

Section M223A

EcoMap 2007
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
white oak	Quercus alba	WDH	Medium	79.4	1462.8	13.3	Sm. dec.	Sm. dec.	High	Abundant	Good	Good			1	1
post oak	Quercus stellata	WDH	High	81.3	1393.0	10.8	Sm. inc.	Sm. inc.	High	Abundant	Very Good	Very Good			1	2
shortleaf pine	Pinus stellata	WDH	High	48.1	923.3	13.0	Lg. inc.	Lg. inc.	Medium	Abundant	Very Good	Very Good			1	3
black hickory	Carya texana	NDL	High	89.6	923.0	7.3	No change	No change	Medium	Abundant	Good	Good			1	4
northern red oak	Quercus rubra	WDH	Medium	72.5	841.7	8.7	Sm. dec.	Sm. dec.	High	Abundant	Good	Good			1	5
black oak	Quercus velutina	WDH	High	79.1	785.7	6.4	Sm. dec.	Sm. dec.	Medium	Abundant	Fair	Fair			0	6
eastern redcedar	Juniperus virginiana	WDH	Medium	65.9	641.6	5.8	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			1	7
mockernut hickory	Carya alba	WDL	Medium	77.3	555.7	5.0	No change	Sm. inc.	High	Abundant	Very Good	Very Good			1	8
blackgum	Nyssa sylvatica	WDL	Medium	68	352.0	4.0	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	9
winged elm	Ulmus alata	WDL	Medium	77.2	344.4	2.7	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	10
sweetgum	Liquidambar styraciflua	WDH	High	43.4	308.3	4.9	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	11
blackjack oak	Quercus marilandica	NSL	Medium	38.9	242.7	3.7	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	12
red maple	Acer rubrum	WDH	High	58.9	200.7	2.7	Sm. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	13
loblolly pine	Pinus taeda	WDH	High	6	187.2	18.0	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good	Infill ++	Infill ++	1	14
southern red oak	Quercus falcata	WDL	Medium	34.7	178.5	2.6	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	15
American elm	Ulmus americana	WDH	Medium	30.2	174.6	3.0	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			1	16
florida maple	Acer barbatum	NSL	Low	36.7	157.0	4.0	Sm. dec.	Sm. dec.	High	Common	Fair	Fair			1	17
bitternut hickory	Carya cordiformis	WSL	Low	29.6	143.9	3.4	Sm. dec.	Sm. dec.	High	Common	Fair	Fair			1	18
white ash	Fraxinus americana	WDL	Medium	49.1	140.5	2.0	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			1	19
black cherry	Prunus serotina	WDL	Medium	51.8	130.0	1.7	Lg. inc.	Lg. inc.	Low	Common	Good	Good			1	20
flowering dogwood	Cornus florida	WDL	Medium	56	121.3	1.5	No change	Sm. inc.	Medium	Common	Fair	Good			1	21
black locust	Robinia pseudoacacia	NDH	Low	31.3	116.0	2.5	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	22
shagbark hickory	Carya ovata	WSL	Medium	24.5	108.3	3.7	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	23
sassafras	Sassafras albidum	WSL	Low	32.9	104.7	1.8	No change	Sm. inc.	Medium	Common	Fair	Good			1	24
slippery elm	Ulmus rubra	WSL	Low	25.2	94.1	2.1	Sm. dec.	No change	Medium	Common	Poor	Fair			1	25
chinkapin oak	Quercus muehlenbergii	NSL	Medium	27.1	80.3	1.9	Sm. dec.	No change	Medium	Common	Poor	Fair			1	26
common persimmon	Diospyros virginiana	NSL	Low	21.9	75.8	1.9	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	27
black walnut	Juglans nigra	WDH	Low	20.1	73.8	2.6	No change	No change	Medium	Common	Fair	Fair			1	28
sycamore	Platanus occidentalis	NSL	Low	17.8	71.6	2.5	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	29
hackberry	Celtis occidentalis	WDH	Medium	19.8	63.8	1.7	No change	Sm. inc.	High	Common	Good	Very Good			1	30
pecan	Carya illinoensis	NSH	Low	4.4	57.1	10.7	No change	Sm. inc.	Low	Common	Poor	Fair	Infill +	Infill +	1	31
river birch	Betula nigra	NSL	Low	1.7	55.0	21.2	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	2	32
American beech	Fagus grandifolia	WDH	High	10.1	54.6	5.2	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor	Infill +	Infill +	2	33
sugarberry	Celtis laevigata	NDH	Medium	9.5	53.1	2.1	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good	Infill ++	Infill ++	1	34
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	34.8	47.6	1.1	Lg. inc.	Lg. inc.	High	Rare	Good	Good			1	35
green ash	Fraxinus pennsylvanica	WSH	Low	19.8	44.8	1.5	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	36
boxelder	Acer negundo	WSH	Low	3.4	42.3	2.2	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	1	37
serviceberry	Amelanchier spp.	NSL	Low	29.9	38.8	1.0	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	38
Shumard oak	Quercus shumardii	NSL	Low	8.8	36.8	2.4	Sm. dec.	No change	High	Rare	Poor	Fair	Infill +	Infill +	1	39
honeylocust	Gleditsia triacanthos	NSH	Low	11	36.2	2.1	Sm. inc.	Lg. inc.	High	Rare	Good	Good			1	40
eastern redbud	Cercis canadensis	NSL	Low	24.6	34.2	1.0	No change	Sm. inc.	Medium	Rare	Poor	Fair			1	41
pignut hickory	Carya glabra	WDL	Medium	12.3	32.3	2.1	No change	Lg. inc.	Medium	Rare	Poor	Good			1	42
silver maple	Acer saccharinum	NSH	Low	4.1	31.0	4.8	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor	Infill +	Infill +	2	43
sugar maple	Acer saccharum	WDH	High	7.1	29.9	3.6	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor			0	44
American hornbeam; musclev	Carpinus caroliniana	WSL	Low	9.2	21.1	1.7	No change	Sm. inc.	Medium	Rare	Poor	Fair			1	45
red mulberry	Morus rubra	NSL	Low	12.7	18.1	1.2	No change	Lg. inc.	Medium	Rare	Poor	Good			1	46
blue ash	Fraxinus quadrangulata	NSL	Low	0.1	16.4	4.6	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	47



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American basswood	Tilia americana	WSL	Medium	9.3	15.3	1.3	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	48
wild plum	Prunus americana	NSLX	FIA	4.3	15.3	1.1	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	49
water oak	Quercus nigra	WDH	High	2.5	14.3	1.9	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	2	50
Osage-orange	Maclura pomifera	NDH	Medium	3.3	13.4	2.4	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	51
pawpaw	Asimina triloba	NSL	Low	4.6	12.0	1.7	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	52
willow oak	Quercus phellos	NSL	Low	0.8	8.8	1.1	No change	Sm. inc.	Medium	Rare	Poor	Fair	Infill +	Infill +	2	53
Nuttall oak	Quercus texana	NSH	Medium	0.1	7.0	1.7	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	54
cherrybark oak; swamp red o.	Quercus pagoda	NSL	Medium	2.8	7.0	1.1	No change	Sm. inc.	Medium	Rare	Poor	Fair	Infill +	Infill +	2	55
pin oak	Quercus palustris	NSH	Low	1	6.8	4.7	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	56
eastern cottonwood	Populus deltoides	NSH	Low	0.7	6.0	3.0	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			2	57
swamp chestnut oak	Quercus michauxii	NSL	Low	2.5	5.4	1.7	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			2	58
overcup oak	Quercus lyrata	NSL	Medium	1	5.2	3.9	No change	No change	Low	Rare	Very Poor	Very Poor			2	59
paulownia	Paulownia tomentosa	NSL	FIA	1.6	5.2	2.7	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	60
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	2.7	4.5	0.6	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	61
bur oak	Quercus macrocarpa	NDH	Medium	1.6	4.3	1.4	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor			0	62
cedar elm	Ulmus crassifolia	NDH	Medium	0.7	3.6	1.8	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	2	63
butternut	Juglans cinerea	NSLX	FIA	0.7	3.4	2.0	Unknown	Unknown	Low	Rare	FIA Only	FIA Only			0	64
cucumbertree	Magnolia acuminata	NSL	Low	2.3	3.0	1.2	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			2	65
Kentucky coffeetree	Gymnocladus dioicus	NSLX	FIA	1.2	2.3	2.0	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	66
waterlocust	Gleditsia aquatica	NSLX	FIA	0.2	1.3	0.8	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	67
white mulberry	Morus alba	NSL	FIA	0.6	1.3	2.1	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	68
ailanthus	Ailanthus altissima	NSL	FIA	1	1.2	1.0	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	69
shellbark hickory	Carya laciniosa	NSL	Low	1.5	1.2	0.7	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	70
northern catalpa	Catalpa speciosa	NSHX	FIA	0.6	0.9	1.6	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	71
American holly	Ilex opaca	NSL	Medium	0.5	0.6	0.8	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good	Infill +		2	72
black willow	Salix nigra	NSH	Low	0.2	0.1	0.1	Lg. inc.	Lg. inc.	Low	Rare	Fair	Fair	Infill +	Infill +	2	73
ashe juniper	Juniperus ashei	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	74
slash pine	Pinus elliotii	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate ++	3	75
longleaf pine	Pinus palustris	NSH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	76
Virginia pine	Pinus virginiana	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	77
bald cypress	Taxodium distichum	NSH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	78
striped maple	Acer pensylvanicum	NSL	Medium	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	79
Ohio buckeye	Aesculus glabra	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	80
yellow birch	Betula alleghaniensis	NDL	High	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	81
water hickory	Carya aquatica	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	82
black ash	Fraxinus nigra	WSH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	83
silverbell	Halesia spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	84
yellow-poplar	Liriodendron tulipifera	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Likely +	Likely +	3	85
southern magnolia	Magnolia grandiflora	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	86
sweetbay	Magnolia virginiana	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	87
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	88
mountain or Fraser magnolia	Magnolia fraseri	NSL	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	89
sourwood	Oxydendrum arboreum	NDL	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	90
water elm	Planera aquatica	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	91
pin cherry	Prunus pensylvanica	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	92
laurel oak	Quercus laurifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +	3	93
chestnut oak	Quercus prinus	NDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +	3	94



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Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIAiv	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
live oak	<i>Quercus virginiana</i>	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	95
bluejack oak	<i>Quercus incana</i>	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	96