

Cedar Creek and Belle Grove

National Park

Climate Change Atlas Tree Species

Current and Potential Future Habitat, Capability, and Migration

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Delaware, OH

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	74.7	1412.94	21.11	Sm. dec.	Sm. dec.	High	Abundant	Good	Good	Infill ++	Infill ++	1	1
white oak	Quercus alba	WDH	Medium	72.3	781.18	12.01	No change	No change	High	Abundant	Very Good	Very Good	Infill ++	Infill ++	1	2
yellow-poplar	Liriodendron tulipifera	WDH	High	51.8	661.25	13.92	Sm. dec.	Lg. dec.	High	Abundant	Good	Good	Infill ++	Infill ++	1	3
red maple	Acer rubrum	WDH	High	74.7	647.31	8.67	No change	Sm. dec.	High	Abundant	Very Good	Good			1	4
black oak	Quercus velutina	WDH	High	68.7	482.77	8.29	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	5
blackgum	Nyssa sylvatica	WDL	Medium	68.7	420.96	6.52	Sm. dec.	No change	High	Common	Fair	Good	Infill +	Infill ++	1	6
northern red oak	Quercus rubra	WDH	Medium	54.2	383.17	7.66	Sm. inc.	Sm. inc.	High	Common	Very Good	Very Good	Infill ++	Infill ++	1	7
black locust	Robinia pseudoacacia	NDH	Low	60.2	326.25	5.79	Sm. dec.	No change	Medium	Common	Poor	Fair	Infill +	Infill +	1	8
Virginia pine	Pinus virginiana	NDH	High	50.6	316.89	6.82	Sm. inc.	Sm. inc.	Medium	Common	Good	Good	Infill ++	Infill ++	1	9
scarlet oak	Quercus coccinea	WDL	Medium	50.6	310.36	6.91	No change	Sm. dec.	Medium	Common	Fair	Poor	Infill +	Infill +	1	10
eastern white pine	Pinus strobus	WDH	High	32.5	294.84	9.06	Sm. dec.	Sm. dec.	Low	Common	Poor	Poor	Infill +	Infill +	0	11
eastern redcedar	Juniperus virginiana	WDH	Medium	20.5	294.37	14.37	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good	Infill ++	Infill ++	1	12
pignut hickory	Carya glabra	WDL	Medium	74.7	278.92	4.41	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	13
white ash	Fraxinus americana	WDL	Medium	50.6	253.96	5.02	No change	No change	Low	Common	Poor	Poor	Infill +	Infill +	0	14
black cherry	Prunus serotina	WDL	Medium	47	228.82	5.69	Sm. inc.	Sm. inc.	Low	Common	Fair	Fair	Infill +	Infill +	1	15
sassafras	Sassafras albidum	WSL	Low	44.6	169.07	3.79	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	16
ailanthus	Ailanthus altissima	NSL	FIA	34.9	151.71	4.9	Unknown	Unknown	NA	Common	NNIS	NNIS			0	17
mockernut hickory	Carya alba	WDL	Medium	37.3	138.9	3.72	Lg. inc.	Lg. inc.	High	Common	Very Good	Very Good	Infill ++	Infill ++	1	18
sweet birch	Betula lenta	NDH	High	24.1	113.88	4.73	Sm. dec.	Sm. dec.	Low	Common	Poor	Poor	Infill +	Infill +	0	19
black walnut	Juglans nigra	WDH	High	31.3	108.23	4.16	Sm. inc.	Sm. inc.	Medium	Common	Good	Good	Infill ++	Infill ++	1	20
flowering dogwood	Cornus florida	WDL	Medium	31.3	93.87	3	No change	No change	Medium	Common	Fair	Fair	Infill +	Infill +	1	21
pitch pine	Pinus rigida	NSH	High	27.7	89.43	3.75	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor	Infill +	Infill +	0	22
American basswood	Tilia americana	WSL	Medium	13.3	88.69	6.69	Sm. dec.	Sm. dec.	Medium	Common	Poor	Poor	Infill +	Infill +	0	23
sycamore	Platanus occidentalis	NSL	Low	15.7	87.88	7.52	Sm. inc.	Lg. inc.	Medium	Common	Good	Very Good	Infill ++	Infill ++	2	24
eastern hemlock	Tsuga canadensis	NSH	High	10.8	71.22	6.57	No change	No change	Low	Common	Poor	Poor	Infill +	Infill +	2	25
hackberry	Celtis occidentalis	WDH	Medium	21.7	56.19	3.13	Sm. dec.	Sm. inc.	High	Common	Fair	Very Good			2	26
loblolly pine	Pinus taeda	WDH	High	4.8	52.87	10.97	Lg. inc.	Lg. inc.	Medium	Common	Very Good	Very Good			2	27
shagbark hickory	Carya ovata	WSL	Medium	15.7	50.49	3.22	Sm. inc.	Sm. inc.	Medium	Common	Good	Good	Infill ++	Infill ++	2	28
boxelder	Acer negundo	WSH	Low	4.8	40.96	8.5	No change	No change	High	Rare	Fair	Fair		Infill +	2	29
eastern redbud	Cercis canadensis	NSL	Low	22.9	39.11	1.71	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good	Infill +	Infill ++	1	30
serviceberry	Amelanchier spp.	NSL	Low	22.9	37.04	1.62	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	31
sugar maple	Acer saccharum	WDH	High	13.3	36.73	2.77	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	1	32
American elm	Ulmus americana	WDH	Medium	21.7	33.07	1.89	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	33
pin oak	Quercus palustris	NSH	Low	4.8	32.28	6.7	Sm. dec.	Sm. dec.	Low	Rare	Very Poor	Very Poor			0	34
striped maple	Acer pensylvanicum	NSL	Medium	10.8	26.88	2.48	Lg. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	35
slippery elm	Ulmus rubra	WSL	Low	7.2	24.31	3.36	No change	No change	Medium	Rare	Poor	Poor	Infill +	Infill +	2	36
common persimmon	Diospyros virginiana	NSL	Low	7.2	22.46	3.11	No change	No change	High	Rare	Fair	Good		Infill ++	2	37
bitternut hickory	Carya cordiformis	WSL	Low	12	21.82	3.23	Lg. inc.	Lg. inc.	High	Rare	Good	Good	Infill ++	Infill ++	2	38
eastern hophornbeam; ironw	Ostrya virginiana	WSL	Low	8.4	19.75	2.34	No change	No change	High	Rare	Fair	Fair		Infill +	1	39
Table Mountain pine	Pinus pungens	NSL	Low	4.8	18.93	3.93	No change	No change	High	Rare	Fair	Fair	Infill +	Infill +	1	40
cucumber tree	Magnolia acuminata	NSL	Low	1.2	13.67	11.35	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			2	41
American beech	Fagus grandifolia	WDH	High	2.4	12.81	5.32	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	42
swamp chestnut oak	Quercus michauxii	NSL	Low	1.2	12.29	10.2	Sm. dec.	Lg. dec.	Medium	Rare	Very Poor	Very Poor			0	43
bigtooth aspen	Populus grandidentata	NSL	Medium	2.4	10.52	4.37	Very Lg. dec.	Very Lg. dec.	Medium	Rare	Lost	Lost			0	44
bear oak; scrub oak	Quercus ilicifolia	NSLX	FIA	3.6	9.13	2.52	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	45
shortleaf pine	Pinus echinata	WDH	High	3.6	8.55	2.37	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	46
black willow	Salix nigra	NSH	Low	1.2	4.82	4	Sm. dec.	Lg. inc.	Low	Rare	Very Poor	Fair			2	47
pawpaw	Asimina triloba	NSL	Low	3.6	4.58	1.27	Lg. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	48
butternut	Juglans cinerea	NSLX	FIA	7.2	4.12	1.74	Unknown	Unknown	Low	Rare	FIA Only	FIA Only			0	49
post oak	Quercus stellata	WDH	High	2.4	4.04	1.68	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	50
Scotch pine	Pinus sylvestris	NSH	FIA	1.2	2.98	2.47	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	51
river birch	Betula nigra	NSL	Low	2.4	2.69	1.12	Sm. dec.	Lg. inc.	Medium	Rare	Very Poor	Good			0	52
red mulberry	Morus rubra	NSL	Low	1.2	2.65	2.2	No change	No change	Medium	Rare	Poor	Poor			2	53



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paulownia	Paulownia tomentosa	NSL	FIA	1.2	2.05	1.7	Unknown	Unknown	NA	Rare	NNIS	NNIS			0	54
Osage-orange	Maclura pomifera	NDH	Medium	1.2	2.01	1.67	Very Lg. dec.	Lg. inc.	High	Rare	Lost	Good			2	55
blackjack oak	Quercus marilandica	NSL	Medium	1.2	1.51	1.25	Lg. inc.	Lg. inc.	High	Rare	Good	Good			2	56
American chestnut	Castanea dentata	NSLX	FIA	3.6	1.43	0.4	Unknown	Unknown	Medium	Rare	FIA Only	FIA Only			0	57
honeylocust	Gleditsia triacanthos	NSH	Low	1.2	1.39	1.15	No change	Lg. inc.	High	Rare	Fair	Good			2	58
American hornbeam; muscle	Carpinus caroliniana	WSL	Low	1.2	1.2	1	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	59
green ash	Fraxinus pennsylvanica	WSH	Low	1.2	0.94	0.78	Lg. inc.	Lg. inc.	Medium	Rare	Good	Good			2	60
willow oak	Quercus phellos	NSL	Low	1.2	0.76	0.63	Sm. inc.	Lg. inc.	Medium	Rare	Fair	Good			0	61
gray birch	Betula populifolia	NSL	Low	1.2	0.65	0.54	Sm. dec.	Sm. dec.	Medium	Rare	Very Poor	Very Poor			0	62
longleaf pine	Pinus palustris	NSH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +		3	63
northern white-cedar	Thuja occidentalis	WSH	High	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	64
florida maple	Acer barbatum	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate +	Migrate +	3	65
cittamwood/gum bumelia	Sideroxylon lanuginosum ssp	NSL	Low	0	0	0	Unknown	New Habitat	High	Absent	Unknown	New Habitat			0	66
pecan	Carya illinoensis	NSH	Low	0	0	0	New Habitat	New Habitat	Low	Absent	New Habitat	New Habitat			3	67
shellbark hickory	Carya laciniosa	NSL	Low	0	0	0	Unknown	Unknown	Medium	Modeled	Unknown	Unknown			0	68
black hickory	Carya texana	NDL	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			0	69
sugarberry	Celtis laevigata	NDH	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	70
blue ash	Fraxinus quadrangulata	NSL	Low	0	0	0	Unknown	Unknown	Low	Absent	Unknown	Unknown			0	71
silverbell	Halesia spp.	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	72
American holly	Ilex opaca	NSL	Medium	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat			3	73
sweetgum	Liquidambar styraciflua	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	74
southern magnolia	Magnolia grandiflora	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	75
bigleaf magnolia	Magnolia macrophylla	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	76
mountain or Fraser magnolia	Magnolia fraseri	NSL	Low	0	0	0	New Habitat	New Habitat	NA	Absent	New Habitat	New Habitat			0	77
sourwood	Oxydendrum arboreum	NDL	High	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	78
redbay	Persea borbonia	NSL	Low	0	0	0	Unknown	Unknown	High	Absent	Unknown	Unknown			0	79
pin cherry	Prunus pensylvanica	NSL	Low	0	0	0	Unknown	Unknown	Medium	Absent	Unknown	Unknown			0	80
southern red oak	Quercus falcata	WDL	Medium	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat	Likely +	Likely +	3	81
cherrybark oak; swamp red o	Quercus pagoda	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	82
laurel oak	Quercus laurifolia	NDH	Medium	0	0	0	Unknown	New Habitat	Medium	Absent	Unknown	New Habitat			3	83
bur oak	Quercus macrocarpa	NDH	Medium	0	0	0	Unknown	Unknown	High	Modeled	Unknown	Unknown			0	84
chinkapin oak	Quercus muehlenbergii	NSL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate ++	Migrate ++	3	85
water oak	Quercus nigra	WDH	High	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat		Migrate +	3	86
Shumard oak	Quercus shumardii	NSL	Low	0	0	0	New Habitat	New Habitat	High	Absent	New Habitat	New Habitat			3	87
bluejack oak	Quercus incana	NSL	Low	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat			3	88
winged elm	Ulmus alata	WDL	Medium	0	0	0	New Habitat	New Habitat	Medium	Absent	New Habitat	New Habitat	Migrate +	Migrate ++	3	89