

# George Washington Memorial Parkway

## National Park

### Climate Change Atlas Tree Species

#### Current and Potential Future Habitat, Capability, and Migration

Landscape Change Research Group  
Iverson, Peters, Prasad, Matthews  
USFS Northern Research Station  
Delaware, OH

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	75.6	958.1	14.28	Sm. dec.	Sm. dec.	High	Abundant	Good	Good			0	1
yellow-poplar	Liriodendron tulipifera	WDH	High	73.5	881.82	14.8	Lg. dec.	Lg. dec.	High	Abundant	Good	Good			0	2
white oak	Quercus alba	WDH	Medium	56.5	706.15	13.39	Sm. dec.	Sm. dec.	High	Abundant	Good	Good			0	3
sweetgum	Liquidambar styraciflua	WDH	High	34.3	540.96	15.88	Sm. inc.	Sm. inc.	Medium	Abundant	Very Good	Very Good			0	4
American beech	Fagus grandifolia	WDH	High	48.1	369.21	8.91	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	5
Virginia pine	Pinus virginiana	NDH	High	39.4	340.64	9.75	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	6
blackgum	Nyssa sylvatica	WDL	Medium	58.5	312.42	5.66	Sm. dec.	No change	High	Common	Fair	Good			0	7
chestnut oak	Quercus prinus	NDH	High	34.5	309.83	13.39	Lg. dec.	Lg. dec.	High	Common	Fair	Fair			0	8
mockernut hickory	Carya alba	WDL	Medium	36.2	210	6.53	No change	Sm. inc.	High	Common	Good	Very Good			0	9
eastern redcedar	Juniperus virginiana	WDH	Medium	25	176	9.79	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			0	10
black locust	Robinia pseudoacacia	NDH	Low	27.2	175.79	10.36	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	11
southern red oak	Quercus falcata	WDL	Medium	27.2	172.09	6.25	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good			0	12
black oak	Quercus velutina	WDH	High	34.7	170.68	5.12	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			0	13
northern red oak	Quercus rubra	WDH	Medium	39.3	157.06	5.1	No change	Sm. dec.	High	Common	Good	Fair			0	14
black cherry	Prunus serotina	WDL	Medium	38	150.8	5.25	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			0	15
pignut hickory	Carya glabra	WDL	Medium	35.5	141.22	4.21	No change	Sm. dec.	Medium	Common	Fair	Poor			0	16
scarlet oak	Quercus coccinea	WDL	Medium	24	135.49	6.22	Sm. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	17
American holly	Ilex opaca	NSL	Medium	26.9	119.92	3.79	No change	No change	Medium	Common	Fair	Fair			0	18
sycamore	Platanus occidentalis	NSL	Low	30.3	103	6.59	Sm. inc.	Sm. inc.	Medium	Common	Good	Good			0	19
boxelder	Acer negundo	WSH	Low	16.8	95.98	6.99	Sm. dec.	No change	High	Common	Fair	Good			0	20
white ash	Fraxinus americana	WDL	Medium	24.6	91.82	7.62	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair			0	21
American elm	Ulmus americana	WDH	Medium	29.4	88.27	4.83	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			0	22
loblolly pine	Pinus taeda	WDH	High	6.3	85.46	8.77	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			0	23
sassafras	Sassafras albidum	WSL	Low	21.6	83.5	5.14	Lg. dec.	Lg. dec.	Medium	Common	Poor	Poor			0	24
bitternut hickory	Carya cordiformis	WSL	Low	11.5	64.64	8.88	No change	No change	High	Common	Good	Good			0	25
eastern cottonwood	Populus deltoides	NSH	Low	1.2	64.18	55.7	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor			0	26
green ash	Fraxinus pennsylvanica	WSH	Low	12.3	63.84	7.32	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			0	27
pin oak	Quercus palustris	NSH	Low	10.4	62.8	9.31	Sm. dec.	Sm. dec.	Low	Common	Poor	Poor			0	28
black walnut	Juglans nigra	WDH	Low	20.7	60.36	3.56	No change	No change	Medium	Common	Fair	Fair			0	29
Norway spruce	Picea abies	NSH	FIA	1.2	57.61	50	Unknown	Unknown	NA	Common	NNIS	NNIS			0	30
American hornbeam; muscle	Carpinus caroliniana	WSL	Low	24.6	55.55	2.71	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good			0	31
willow oak	Quercus phellos	NSL	Low	9.4	49.05	3.85	No change	Sm. inc.	Medium	Rare	Poor	Fair			0	32
slippery elm	Ulmus rubra	WSL	Low	11.5	34.75	3.4	No change	Sm. inc.	Medium	Rare	Poor	Fair			0	33
silver maple	Acer saccharinum	NSH	Low	3.5	33.12	9.58	No change	No change	High	Rare	Fair	Fair			0	34
pawpaw	Asimina triloba	NSL	Low	12.2	25.7	2.79	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	35
bigtooth aspen	Populus grandidentata	NSL	Medium	4.6	22.38	4.85	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	36
hackberry	Celtis occidentalis	WDH	Medium	12.3	21.85	2.48	No change	Sm. inc.	High	Rare	Fair	Good			0	37
flowering dogwood	Cornus florida	WDL	Medium	22	20.07	1.18	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			0	38
river birch	Betula nigra	NSL	Low	5.8	17.78	3.08	No change	Sm. inc.	Medium	Rare	Poor	Fair			0	39
ailanthus	Ailanthus altissima	NSL	FIA	14.6	15.84	2.21	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	40
swamp chestnut oak	Quercus michauxii	NSL	Low	4.6	15.01	4.42	No change	No change	Medium	Rare	Poor	Poor			0	41
post oak	Quercus stellata	WDH	High	1.6	9.39	1.99	Lg. inc.	Lg. inc.	High	Rare	Good	Good			0	42
sweet birch	Betula lenta	NDH	High	3.5	9.18	2.66	Lg. dec.	Lg. dec.	Low	Rare	Very Poor	Very Poor			0	43
eastern redbud	Cercis canadensis	NSL	Low	5.8	9.14	4.51	Sm. dec.	No change	Medium	Rare	Very Poor	Poor			0	44
common persimmon	Diospyros virginiana	NSL	Low	9.9	8.96	1.5	Sm. inc.	Lg. inc.	High	Rare	Good	Good			0	45
red mulberry	Morus rubra	NSL	Low	5.8	8.49	11.18	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	46
sugar maple	Acer saccharum	WDH	High	2.3	7.81	3.39	Lg. inc.	Lg. inc.	High	Rare	Good	Good			0	47
paulownia	Paulownia tomentosa	NSL	FIA	2.3	7.7	3.34	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	48
black willow	Salix nigra	NSH	Low	2.3	7.34	3.18	Sm. inc.	Lg. inc.	Low	Rare	Poor	Fair			0	49
shingle oak	Quercus imbricaria	NDH	Medium	2.3	5.93	2.58	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	50
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	1.2	5.42	4.7	Lg. inc.	Lg. inc.	High	Rare	Good	Good			0	51
cherrybark oak; swamp red o	Quercus pagoda	NSL	Medium	0.5	4.03	1.51	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			0	52
white mulberry	Morus alba	NSL	FIA	1.2	3.8	3.3	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	53



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Common Name	Scientific Name	Range	MR	%Cell	FIAsum	FIAiv	ChngCl45	ChngCl85	Adap	Abund	Capabil45	Capabil85	SHIFT45	SHIFT85	SSO	N
American chestnut	Castanea dentata	NSLX	FIA	2.3	2.02	0.88	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only				0 54
pitch pine	Pinus rigida	NSH	High	1.2	1.99	1.73	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost				0 55
serviceberry	Amelanchier spp.	NSL	Low	1.2	1.99	1.73	Very Lg. dec.	Lg. dec.	Medium	Rare	Lost	Very Poor				0 56
eastern hemlock	Tsuga canadensis	NSH	High	1.2	1.61	1.4	Very Lg. dec.	Very Lg. dec.	Low	Rare	Lost	Lost				0 57
pin cherry	Prunus pensylvanica	NSL	Low	1.2	1.61	1.4	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor				0 58
Norway maple	Acer platanoides	NSL	FIA	4.6	1.5	5.19	Unknown	Unknown	NA	Rare	NNIS	NNIS				0 59
quaking aspen	Populus tremuloides	WDH	High	1.1	1.09	0.93	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor				0 60
yellow birch	Betula alleghaniensis	NDL	High	1.2	1	0.87	Lg. dec.	Very Lg. dec.	Medium	Rare	Very Poor	Lost				0 61
shortleaf pine	Pinus echinata	WDH	High	1.2	0.61	0.53	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good				0 62
slash pine	Pinus elliotii	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				0 63
longleaf pine	Pinus palustris	NSH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				0 64
bald cypress	Taxodium distichum	NSH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				0 65
florida maple	Acer barbatum	NSL	Low	0	0	0	Unknown	New Habitat	High	Absent	Unknown	New Habitat				0 66
mountain maple	Acer spicatum	NSL	Low	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown				0 67
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat				0 68
water hickory	Carya aquatica	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				0 69
pecan	Carya illinoensis	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat				0 70
shellbark hickory	Carya laciniosa	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown				0 71
shagbark hickory	Carya ovata	WSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				0 72
black hickory	Carya texana	NDL	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				0 73
sugarberry	Celtis laevigata	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				0 74
honeylocust	Gleditsia triacanthos	NSH	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat				0 75
cucumbertree	Magnolia acuminata	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown				0 76
sweetbay	Magnolia virginiana	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				0 77
water tupelo	Nyssa aquatica	NSH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat				0 78
swamp tupelo	Nyssa biflora	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat				0 79
sourwood	Oxydendrum arboreum	NDL	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat				0 80
redbay	Persea borbonia	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat				0 81
water elm	Planera aquatica	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				0 82
laurel oak	Quercus laurifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				0 83
overcup oak	Quercus lyrata	NSL	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat				0 84
blackjack oak	Quercus marilandica	NSL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat				0 85
chinkapin oak	Quercus muehlenbergii	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				0 86
water oak	Quercus nigra	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				0 87
live oak	Quercus virginiana	NDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				0 88
bluejack oak	Quercus incana	NSL	Low	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat				0 89
winged elm	Ulmus alata	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat				0 90
cedar elm	Ulmus crassifolia	NDH	Medium	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat				0 91