

## Appendix E. Rare Species in the Nanticoke River Watershed

### Species likely to occur on the Refuge Complex, based on Maryland and Delaware Natural Heritage Programs data

Source: "Nanticoke River Bioreserve Strategic Plan" (The Nature Conservancy, 1998)

See "Explanation of Global and State Species Ranks" following this table. "Federal status" from USFWS.

Scientific name	Common name	Global rank	Federal status	State rank (MD/DE)	Community type
<b>Plants</b>					
<i>Rhynchospora microcephalia</i>	Tiny-headed beak-rush	G?		S1/(S2)	Open Canopy Herbaceous Wetlands
* <i>Agalinis acuta</i>	Sandplain gerardia	G1	LE	S1	<i>No records; may have occurred here historically</i>
<i>Oxypolis canbyi</i>	Canby's dropwort	G1G2	LE	S1/N	Open Canopy Herbaceous Wetlands
<i>Aeschynomene virginica</i>	Sensitive joint-vetch	G2	LT	N/S2	Atlantic White Cedar Swamps
<i>Lobelia boykinii</i>	Boykin's lobelia	G2		N/S2	Other Natural Communities
<i>Desmodium ochroleucum</i>	Cream-flowered tick-trefoil	G2G3		S1/(SH)	Xeric Dune Communities
<i>Hypericum adpressum</i>	Creeping St. John's wort	G2G3		S1/S1	Xeric Dune Communities
<i>Alnus maritima</i>	Seaside alder	G3		S1/S2	Coastal Plain Ponds
<i>Coreopsis rosea</i>	Rose coreopsis	G3		S2/S4	Open Canopy Herbaceous Wetlands
<i>Eriocaulon parkeri</i>	Parker's pipewort	G3		N/S1S3	Xeric Dune Communities
<i>Gaylussacia brachycera</i>	Box huckleberry	G3		S1/N	Open Canopy Herbaceous Wetlands
<i>Helonias bullata</i>	Swamp pink	G3	LT	S2	
<i>Rhexia aristosa</i>	Awned meadow-beauty	G3		S1/(S1)	Xeric Dune Communities
<i>Rhynchospora harperi</i>	Harper's beak-rush	G3		S3/S1	Open Canopy Herbaceous Wetlands
<i>Sagittaria teres</i>	Slender arrowhead	G3		SH/S1	Open Canopy Herbaceous Wetlands
<i>Rhynchospora pallida</i>	Pale beak-rush	G3?		S2/(SH)	Other Natural Communities
<i>Agalinis virgata</i>	Pine-barren gerardia	G3G4		S3/S2	Freshwater Intertidal Wetlands & Atlantic White Cedar Swamps
<i>Bidens mitis</i>	Small-fruited beggarticks	G3G4		S2/S2	Open Canopy Herbaceous Wetlands
<i>Carex mitchelliana</i>	Mitchell's sedge	G3G4		S1/N	Coastal Plain Ponds & Open Canopy Herbaceous Wetlands

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Scientific name	Common name	Global rank	Federal status	State rank (MD/DE)	Community type
<i>Litsea aestivalis</i>	Poundspice	G3G4		S2/S4	Open Canopy Herbaceous Wetlands
<i>Scirpus etuberculatus</i>	Canby's bulrush	G3G4		(S2)/SH	Xeric Dune Communities
<i>Rhynchospora inundata</i>	Drowned horned-rush	G3-G4		N/S1	Other Natural Communities
<i>Rhynchospora inundata</i>	Drowned horned-rush	G3-G4		N/S1	Other Natural Communities
<i>Cardamine longii</i>	Long's bittercress	G3G4Q		SH/S2	Open Canopy Herbaceous Wetlands
<i>Erianthus brevibarbus</i>	Short-beard plumegrass	G3G5		N/S1	Coastal Plain Ponds
<i>Lobelia elongata</i>	Elongated lobelia	G3G5		S1/S3	Open Canopy Herbaceous Wetlands
<i>Pycnanthemum setosum</i>	Awnead mountain-mint	G3G5		SH/SH	Xeric Dune Communities
<i>Amphicarpum purshi</i>	Buel maiden-cane	G4		(S1)/S1	Riverine Wetlands
<i>Carex barrattii</i>	Barratt's sedge	G4		S3/S2	Coastal Plain ponds & Open Canopy Herbaceous Wetlands
<i>Carex collinsii</i>	Collin's sedge	G4		N/S1	Xeric Dune Communities
<i>Carex gigantea</i>	Giant sedge	G4		SH/S2	Freshwater Intertidal Wetlands
<i>Carex venusta</i>	Dark green sedge	G4		S3/S3	Atlantic White Cedar Swamps & Open Canopy Herbaceous Wetlands
<i>Cleistes divaricata</i>	Spreading pogonia	G4		S3/(S1)	Freshwater Intertidal Wetlands
<i>Cyperus histricinus</i>	Flat sedge	G4		S2/S2	Atlantic White Cedar Swamps & Open Canopy Herbaceous Wetlands
<i>Desmodium strictum</i>	Pinkland tick-trefoil	G4		S1/S4	Open Canopy Herbaceous Wetlands
<i>Dichantherium scabriusculum</i>	Panicgrass	G4		S1/S2	Freshwater Intertidal Wetlands
<i>Dichantherium wrightianum</i>	Wright's witchgrass	G4		S3/S1	Open Canopy Herbaceous Wetlands
<i>Elatine americana</i>	American waterwort	G4		S1/(SH)	Freshwater Intertidal Wetlands
<i>Eleocharis brittoni</i>	Britton's spike-rush	G4		S3/S4	Freshwater Intertidal Wetlands & Atlantic White Cedar Swamps
<i>Eleocharis equisetoides</i>	Knotted spike-rush	G4		N/S1	Atlantic White Cedar Swamps & Open Canopy Herbaceous Wetlands
<i>Eleocharis melanocarpa</i>	Black-fruited spike-rush	G4		N/S2	Riverine Wetlands
<i>Eleocharis tricostata</i>	Three-angle spike-rush	G4		S2/S1	Open Canopy Herbaceous Wetlands

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Scientific name	Common name	Global rank	Federal status	State rank (MD/DE)	Community type
<i>Fuirena pumila</i>	Smooth fuirena	G4		S2/S2	Freshwater Intertidal Wetlands
<i>Gymnopogon ambiguus</i>	Beardgrass	G4		S3/(S1)	Freshwater Intertidal Wetlands
<i>Helianthemum propinquum</i>	Low frostweed	G4		S1/(S1)	Open Canopy Herbaceous Wetlands
<i>Isoetes riparia</i>	Riverbank quillwort	G4		S3/S1	Other Natural Communities
<i>Lachnanthes caroliana</i>	Carolina redroot	G4		S3/S4	Open Canopy Herbaceous Wetlands
<i>Listera australis</i>	Southern twayblade	G4		S3/S1	Freshwater Intertidal Wetlands
<i>Lobelia canbyi</i>	Canby's lobelia	G4		S1/N	Freshwater Intidal Wetlands & Coastal Plain Ponds
<i>Lygodium palmatum</i>	Climbing fern	G4		S1/S1	Coastal Plain Ponds & Open Canopy Herbaceous Wetlands
<i>Platanthera flava</i>	Southern rein-orchid	G4		N/S1	Freshwater Intertidal Wetlands
<i>Rhynchospora nitens</i>	Short-beaked baldrush	G4		S3/S1	Coastal Plain Ponds
<i>Rhynchospora nitens</i>	Short-beaked baldrush	G4		S3/S1	Open Canopy Herbaceous Wetlands
<i>Rhynchospora scirpoides</i>	Long-beaked baldrush	G4		(S3)/S1	Other Natural Communities
<i>Rhynchospora scirpoides</i>	Long-beaked baldrush	G4		N/SH	Open Canopy Herbaceous Wetlands
<i>Rhynchospora torreyana</i>	Torrey's beak-rush	G4		S3/S1	Freshwater Intertidal Wetlands
<i>Sagittaria subulata</i>	Subulate arrowhead	G4		S2/S2	Open Canopy Herbaceous Wetlands
<i>Sagittaria subulata</i>	Subulate arrowhead	G4		S2/N	Freshwater Intertidal Wetlands
<i>Sclerolepis uniflora</i>	Pink bog-button	G4		SH/SX	Other Natural Communities
<i>Utricularia radiata</i>	Small swollen bladderwort	G4		S1/S1	Xeric Dune Communities
<i>Utricularia resupinata</i>	Reversed bladderwort	G4		S2/S2	Open Canopy Herbaceous Wetlands
<i>Vaccinium macrocarpon</i>	Large cranberry	G4		S1/S2	Open Canopy Herbaceous Wetlands
<i>Hypericum gymnanthum</i>	Clasping-leaved St. John's wort	G4?		N/S2	Xeric Dune Communities
<i>Lespedeza stuevei</i>	Tall bushclover	G4?		S2/S2	Coastal Plain Ponds
<i>Paspalum dissectum</i>	Walter paspalum	G4?		N/S2	Xeric Dune Communities
<i>Triadenum walteri</i>	Walter's St. John's wort	G4?		S1/S4	Atlantic White Cedar Swamps
<i>Agalinis setacea</i>	Thread-leaved gerardia	G4G5		S2/S1	Coastal Plain Ponds
<i>Aristida virgata</i>	Wand-like three-awn	G4G5		S1/S1	Open Canopy Herbaceous Wetlands

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<i>Asclepias rubra</i>	Red milkweed	G4G5		(S2)/S2	Coastal Plain Ponds
<i>Carex jorii</i>	Cyprus swamp sedge	G4G5		(S1)/S2	Open Canopy Herbaceous Wetlands
<i>Carex styloflexa</i>	Bent sedge	G4G5		(S1)/S1	Other Natural Communities
<i>Ceratophyllum muricatum</i>	Prickly hornwort	G4G5		S1/SH	Coastal Plain ponds
<i>Desmodium obtusum</i>	Stiff tick-trefoil	G4G5		S2/S2	Atlantic White Cedar Swamps
<i>Eleocharis robbinsii</i>	Robbin's spike-rush	G4G5		S3/(SH)	Other Natural Communities
<i>Fraxinus profunda</i>	Pumpkin ash	G4G5		N/S1	Xeric Dune Communities
<i>Fuirena squarosa</i>	Hairy umbrella sedge	G4G5		N/SH	Open Canopy Herbaceous Wetlands
<i>Gratiola ramosa</i>	Branching hedgehyssop	G4G5		(S1)/S1	Other Natural Communities
<i>Iris prismatica</i>	Slender blue flag	G4G5		S1/S2	Open Canopy Herbaceous Wetlands
<i>Juncus elliotii</i>	Bog rush	G4G5		(S1)/S2	Open Canopy Herbaceous Wetlands
<i>Juncus militaris</i>	Bayonet rush	G4G5		S1/SH	Xeric Dune Communities
<i>Lobelia glandulosa</i>	Glandular lobelia	G4G5		N/S1	Open Canopy Herbaceous Wetlands
<i>Scirpus subterminalis</i>	Water clubrush	G4G5		S1/S2	Open Canopy Herbaceous Wetlands
<i>Smilax pseudochina</i>	Long-stalk greenbriar	G4G5		SH/S2	Open Canopy Herbaceous Wetlands
<i>Tephrosia spicata</i>	Southern goat's rue	G4G5		N/S1	Riverine Wetlands
<i>Toxicodendron pubescens</i>	Poison oak	G4G5		S1/(S1)	Open Canopy Herbaceous Wetlands
<i>Utricularia fibrosa</i>	Fibrous bladderwort	G4G5		S1/S1	Open Canopy Herbaceous Wetlands
<i>Rhynchospora fusca</i>	Brown beak-rush	G4-G5		S1/N	Coastal Plain Ponds & Open Canopy Herbaceous Wetlands
<i>Sabatia diffornis</i>	Two-formed pink	G4-G5		S2/S2	Other Natural Communities
<i>Agalinis fasciculata</i>	Fascicled gerardia	G5		S1S2/S1	Xeric Dune Communities
<i>Asclepias lanceolata</i>	Few-flowered milkweed	G5		S1/S1	Coastal Plain Ponds & Open Canopy Herbaceous Wetlands
<i>Aster spectabilis</i>	Showy aster	G5		S1/S1	Coastal Plain Ponds
<i>Bidens connata</i>	Purple-stem swamp beggarticks	G5		S1/S1	Xeric Dune Communities
<i>Bidens discoidea</i>	Swamp beggarticks	G5		S1/S1	Open Canopy Herbaceous Wetlands

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<i>Boltonia asteroides</i>	Aster-like boltonia	G5		S1/N	Xeric Dune Communities
<i>Bromus latiglumis</i>	Broad-glumed brome	G5		S3/S4	Other natural communities
<i>Campanula aparinoides</i>	Marsh bellflower	G5		S3/N	Open Canopy Herbaceous Wetlands
<i>Carex complanata</i>	Hirsute sedge	G5		N/S1	Xeric Dune Communities
<i>Carex lacustris</i>	Lake-bank sedge	G5		N/S2	Other Natural Communities
<i>Centella erecta</i>	Erect coinleaf	G5		SH/S1	Other Natural Communities
<i>Centrosema virginianum</i>	Coastal butterfly-pea	G5		S1/S2	Coastal Plain Ponds & Open Canopy Herbaceous Wetlands
<i>Chasmanthium latifolium</i>	Indian sea-oats	G5		S1/S1	Coastal Plain Ponds & Open Canopy Herbaceous Wetlands
<i>Cladium mariscoides</i>	Twig rush	G5		S1/S1	Open Canopy Herbaceous Wetlands
<i>Clitora mariana</i>	Maryland butterfly-pea	G5		N/S2	Xeric Dune Communities
<i>Coelorachis rugosa</i>	Wrinkled joint-grass	G5		S3/(S3)	Open Canopy Herbaceous Wetlands
<i>Commelina virginica</i>	Virginia dayflower	G5		S2/S1	Open Canopy Herbaceous Wetlands
<i>Comptonia peregrina</i>	Sweet fern	G5		S1/S3	Open Canopy Herbaceous Wetlands
<i>Cyperus retrofractus</i>	Rough cyperus	G5		N/S2	Xeric Dune Communities
<i>Desmodium glabellum</i>	Dillen tick-trefoil	G5		S1/(S1)	Riverine Wetlands
<i>Desmodium laevigatum</i>	Smooth tick-trefoil	G5		S2/S2	Riverine Wetlands
<i>Drosera rotundifolia</i>	Round-leaf sundew	G5		SH/S1	Open Canopy Herbaceous Wetlands
<i>Elatine minima</i>	Small waterwort	G5		S3S4/S2	Other Natural Communities
<i>Eleocharis acicularis</i>	Least spike-rush	G5		S1/S1	Open Canopy Herbaceous Wetlands & Freshwater Intertidal Wetlands
<i>Eleocharis tortilis</i>	Twisted spike-rush	G5		SU/(SH)	Open Canopy Herbaceous Wetlands
<i>Equisetum hyemale</i>	Rough horsetail	G5		(SH)/S1	Other Natural Communities
<i>Eragrostis hirsuta</i>	A love grass	G5		S1/N	Open Canopy Herbaceous Wetlands
<i>Eragrostis refracta</i>	Meadow love grass	G5		(S1)/S1	Xeric Dune Communities
<i>Erianthus contortus</i>	Bent-awn plumegrass	G5		S1/S1	Open Canopy Herbaceous Wetlands
<i>Eriocaulon compressum</i>	Flattened pipewort	G5		S2/S1	Open Canopy Herbaceous Wetlands

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<i>Eriocaulon decangulare</i>	Ten-angle pipewort	G5		S2/S2	Open Canopy Herbaceous Wetlands
<i>Eriocaulon septangulare</i>	Seven-angle pipewort	G5		S1/S1	Coastal Plain Ponds
<i>Eupatorium album</i>	White boneset	G5		N/S1	Open Canopy Herbaceous Wetlands
<i>Eupatorium leucolepis</i>	White-bracted boneset	G5		S1/S2	Open Canopy Herbaceous Wetlands
<i>Gentiana catesbaei</i>	Catesby's gentian	G5		S1/SH	Open Canopy Herbaceous Wetlands
<i>Glyceria canadensis</i>	Canada manna-grass	G5		S1/S2/S3	Freshwater intertidal wetlands & Coastal Plain ponds
<i>Helianthus angustifolius</i>	Swamp sunflower	G5		SH/S1	Freshwater Intertidal Wetlands
<i>Hydrocotyle verticillata</i> var. <i>triradiata</i>	Whorled pennywort	G5		S3/S2	Open Canopy Herbaceous Wetlands
<i>Hypericum boreale</i>	Northern St. John's wort	G5		S1/S1	Xeric Dune Communities
<i>Hypericum densiflorum</i>	Bushy St. John's wort	G5		S1/S1	Open Canopy Herbaceous Wetlands
<i>Hypericum denticulatum</i>	Coppery St. John's wort	G5		S1/S4	Xeric Dune Communities
<i>Juncus coriaceus</i>	Leathery rush	G5		S3/S2	Freshwater Intertidal Wetlands & Riverine Wetlands
<i>Juncus pelocarpus</i>	Brown-fruited rush	G5		S2/S2	Coastal Plain Ponds & Open Canopy Herbaceous Wetlands
<i>Juncus torreyi</i>	Torrey's rush	G5		S3/S1	Atlantic White Cedar Swamps
<i>Kalmia angustifolia</i>	Sheep laurel	G5		S1/S1	Open Canopy Herbaceous Wetlands
<i>Lechea mucronata</i>	Hairy pinweed	G5		S1/S1	Xeric Dune Communities
<i>Lemna perpusilla</i>	Minute duckweed	G5		S3/S2	Atlantic White Cedar Swamps & Open Canopy Herbaceous Wetlands
<i>Leptoloma cognatum</i>	Mountain hairgrass	G5		N/SH	Coastal Plain Ponds & Open Canopy Herbaceous Wetlands
<i>Lespedeza angustifolia</i>	Narrow-leaf bushclover	G5		S1/S2	Coastal Plain Ponds & Open Canopy Herbaceous Wetlands
<i>Ludwigia hirtella</i>	Hairy ludwigia	G5		N/S3	Coastal Plain Ponds & Open Canopy Herbaceous Wetlands
<i>Lupinus perennis</i>	Wild lupine	G5		S1/S1	Open Canopy Herbaceous Wetlands
<i>Lycopodium dendroideum</i>	Ground pine	G5		S1/S1	Coastal Plain Ponds & Open Canopy Herbaceous Wetlands

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<i>Lycopodium tristachyum</i>	Deep-root clubmoss	G5		S1S2/S2	Riverine Wetlands
<i>Lycopus amplexans</i>	Sessile-leaved bugleweed	G5		S1/S1	Other Natural Communities
<i>Lysimachia hybrida</i>	Lowland loosestrife	G5		S1/(S1)	Coastal Plain Ponds & Open Canopy Herbaceous Wetlands
<i>Melanthium virginicum</i>	Virginia bunchflower	G5		S1/SH	Xeric Dune Communities
<i>Myrica heterophylla</i>	Evergreen bayberry	G5		N/S1	Other natural communities
<i>Myriophyllum humile</i>	Low water-milfoil	G5		S3S4/S2	Xeric Dune Communities
<i>Nymphoides aquatica</i>	Larger floating-heart	G5		S1/S1	Open Canopy Herbaceous Wetlands
<i>Oldenlandia uniflora</i>	Clustered bluets	G5		N/S1	Xeric Dune Communities
<i>Panicum oligosanthos</i>	Heller's witchgrass	G5		N/S1	Atlantic White Cedar Swamps & Open Canopy Herbaceous Wetlands
<i>Panicum ravenelii</i>	Ravenel's witchgrass	G5		S3/S1	Xeric Dune Communities
<i>Passiflora incarnata</i>	Purple passion flower	G5		S3/S2	Coastal Plain Ponds & Open Canopy Herbaceous Wetlands
<i>Platanthera cristata</i>	Crested yellow orchid	G5		S1S2/S4	Xeric Dune Communities
<i>Platanthera lacera</i>	Green-fringed orchid	G5		S2S3/(S4)	Coastal Plain Ponds & Open Canopy Herbaceous Wetlands
<i>Pogonia ophioglossoides</i>	Rose pogonia	G5		(S3)/S2S3	Other Natural Communities
<i>Polygala cruciata</i>	Cross-leaved milkwort	G5		(S1)/S1	Atlantic White Cedar Swamps & Open Canopy Herbaceous Wetlands
<i>Polygala incarnata</i>	Pink milkwort	G5		(SH)/S1	Open Canopy Herbaceous Wetlands
<i>Polypodium polypodioides</i>	Resurrection fern	G5		S1/S1	Atlantic white cedar swamps
<i>Quercus lyrata</i>	Overcup oak	G5		S3/S2	Open Canopy Herbaceous Wetlands
<i>Quercus marilandica</i>	Blackjack oak	G5		S2S3/(S1)	Freshwater Intertidal Wetlands
<i>Ranunculus pennsylvanicus</i>	Bristly crowfoot	G5		S2/(S3S4)	Coastal Plain Ponds & Open Canopy Herbaceous Wetlands
<i>Rhynchospora alba</i>	Pale beak-rush	G5		S1/S2	Open Canopy Herbaceous Wetlands
<i>Rhynchospora cephalantha</i>	Captate beak-rush	G5		N/SH	Other Natural Communities

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<i>Rhynchospora cephalantha</i>	Captate beak-rush	G5		N/S2	Xeric Dune Communities
<i>Rhynchospora globularis</i>	Grass-like beak-rush	G5		S1/S4	Coastal Plain Ponds & Open Canopy Herbaceous Wetlands
<i>Rhynchospora glomerata</i>	Clustered beak-rush	G5		(S3)/S1	Xeric Dune Communities
<i>Rhynchospora glomerata</i>	Clustered beak-rush	G5		S3/S1	Other Natural Communities
<i>Rhynchospora gracilentata</i>	Slender beak-rush	G5		S1/S2	Coastal Plain Ponds
<i>Rhynchospora gracilentata</i>	Slender beak-rush	G5		S1/S2	Open Canopy Herbaceous Wetlands
<i>Rotala ramosior</i>	Toothcup	G5		(S1)/S2	Other Natural Communities
<i>Sabatia campanulata</i>	Slender marsh pink	G5		S2/S2	Coastal Plain Ponds
<i>Sagittaria calycina</i>	Spongy lophotocarpus	G5		S3/S1	Riverine Wetlands
<i>Sagittaria calycina</i>	Spongy lophotocarpus	G5		SH/SRF	Open Canopy Herbaceous Wetlands
<i>Sarracenia purpurea</i>	Northern pitcher-plant	G5		SH/SH	Other Natural Communities
<i>Sarracenia purpurea</i>	Northern pitcher-plant	G5		S1/S1	Coastal Plain ponds
<i>Scirpus cylindricus</i>	Salt marsh bulrush	G5		S3/S2	Atlantic White Cedar Swamps
<i>Scleria pauciflora</i>	Few-flowered nutrush	G5		S1/S2	Open Canopy Herbaceous Wetlands
<i>Scleria reticularis</i>	Reticulated nutrush	G5		N/S3	Other natural communities
<i>Scleria reticularis</i>	Reticulated nutrush	G5		S3/S1	Open canopy herbaceous wetlands
<i>Scleria triglomerata</i>	Whip nutrush	G5		S3/S4	Open Canopy Herbaceous Wetlands
<i>Scleria triglomerata</i>	Whip nutrush	G5		S1/S1	Open Canopy Herbaceous Wetlands
<i>Smilax walteri</i>	Red-berried greenbriar	G5		SU/S1	Other Natural Communities
<i>Smilax walteri</i>	Red-berried greenbriar	G5		S2/S1	Freshwater Intertidal Wetlands, Atlantic White Cedar Swamps, Open Canopy Herbaceous Wetlands
<i>Solidago speciosa</i>	Showy goldenrod	G5		S1/S1	Open Canopy Herbaceous Wetlands
<i>Solidago stricta</i>	Wandlike goldenrod	G5		S1/S1	Xeric Dune Communities
<i>Spirodela punctata</i>	Duck-weed	G5		S1/S2	Coastal Plain Ponds & Open Canopy Herbaceous Wetlands
<i>Symplocos tinctoria</i>	Horse-sugar	G5		S3/S1	Xeric Dune Communities
<i>Taxodium distichum</i>	Bald cypress	G5		S3/S3	Freshwater Intertidal Wetlands



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<i>Thelypteris simulata</i>	Bog fern	G5		S1/S4	Freshwater Intertidal Wetlands
<i>Trichosterna setaceum</i>	Narrow-leaved blue curls	G5		S3/(S1)	Freshwater Intertidal Wetlands
<i>Utricularia biflora</i>	Two-flower bladderwort	G5		N/S1	Open Canopy Herbaceous Wetlands
<i>Utricularia gibba</i>	Humped bladderwort	G5		S3/(S1)	Open Canopy Herbaceous Wetlands
<i>Utricularia inflata</i>	Swollen bladderwort	G5		(S3)/S1	Xeric Dune Communities
<i>Utricularia juncea</i>	Southern bladderwort	G5		S2/(S2)	Freshwater Intertidal Wetlands
<i>Utricularia purpurea</i>	Purple bladderwort	G5		S2/S5	Xeric Dune Communities
<i>Utricularia subulata</i>	Zig-zag bladderwort	G5		S1/S1	Open Canopy Herbaceous Wetlands
<i>Xyris fimbriata</i>	Fringed yellow-eyed grass	G5		S2/S2	Freshwater Intertidal Wetlands & Riverine Wetlands
<i>Xyris smalliana</i>	Small's yellow-eyed grass	G5		(SH)/S1	Open Canopy Herbaceous Wetlands
<i>Desmodium viridiflorum</i>	Velvety tick-trefoil	G5?		N/S2	Other Natural Communities
<i>Panicum hemitomun</i>	Maidencane	G5?		N/S2	Xeric Dune Communities
<i>Sagittaria engelmanniana</i>	Engelmann's arrowhead	G5?		S2/S2	Coastal Plain Ponds & Open Canopy Herbaceous Wetlands
<i>Sagittaria lancifolia</i>	Bull-tongued arrowhead	G5?		N/S2	Freshwater Intertidal Wetlands & Atlantic White Cedar Swamps
<i>Sagittaria lancifolia</i>	Bull-tongued arrowhead	G5?		(S3)/S2	Other Natural Communities
<i>Scirpus smithii</i>	Smith's bullrush	G5?		SH/S2	Open Canopy Herbaceous Wetlands
<i>Panicum columbianum</i>	Hemlock panicgrass	G5Q		SH/S1	Other Natural Communities
<i>Salicornia bigelovii</i>	Dwarf glasswort	G5Q		S1/S2	Coastal Plain Ponds & Open Canopy Herbaceous Wetlands
<i>Chamaecrista fasciculata</i> var. <i>macrosperma</i>	Marsh wild senna	G5T2Q		(S1)/S2	Xeric Dune Communities
<i>Panicum commonsianum</i>	Common's panicgrass	G5T4		N/S1	Xeric Dune Communities
<i>Gaylussacia dumosa</i> var. <i>bigeloviana</i>	Huckleberry	G5T4T 5		N/S2	Other Natural Communities
<i>Chimaphila umbellata</i> ssp. <i>cisatlantica</i>	Common wintergreen	G5T5		S2/N	Xeric Dune Communities
<i>Commelina erecta</i> var. <i>angustifolia</i>	Slender dayflower	G5T5		SH/(SH)	Other Natural Communities

Appendix E. Rare Species in the Nanticoke River Watershed

Scientific name	Common name	Global rank	Federal status	State rank (MD/DE)	Community type
<i>Melampyrum lineare</i> var. <i>pectinatum</i>	Cow-wheat	G5T5		N/S1	Xeric Dune Communities
<i>Micranthemum micranthemoides</i>	Nuttall's micranthemum	GH		N/S2S3	Other Natural Communities
<b>Animals</b>					
<i>Acantharchus pomotis</i>	Mud sunfish	G5		N/S1	
<i>Acipenser brevirostrum</i>	Shortnose sturgeon	G3	LE	S1	
<i>Acipenser oxyrhynchus</i>	Atlantic sturgeon	G3		S2/S2	
<i>Agkistrodon contortrix</i>	Northern copperhead	G5		S1/N	
<i>Ambystoma tigrinum</i>	Eastern tiger salamander	G5		N/S1	
<i>Ammodramus henslowii</i>	Henslow's sparrow	G4		S2/(S2)	
<i>Anodonta implicata</i>	Alewife floater	G5		S1S2/SHB	
<i>Apeltes quadracus</i>	Fourspine stickleback	G5		N/S1	
<i>Ardea herodias</i>	Great blue heron	G5		N/SH	
<i>Argia bipunctulata</i>	Seepage dancer	G4		N/S2B	
<i>Atrytonopsis hianna</i>	Dusted skipper	G4G5		N/S1	
<i>Bartramia longicauda</i>	Upland sandpiper	G5		N/S1	
<i>Battus philenor</i>	Pipevine swallowtail	G5		S1/SHB	
<i>Boloria selene myrina</i>	Silver-bordered fritillary	G5T5		N/S2	
<i>Botaurus lentiginosus</i>	American bittern	G4		S3/(S1)	
<i>Buteo lineatus</i>	Red-shouldered hawk	G5		S2/(S1B,SZ N)	
<i>Caretta caretta</i>	Atlantic loggerhead turtle	G3	LT	S1B	
<i>Cemophora coccinea</i>	Scarlet snake	G5		N/S2B,SZN	
<i>Chelonia mydas</i>	Atlantic green turtle	G3	LT	S1N	
<i>Chordeiles minor</i>	Common nighthawk	G5		S3/SH	
<i>Cicindela dorsalis dorsalis</i>	Northeastern beach tiger beetle	G4T2	LT	S1	

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Scientific name	Common name	Global rank	Federal status	State rank (MD/DE)	Community type
<i>Circus cyaneus</i>	Northern harrier	G5		S3S4B/S2B	
<i>Cistothorus platensis</i>	Sedge wren	G5		S2/(S1B)	
<i>Clemmys guttata</i>	Spotted turtle	G5		S2/N	
<i>Coccyzus erythrophthalmus</i>	Black-billed cuckoo	G5		N/S3	
<i>Cottus bairdi</i>	Mottled sculpin	G5		N/S1B	
<i>Dendroica dominica</i>	Yellow-throated warbler	G5		N/S1	
<i>Dermochelys coriacea</i>	Atlantic leatherback turtle	G3	LE	S1	
<i>Egretta caerulea</i>	Little blue heron	G5		N/S2B	
<i>Elaphe guttata</i>	Corn snake	G5		S2S3/S1B	
<i>Elliptio fisheriana</i>	Northern lance	G4		N/S1	
<i>Enneacanthus chaetodon</i>	Black-banded sunfish	G5		N/S2	
<i>Enneacanthus obesus</i>	Banded sunfish	G5		S1/S1	
<i>Eretmochelys imbricata</i>	Atlantic hawksbill turtle	G3	LE	SRN	
<i>Etheostorna vitreum</i>	Glassy darter	G4		N/S2	
<i>Falco columbarius</i>	Merlin	G4		S1/N	
<i>Falco peregrinus</i>	Peregrine falcon	G3		N/S2N	
<i>Gastrophryne carolinensis</i>	Eastern narrow-mouthed toad	G5		S1/(S1N,SE B)	
<i>Gavia immer</i>	Common loon	G5		S1S2/N	
<i>Gomphaeschna furcillata</i>	Harlequin damer	G5		N/S2N	
<i>Haliaeetus leucocephalus</i>	Bald Eagle	G4	LT	N/S1	
<i>Hemileuca maia</i>	Woodland buck moth	G4		S2S3/S1B	
<i>Hesperia metea</i>	Cobweb skipper	G4G5		N/S3	
<i>Himantopus mexicanus</i>	Black-necked stilt	G5		N/SU	
<i>Hyla chrysoscelis</i>	Cope's gray treefrog	G5		N/S2B	
<i>Incisalia irus</i>	Frosted elfin	G4		N/S2	
<i>Lampetra aepyptera</i>	Least brook lamprey	G5		S1/S1	

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Scientific name	Common name	Global rank	Federal status	State rank (MD/DE)	Community type
<i>Lampropeltis getula</i>	Eastern kingsnake	G5		N/S2	
<i>Lampsilis radiata</i>	Eastern lampmussel	G5		N/S2	
<i>Lanius ludovicianus</i>	Loggerhead shrike	G4		SU/SH	
<i>Laterallus jamaicensis</i>	Black rail	G4?		S1/SHB,SH N	
<i>Lepidochelys kempii</i>	Atlantic ridley turtle	G1	LE	S1N	
<i>Melanerpes erythrocephalus</i>	Red-headed woodpecker	G5		S2?/(S1B)	
<i>Mitoura grynea</i>	Olive hairstreak	G5		N/S1B	
<i>Mitoura hesseli</i>	Hessel's hairstreak	G3G4		N/S2	
<i>Moxostoma macrolepidotum</i>	Shorthead redhorse	G5		SH/S1	
<i>Notropis amoenus</i>	Comely shiner	G5		N/S2	
<i>Notropis chalybaeus</i>	Iron-color shiner	G5		N/S2	
<i>Opheodrys aestivus</i>	Rough green snake	G5		N/S2	
<i>Poanes arroni aaroni</i>	Saffron skipper	G4T4		N/S2	
<i>Poanes massasoit</i>	Mulberry wing	G4		N/SU	
<i>Podilymbus podiceps</i>	Pied-billed grebe	G5		N/S1	
<i>Problema bulenta</i>	Rare skipper	G2G3		S2/S2B,S2N	
<i>Pseudotriton montanus</i>	Eastern mud salamander	G5		S1/(S1)	
<i>Rana virgatipes</i>	Carpenter frog	G5		N/S1	
<i>Riparia riparia</i>	Bank swallow	G5		S2/(S1)	
<i>Satyrium kingi</i>	King's hairstreak	G3G4		N/S2B	
<i>Scincella lateralis</i>	Ground skink	G5		S1S2/(S1)	
<i>Sciurus niger cinereus</i>	Delmarva fox squirrel	G5T3	LE	N/S1	
<i>Septophaga ruticilla</i>	American redstart	G5		S1/(S1)	
<i>Sitta carolinensis</i>	White-breasted nuthatch	G5		N/S2B	
<i>Sterna antillarum</i>	Least tern	G4		N/S2B,S5N	
<i>Storeria dekayi</i>	Northern brown snake	G5		S2/(S1B)	

Scientific name	Common name	Global rank	Federal status	State rank (MD/DE)	Community type
<i>Storeria occipitomaculata</i>	Northern redbelly snake	G5		N/S3	
<i>Strix varia</i>	Barred owl	G5		N/S1	
<i>Virginia valeriae</i>	Smooth earth snake	G5		N/S2	

### Explanation of Global and State Species Ranks

Originally developed and instituted by The Nature Conservancy, an international conservation organization, the global and state ranking system is used by all 50 State Natural Heritage Programs and numerous Conservation Data Centers in other countries in this hemisphere. Because they are assigned based upon standard criteria, the ranks can be used to assess the range-wide status of a species as well as the status within portions of the species' range. The primary criterion used to define these ranks are the number of known distinct occurrences with consideration given to the total number of individuals at each locality. Additional factors considered include the current level of protection, the types and degree of threats, ecological vulnerability, and population trends. Global and state ranks are used in combination to set inventory, protection, and management priorities for species both at the State as well as regional level.

### Global Ranks

G1 Highly globally rare. Critically imperiled globally because of extreme rarity (typically 5 or fewer estimated occurrences or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extinction.

G2 Globally rare. Imperiled globally because of rarity (typically 6 to 20 estimated occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extinction throughout its range.

G3 Either very rare and local throughout its range or distributed locally (even abundantly at some of its locations) in a restricted range (e.g., a single western state, a physiographic region in the East) or because of other factors making it vulnerable to extinction throughout its range; typically with 21 to 100 estimated occurrences.

*Appendix E. Rare Species in the Nanticoke River Watershed*

G4 Apparently secure globally, although it may be quite rare in parts of its range, especially at the periphery.

G5 Demonstrably secure globally, although it may be quite rare in parts of its range, especially at the periphery.

GH No known extant occurrences (i.e., formerly part of the established biota, with the expectation that it may be rediscovered).

GU Possibly in peril range-wide, but its status is uncertain; more information is needed.

GX Believed to be extinct throughout its range (e.g., passenger pigeon) with virtually no likelihood that it will be rediscovered.

G? The species has not yet been ranked.

\_Q Species containing a "Q" in the rank indicates that the taxon is of questionable or uncertain taxonomic standing (i.e., some taxonomists regard it as a full species, while others treat it at an infraspecific level).

\_T Ranks containing a "T" indicate that the infraspecific taxon is being ranked differently than the full species.

### **State Ranks**

S1 Highly State rare. Critically imperiled in Maryland because of extreme rarity (typically 5 or fewer estimated occurrences or very few remaining individuals or acres in the State) or because of some factor(s) making it especially vulnerable to extirpation. Species with this rank are actively tracked by the Wildlife and Heritage Division (WHD).

S2 State rare. Imperiled in Maryland because of rarity (typically 6 to 20 estimated occurrences or few remaining individuals or acres in the State) or because of some factor(s) making it vulnerable to becoming extirpated. Species with this rank are actively tracked by WHD.

S3 Watch List. Rare to uncommon with the number of occurrences typically in the range of 21 to 100 in Maryland. It may have fewer occurrences but with a large number of individuals in some populations, and it may be susceptible to large-scale disturbances. Species with this rank are not actively tracked by WHD.

S3.1 A "Watch List" species that is actively tracked by WHD because of the global significance of Maryland occurrences. For instance, a G3 S3 species is globally rare to uncommon, and although it may not be currently threatened with extirpation in Maryland, its occurrences in Maryland may be critical to the long term security of the species. Therefore, its status in the State is being monitored.

S4 Apparently secure in Maryland with typically more than 100 occurrences in the State or may have fewer occurrences if they contain large numbers of individuals. It is apparently secure under present conditions, although it may be restricted to only a portion of the State.

S5 Demonstrably secure in Maryland under present conditions.

SA Accidental or a vagrant in Maryland.

SE Established, but not native to Maryland; it may be native elsewhere in North America.

SH Historically known from Maryland, but not verified for an extended period (usually 20 or more years), with the expectation that it may be rediscovered.

SP Potentially occurring in Maryland or likely to have occurred in Maryland (but without persuasive documentation).

SR Reported from Maryland, but without persuasive documentation that would provide a basis for either accepting or rejecting the report (e.g., no voucher specimen exists).

SRF Reported falsely (in error) from Maryland, and the error may persist in the literature.

*Appendix E. Rare Species in the Nanticoke River Watershed*

SU Possibly rare in Maryland, but of uncertain status for reasons including lack of historical records, low search effort, cryptic nature of the species, or concerns that the species may not be native to the State. Uncertainty spans a range of 4 or 5 ranks as defined above.

SX Believed to be extirpated in Maryland with virtually no chance of rediscovery.

S? The species has not yet been ranked.

S ? A question mark after another rank indicates uncertainty regarding that rank.

### **State Status**

This is the status of a species as determined by the Maryland Department of Natural Resources, in accordance with the Nongame and Endangered Species Conservation Act. Definitions for the following categories have been taken from Code of Maryland Regulations (COMAR) 08.03.08.

E Endangered; a species whose continued existence as a viable component of the State's flora or fauna is determined to be in jeopardy.

I In Need of Conservation; an animal species whose population is limited or declining in the State such that it may become threatened in the foreseeable future if current trends or conditions persist.

T Threatened; a species of flora or fauna which appears likely, within the foreseeable future, to become endangered in the State.

X Endangered Extirpated; a species that was once a viable component of the flora or fauna of the State, but for which no naturally occurring populations are known to exist in the State.

\* A qualifier denoting the species is listed in a limited geographic area only.



## **Federal Status**

This is the status of a species as determined by the U.S. Fish and Wildlife Service Office of Endangered Species, in accordance with the Endangered Species Act. Definitions for the following categories have been modified from 50 CFR 17.

LE Taxa listed as endangered; in danger of extinction throughout all or a significant portion of their range.

LT Taxa listed as threatened; likely to become endangered within the foreseeable future throughout all or a significant portion of their range.

PE Taxa proposed to be listed as endangered.

PT Taxa proposed to be listed as threatened.

C Candidate taxa for listing for which the Service has on file enough substantial information on biological vulnerability and threat(s) to support proposals to list them as endangered or threatened.

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