



Section 221F

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
red maple	Acer rubrum	WDH	High	83.7	1695.6	20.3	Lg. dec.	Lg. dec.	High	Abundant	Good	Good			1	1
black cherry	Prunus serotina	WDL	Medium	79.5	765.6	10.2	Sm. dec.	Sm. dec.	Low	Abundant	Fair	Fair			0	2
sugar maple	Acer saccharum	WDH	High	61.1	729.5	11.0	No change	No change	High	Abundant	Very Good	Very Good			1	3
white ash	Fraxinus americana	WDL	Medium	62.3	484.7	8.4	No change	No change	Low	Common	Poor	Poor			0	4
American elm	Ulmus americana	WDH	Medium	64.8	329.3	5.9	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	5
American beech	Fagus grandifolia	WDH	High	47.8	292.6	6.2	No change	Sm. dec.	Medium	Common	Fair	Poor			1	6
northern red oak	Quercus rubra	WDH	Medium	46	254.1	5.6	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	7
quaking aspen	Populus tremuloides	WDH	High	20.7	220.3	8.4	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	8
eastern hemlock	Tsuga canadensis	NSH	High	14.8	218.2	10.7	Lg. dec.	Lg. dec.	Low	Common	Very Poor	Very Poor			0	9
green ash	Fraxinus pennsylvanica	WSH	Low	36.8	179.9	6.8	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			1	10
yellow-poplar	Liriodendron tulipifera	WDH	High	25.3	171.0	7.1	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	11
shagbark hickory	Carya ovata	WSL	Medium	34.3	161.6	5.7	Sm. inc.	No change	Medium	Common	Good	Fair			1	12
pin oak	Quercus palustris	NSH	Low	19.4	161.1	11.6	Sm. dec.	Sm. dec.	Low	Common	Poor	Poor			0	13
black willow	Salix nigra	NSH	Low	10	142.7	17.5	Lg. dec.	Lg. dec.	Low	Common	Very Poor	Very Poor			0	14
bigtooth aspen	Populus grandidentata	NSL	Medium	18.6	111.4	5.6	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	15
silver maple	Acer saccharinum	NSH	Low	14.1	109.3	11.3	No change	No change	High	Common	Good	Good			1	16
bitternut hickory	Carya cordiformis	WSL	Low	30.3	100.7	4.8	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	17
white oak	Quercus alba	WDH	Medium	19.9	98.6	4.9	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			1	18
black locust	Robinia pseudoacacia	NDH	Low	16.3	97.8	6.5	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	19
American basswood	Tilia americana	WSL	Medium	27.3	87.0	3.9	Sm. inc.	No change	Medium	Common	Good	Fair			1	20
black walnut	Juglans nigra	WDH	Low	21.1	80.8	5.1	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	21
eastern white pine	Pinus strobus	WDH	High	10.6	80.0	6.7	No change	Sm. dec.	Low	Common	Poor	Poor			0	22
Norway spruce	Picea abies	NSH	FIA	6.9	75.1	12.5	Unknown	Unknown	NA	Common	NNIS	NNIS			0	23
sassafras	Sassafras albidum	WSL	Low	17.3	70.8	4.0	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			1	24
yellow birch	Betula alleghaniensis	NDL	High	12.7	70.5	4.4	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor	Infill +	Infill +	0	25
blackgum	Nyssa sylvatica	WDL	Medium	21.3	66.9	3.1	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	26
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	24.9	59.4	2.4	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good			1	27
swamp white oak	Quercus bicolor	NSL	Low	10.1	56.0	6.4	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor	Infill +	Infill +	0	28
Scots pine	Pinus sylvestris	NSH	FIA	6.9	53.7	10.0	Unknown	Unknown	NA	Common	NNIS	NNIS			0	29
American hornbeam; musclev	Carpinus caroliniana	WSL	Low	14.9	50.1	2.2	Lg. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	30
slippery elm	Ulmus rubra	WSL	Low	20.4	49.7	3.0	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			1	31
eastern cottonwood	Populus deltoides	NSH	Low	11.1	49.4	6.5	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	32
black oak	Quercus velutina	WDH	High	11.9	46.6	3.5	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1	33
boxelder	Acer negundo	WSH	Low	8.6	35.9	3.0	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	1	34
cucumbertree	Magnolia acuminata	NSL	Low	11.6	34.6	2.2	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	35
black ash	Fraxinus nigra	WSH	Medium	5.2	32.5	7.4	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	36
sycamore	Platanus occidentalis	NSL	Low	10.1	32.4	6.9	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1	37
ailanthus	Ailanthus altissima	NSL	FIA	3.8	30.3	7.2	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	38
pignut hickory	Carya glabra	WDL	Medium	13.3	26.8	2.7	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good	Infill ++	Infill ++	1	39
Osage-orange	Maclura pomifera	NDH	Medium	4	18.4	11.8	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	2	40
shingle oak	Quercus imbricaria	NDH	Medium	3.4	16.9	4.3	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	41
gray birch	Betula populifolia	NSL	Low	0.6	14.3	21.9	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	42
serviceberry	Amelanchier spp.	NSL	Low	7.2	14.1	1.7	Sm. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	43
bur oak	Quercus macrocarpa	NDH	Medium	5.6	13.8	2.9	Sm. dec.	Sm. dec.	High	Rare	Poor	Poor		Infill +	2	44
sweet birch	Betula lenta	NDH	High	4.6	10.9	1.3	No change	No change	Low	Rare	Very Poor	Very Poor			2	45
red pine	Pinus resinosa	NSH	Medium	2.3	10.1	5.6	Lg. dec.	Very Lg. dec.	Low	Rare	Very Poor	Lost			0	46
mockernut hickory	Carya alba	WDL	Medium	4.4	9.1	3.0	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	47



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chokecherry	Prunus virginiana	NSLX	FIA	3.3	8.8	4.9	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only				0 48
scarlet oak	Quercus coccinea	WDL	Medium	4.2	7.7	2.9	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +		2 49
pin cherry	Prunus pennsylvanica	NSL	Low	2.8	7.5	2.0	Very Lg. dec.	Lg. dec.	Medium	Rare	Lost	Very Poor				0 50
flowering dogwood	Cornus florida	WDL	Medium	7	6.7	1.4	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +		1 51
chestnut oak	Quercus prinus	NDH	High	1.2	6.2	2.0	Lg. inc.	Lg. inc.	High	Rare	Good	Good				2 52
honeylocust	Gleditsia triacanthos	NSH	Low	2.6	5.1	4.2	Sm. inc.	Sm. inc.	High	Rare	Good	Good				2 53
black maple	Acer nigrum	NSH	Low	2.7	3.6	1.2	Lg. dec.	Lg. dec.	High	Rare	Poor	Poor				0 54
Virginia pine	Pinus virginiana	NDH	High	1.5	3.4	3.0	No change	Sm. inc.	Medium	Rare	Poor	Fair	Infill +	Infill +		2 55
white spruce	Picea glauca	NSL	Medium	0.3	3.0	9.1	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost				0 56
white mulberry	Morus alba	NSL	FIA	0	2.8	0.6	Unknown	Unknown	NA	Rare	NNIS	NNIS				0 57
sourwood	Oxydendrum arboreum	NDL	High	0.5	2.6	2.3	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +		2 58
butternut	Juglans cinerea	NSLX	FIA	0.5	2.4	3.4	Unknown	Unknown	Low	Rare	FIA Only	FIA Only				0 59
hackberry	Celtis occidentalis	WDH	Medium	4.8	2.3	0.7	Lg. inc.	Lg. inc.	High	Rare	Good	Good				2 60
sweetgum	Liquidambar styraciflua	WDH	High	1.9	1.9	5.2	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good				2 61
balsam fir	Abies balsamea	NDH	High	0.3	1.7	5.1	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor				0 62
shellbark hickory	Carya laciniosa	NSL	Low	0.5	1.4	1.6	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor				0 63
peachleaf willow	Salix amygdaloides	NSLX	FIA	0.3	1.3	3.8	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only				0 64
chinkapin oak	Quercus muehlenbergii	NSL	Medium	0.3	1.0	2.5	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good				2 65
Ohio buckeye	Aesculus glabra	NSL	Low	4.8	0.9	1.9	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor				0 66
swamp chestnut oak	Quercus michauxii	NSL	Low	0.3	0.5	1.4	Sm. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor				0 67
pawpaw	Asimina triloba	NSL	Low	0.3	0.4	1.3	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost				0 68
striped maple	Acer pensylvanicum	NSL	Medium	0.2	0.1	0.2	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor				0 69
red mulberry	Morus rubra	NSL	Low	1.3	0.1	0.8	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good				2 70
Norway maple	Acer platanoides	NSL	FIA	1.3	0.1	0.6	Unknown	Unknown	NA	Rare	NNIS	NNIS				0 71
eastern redcedar	Juniperus virginiana	WDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++		3 72
jack pine	Pinus banksiana	NSH	Medium	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown				0 73
shortleaf pine	Pinus echinata	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++		3 74
florida maple	Acer barbatum	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat				3 75
mountain maple	Acer spicatum	NSL	Low	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown				0 76
yellow buckeye	Aesculus flava	NSL	Low	0	0	0	Unknown	Unknown	Low	Modeled	Unknown	Unknown				0 77
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp.	NSL	Low	0	0	0	Unknown	New Habitat	High	Absent	Unknown	New Habitat				0 78
pecan	Carya illinoensis	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat				3 79
black hickory	Carya texana	NDL	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				0 80
sugarberry	Celtis laevigata	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				3 81
eastern redbud	Cercis canadensis	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Likely +	Likely +		3 82
common persimmon	Diospyros virginiana	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +		3 83
blue ash	Fraxinus quadrangulata	NSL	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown				0 84
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0 85
mountain or Fraser magnolia	Magnolia fraseri	NSL	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown				0 86
southern red oak	Quercus falcata	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +		3 87
blackjack oak	Quercus marilandica	NSL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat				3 88
Shumard oak	Quercus shumardii	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat		Migrate +		3 89
post oak	Quercus stellata	WDH	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++		3 90
bluejack oak	Quercus incana	NSL	Low	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat				0 91
winged elm	Ulmus alata	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate ++		3 92

