5	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	71
white mulberry	Morus alba	NSL	FIA	1	0.5	0.5	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	72
mountain maple	Acer spicatum	NSL	Low	0.3	0.4	0.1	No change	No change	High	Rare	Fair	Fair			0	73
ashe juniper	Juniperus ashei	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	74
red spruce	Picea rubens	NDH	High	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat	Likely +	Likely +	3	75
florida maple	Acer barbatum	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	76
silver maple	Acer saccharinum	NSH	Low	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	77
river birch	Betula nigra	NSL	Low	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat		Migrate +	3	78
gray birch	Betula populifolia	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	79
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	Unknown	New Habitat	High	Absent	Unknown	New Habitat			3	80
pecan	Carya illinoensis	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat		Migrate +	3	81
shellbark hickory	Carya laciniosa	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	82
black hickory	Carya texana	NDL	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	83
sugarberry	Celtis laevigata	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	84
black ash	Fraxinus nigra	WSH	Medium	0	0	0	Unknown	New Habitat	Low	Absent	Unknown	New Habitat			3	85
silverbell	Halesia spp.	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	86
eastern cottonwood	Populus deltoides	NSH	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	87
bigtooth aspen	Populus grandidentata	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	88
shingle oak	Quercus imbricaria	NDH	Medium	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	89
overcup oak	Quercus lyrata	NSL	Medium	0	0	0	Unknown	New Habitat	Low	Absent	Unknown	New Habitat		Migrate +	3	90
water oak	Quercus nigra	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	91
Shumard oak	Quercus shumardii	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Likely +	Likely +	3	92
live oak	Quercus virginiana	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate ++	3	93
bluejack oak	Quercus incana	NSL	Low	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat		Migrate +	3	94



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American mountain-ash	Sorbus americana	NSL	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	95