



MARYLAND STATE WILDLIFE ACTION PLAN: APPENDICES



2025-2035



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Appendix 3a. List of Species of Greatest Conservation Need (SGCN)

Taxa Group	Taxa (Sub)group for Threats and Actions	SGCN in 2015?	Scientific Name	Synonymous Scientific Names	Common Name	Alternate Common Names	Name changes since 2015	Global Rank	State Rank	Cons. Status Group	Federal Status	State Status	NE Regional Status	Reasoning for adding (if new in 2025)	*Associated KWHs (see Appendix 4a for codes)
Mammals	Mammals (Terrestrial)	<input checked="" type="checkbox"/>	<i>Cryptotis parva</i>	<i>Cryptotis parvus</i>	Least shrew	North American least shrew		G5	S3S5	C			RAPS		8, 9, 10, 11, 12, 13, 14, 19, 21, 22, 23, 24, 25, 34, 35, 36, 54, 55, 56
Mammals	Mammals (Terrestrial)	<input checked="" type="checkbox"/>	<i>Lynx rufus</i>		Bobcat			G5	S3	C		I	N/A		1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, 15, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 33, 34, 35, 36, 54, 55
Mammals	Mammals (Terrestrial)	<input checked="" type="checkbox"/>	<i>Microtus chrotorrhinus carolinensis</i>		Southern rock vole			G5T3	S1	A		E	RSGCN		2, 22, 23
Mammals	Mammals (Terrestrial)	<input checked="" type="checkbox"/>	<i>Mustela nivalis</i>		Least weasel			G5	S2S3	B		I	RAPS		1, 2, 3, 4, 5, 15, 19, 54, 55
Mammals	Mammals (Terrestrial)	<input checked="" type="checkbox"/>	<i>Neogale vison</i>	<i>Neovison vison</i>	American mink	Mink	Neovison vison in 2015 SWAP	G5	S4	C			N/A		2, 3, 4, 5, 6, 7, 8, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 34, 35, 36, 38, 39, 40, 41, 42, 43, 44, 45, 46, 57
Mammals	Mammals (Terrestrial)	<input checked="" type="checkbox"/>	<i>Neotoma magister</i>		Allegheny woodrat			G3	S1	A		E	RSGCN		1, 2, 3, 4, 5, 6, 7, 12, 13, 14, 15, 52, 59
Mammals	Mammals (Terrestrial)	<input checked="" type="checkbox"/>	<i>Sciurus niger cinereus</i>		Delmarva fox squirrel			G5T3	S1	A		I	RSGCN		6, 7, 8, 10, 20, 26, 33
Mammals	Mammals (Terrestrial)	<input checked="" type="checkbox"/>	<i>Sorex dispar</i>		Long-tailed shrew			G4	S2	B		I	RAPS		1, 2, 3, 15
Mammals	Mammals (Terrestrial)	<input checked="" type="checkbox"/>	<i>Sorex fumeus</i>		Smoky shrew			G5	S2S3	B		I	N/A		1, 2, 3, 5, 6, 7, 15, 21
Mammals	Mammals (Terrestrial)	<input checked="" type="checkbox"/>	<i>Sorex hoyi winnemana</i>		Southern pygmy shrew			G5T4	S2	B			RAPS		2, 3, 5, 6, 7, 19, 20, 21, 24, 25, 26, 27, 28
Mammals	Mammals (Terrestrial)	<input checked="" type="checkbox"/>	<i>Sorex longirostris</i>		Southeastern shrew			G5	S3S4	C			N/A		5, 6, 7, 19, 20, 24, 25, 26, 27, 28, 54
Mammals	Mammals (Terrestrial)	<input checked="" type="checkbox"/>	<i>Sorex albibarbis</i>	<i>Sorex palustris punctulatus</i>	Eastern water shrew	Southern water shrew	<i>Sorex albibarbis punctulatus</i> used by ITIS, but not reflected elsewhere.	G5	S1	A		E	RAPS		2, 3, 19, 21, 38
Mammals	Mammals (Terrestrial)	<input checked="" type="checkbox"/>	<i>Spilogale putorius</i>		Eastern spotted skunk			G4	S1	A			RSGCN		1, 2, 3, 4, 5, 13, 15
Mammals	Mammals (Terrestrial)	<input checked="" type="checkbox"/>	<i>Sylvilagus obscurus</i>		Appalachian cottontail			G4	S1	A		I	RSGCN		1, 2, 3, 4, 12, 13, 15, 54
Mammals	Mammals (Terrestrial)	<input checked="" type="checkbox"/>	<i>Synaptomys cooperi</i>		Southern bog lemming			G5	S3	C			RAPS		2, 3, 5, 6, 7, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 54
Mammals	Mammals (Terrestrial)	<input type="checkbox"/>	<i>Urocyon cinereoargenteus</i>		Gray fox	Common gray fox		G5	S5	C			RAPS	Added due to documented long-term declines corroborated in harvest and personal anecdotes. Ongoing preliminary research suggests declines due to disease.	2, 3, 4, 5, 6, 7, 11, 12, 13, 14, 15, 61

Taxa Group	Taxa (Sub)group for Threats and Actions	SGCN in 2015?	Scientific Name	Synonymous Scientific Names	Common Name	Alternate Common Names	Name changes since 2015	Global Rank	State Rank	Cons. Status Group	Federal Status	State Status	NE Regional Status	Reasoning for adding (if new in 2025)	*Associated KWHs (see Appendix 4a for codes)
Mammals	Mammals (Bats)	☑	<i>Lasiorycteris noctivagans</i>		Silver-haired bat			G4	SU	D			RSGCN		1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 33, 34, 35, 36, 38, 39, 40, 41, 42, 43, 44, 45, 46, 52, 54, 55, 56, 57, 58, 59
Mammals	Mammals (Bats)	☑	<i>Lasiurus borealis</i>		Eastern red bat			G3G4	S3S4	B			RSGCN		1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 33, 34, 35, 36, 38, 39, 40, 41, 42, 43, 44, 45, 46, 54, 55, 56, 57, 61
Mammals	Mammals (Bats)	☑	<i>Lasiurus cinereus</i>		Hoary bat			G3G4	S3S4	B			RSGCN		1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 33, 34, 35, 36, 38, 39, 40, 41, 42, 43, 44, 45, 46, 54, 55, 56, 57
Mammals	Mammals (Bats)	☑	<i>Myotis leibii</i>		Eastern small-footed bat	Eastern small-footed myotis		G4	S1	A		E	RSGCN		1, 2, 3, 4, 5, 6, 12, 13, 14, 15, 31, 38, 39, 40, 44, 52, 59
Mammals	Mammals (Bats)	☑	<i>Myotis lucifugus</i>		Little brown bat	Little brown myotis		G3G4	S1	A			RSGCN		1, 2, 3, 4, 5, 6, 7, 8, 11, 12, 13, 14, 15, 19, 21, 22, 23, 24, 25, 31, 36, 37, 38, 39, 40, 41, 42, 44, 45, 46, 52, 54, 55, 56, 57, 58, 59, 61
Mammals	Mammals (Bats)	☑	<i>Myotis septentrionalis</i>		Northern long-eared bat	Northern myotis		G2G3	S1	A	LE	E	RSGCN		1, 2, 3, 4, 5, 6, 7, 12, 13, 14, 15, 19, 21, 22, 23, 24, 25, 31, 38, 39, 40, 41, 44, 45, 52, 54, 56, 57, 58, 59
Mammals	Mammals (Bats)	☑	<i>Myotis sodalis</i>		Indiana bat	Indiana myotis		G2	S1	A	LE	E	RSGCN		1, 2, 3, 4, 5, 6, 7, 12, 13, 14, 15, 19, 21, 22, 23, 24, 25, 31, 38, 39, 40, 41, 44, 45, 52, 54, 55, 56, 57, 58, 59
Mammals	Mammals (Bats)	☑	<i>Perimyotis subflavus</i>	<i>Pipistrellus subflavus</i>	Tricolored bat			G3G4	S1	A	PE		RSGCN		1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 33, 34, 35, 36, 38, 39, 40, 41, 42, 43, 44, 45, 46, 52, 54, 55, 56, 57, 58, 59

Taxa Group	Taxa (Sub)group for Threats and Actions	SGCN in 2015?	Scientific Name	Synonymous Scientific Names	Common Name	Alternate Common Names	Name changes since 2015	Global Rank	State Rank	Cons. Status Group	Federal Status	State Status	NE Regional Status	Reasoning for adding (if new in 2025)	*Associated KWHs (see Appendix 4a for codes)
Mammals	Mammals (Marine)	<input type="checkbox"/>	<i>Balaenoptera acutorostrata</i>		Minke whale	Common minke whale, little piked whale, sharp-headed finner whale		G5	S1	A			N/A	Ongoing unusual mortality event since 2017.	65
Mammals	Mammals (Marine)	<input checked="" type="checkbox"/>	<i>Balaenoptera borealis</i>		Sei whale			G5?	S1	A	LE	E	RSGCN		65
Mammals	Mammals (Marine)	<input checked="" type="checkbox"/>	<i>Balaenoptera musculus</i>		Blue whale			G3G4	S1	A	LE	E	RSGCN		65
Mammals	Mammals (Marine)	<input checked="" type="checkbox"/>	<i>Balaenoptera physalus</i>		Fin whale	Finback whale		G3G4	S1S2	A	LE	E	RSGCN		65
Mammals	Mammals (Marine)	<input checked="" type="checkbox"/>	<i>Eubalaena glacialis</i>	<i>Balaena glacialis</i>	North Atlantic right whale			G1	S1	A	LE	E	RSGCN		65
Mammals	Mammals (Marine)	<input checked="" type="checkbox"/>	<i>Megaptera novaeangliae</i>		Humpback whale			G4	S1S2	A		E	RSGCN		65
Mammals	Mammals (Marine)	<input type="checkbox"/>	<i>Phocoena phocoena</i>		Harbor porpoise	Harbour porpoise		G4G5	S4	C			RSGCN	Second most frequently stranded marine mammal in MD. No immediate population concern but frequently discussed regarding take reduction.	65
Mammals	Mammals (Marine)	<input checked="" type="checkbox"/>	<i>Physeter macrocephalus</i>	<i>Physeter catodon</i>	Sperm whale			G3G4	S1	A	LE	E	RSGCN		65
Mammals	Mammals (Marine)	<input type="checkbox"/>	<i>Trichechus manatus</i>		West Indian manatee			G2G3	S1N	A	LT		N/A	Currently federally listed as Threatened. Have had regular, verified sightings back to the 90s. Would consider this a regularly occurring species in MD by this point.	63, 64
Mammals	Mammals (Marine)	<input checked="" type="checkbox"/>	<i>Tursiops truncatus</i>		Bottlenose dolphin			G5	S4	C			N/A		46, 63, 64, 65
Birds	Birds	<input checked="" type="checkbox"/>	<i>Anas rubripes</i>		American black duck			G5	S3S4B	C			RSGCN		19, 20, 21, 30, 34, 35, 36, 37, 46, 57, 60, 63, 64
Birds	Birds	<input checked="" type="checkbox"/>	<i>Aythya affinis</i>		Lesser scaup			G5	S4N	C			N/A		46, 57, 58, 63, 64, 65
Birds	Birds	<input checked="" type="checkbox"/>	<i>Aythya americana</i>		Redhead			G5	S2N	B			N/A		46, 57, 63, 64
Birds	Birds	<input checked="" type="checkbox"/>	<i>Aythya marila</i>		Greater scaup			G5	S4N	C			N/A		46, 57, 58, 63, 64, 65
Birds	Birds	<input checked="" type="checkbox"/>	<i>Aythya valisineria</i>		Canvasback			G5	S3S4N	C			N/A		46, 57, 58, 63, 64, 65
Birds	Birds	<input checked="" type="checkbox"/>	<i>Branta bernicla</i>		Brant			G5	S3N	C			N/A		17, 37, 60, 63, 65
Birds	Birds	<input type="checkbox"/>	<i>Bucephala clangula</i>		Common goldeneye			G5	S2N	B			N/A	Local and regional data show significant declining population trends beginning around 30-40 years ago.	46, 57, 58, 63, 64, 65
Birds	Birds	<input checked="" type="checkbox"/>	<i>Clangula hyemalis</i>		Long-tailed duck			G5	S3N	C			N/A		46, 57, 58, 63, 64, 65
Birds	Birds	<input checked="" type="checkbox"/>	<i>Mareca strepera</i>	<i>Anas strepera</i>	Gadwall		Anas strepera in 2015 SWAP.	G5	S1S2B	A			N/A		34, 35, 36, 37, 46, 57, 60, 63, 64
Birds	Birds	<input checked="" type="checkbox"/>	<i>Melanitta americana</i>		Black scoter			G5	S3N	C			N/A		46, 57, 58, 63, 64, 65
Birds	Birds	<input checked="" type="checkbox"/>	<i>Melanitta deglandi</i>	<i>Melanitta fusca deglandi</i>	White-winged scoter			G5	S2N	B			N/A		46, 57, 58, 63, 64, 65
Birds	Birds	<input checked="" type="checkbox"/>	<i>Melanitta perspicillata</i>		Surf scoter			G5	S4N	C			N/A		46, 57, 58, 63, 64, 65
Birds	Birds	<input checked="" type="checkbox"/>	<i>Spatula discors</i>	<i>Anas discors</i>	Blue-winged teal			G5	S1B	A			N/A		34, 35, 36, 37, 46, 57, 60
Birds	Birds	<input checked="" type="checkbox"/>	<i>Bonasa umbellus</i>		Ruffed grouse			G5	S3	C			RSGCN		1, 2, 3, 4, 5, 12, 13, 19, 21, 22, 23

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Birds	Birds	☑	<i>Colinus virginianus</i>		Northern bobwhite			G4G5	S3S4	C			RAPS		4, 5, 6, 7, 8, 9, 10, 18, 26, 30, 54, 55
Birds	Birds	☑	<i>Podiceps auritus</i>		Horned grebe			G5	S4N	C			N/A		35, 36, 45, 46, 57, 63, 64, 65
Birds	Birds	☑	<i>Podilymbus podiceps</i>		Pied-billed grebe			G5	S2S3B	B			N/A		34, 35, 36, 45, 46, 57, 60, 63, 64
Birds	Birds	☑	<i>Antrostomus carolinensis</i>	<i>Caprimulgus carolinensis</i>	Chuck-will's-widow			G5	S3S4B	C			N/A		6, 7, 8, 9, 10, 20, 26, 33
Birds	Birds	☑	<i>Antrostomus vociferus</i>	<i>Caprimulgus vociferus</i>	Eastern whip-poor-will			G5	S3S4B	C			RSGCN		1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, 26
Birds	Birds	☑	<i>Chordeiles minor</i>		Common nighthawk			G5	S1B	A			RAPS		8, 9, 10, 18, 35, 36, 54, 55, 58
Birds	Birds	☑	<i>Chaetura pelagica</i>		Chimney swift			G4G5	S5B	C			RAPS		58
Birds	Birds	☑	<i>Gallinula galeata</i>		Common gallinule			G5	S2S3B	B		I	N/A		35, 36, 57, 60
Birds	Birds	☑	<i>Laterallus jamaicensis</i>		Black rail			G3	S1	A	LT	E	RSGCN		35, 36, 57, 60
Birds	Birds	☑	<i>Porzana carolina</i>		Sora	Sora rail		G5	S1B,S3M	B			N/A		21, 34, 35, 36, 37, 57, 60
Birds	Birds	☑	<i>Rallus elegans</i>		King rail			G4	S2B	B			RAPS		34, 35
Birds	Birds	☑	<i>Actitis macularius</i>	<i>Actitis macularia</i>	Spotted sandpiper			G5	S3B	C			N/A		17, 19, 20, 21, 34, 35, 36, 37, 44, 45, 46, 57, 60
Birds	Birds	☑	<i>Anarhynchus wilsonia</i>	<i>Charadrius wilsonia</i>	Wilson's plover	Charadrius wilsonia in 2015 SWAP.		G5	SHB	E		E	N/A		17, 18, 37, 60
Birds	Birds	☑	<i>Arenaria interpres</i>		Ruddy turnstone			G5	S1N	A			RAPS		17, 34, 35, 36, 37, 57, 60
Birds	Birds	☑	<i>Bartramia longicauda</i>		Upland sandpiper			G5	S1B	A		E	RAPS		55
Birds	Birds	☑	<i>Calidris alba</i>		Sanderling			G5	S3N	C			N/A		17, 34, 35, 36, 37, 57, 60
Birds	Birds	☑	<i>Calidris alpina</i>		Dunlin			G5	S3N	C			N/A		17, 34, 35, 36, 37, 57, 60
Birds	Birds	☑	<i>Calidris canutus rufa</i>		Rufa red knot	Red knot	Red knot in 2015 SWAP.	G4T2	S1M	A	LT	T	RSGCN		17, 36, 37, 57, 60
Birds	Birds	☑	<i>Calidris pusilla</i>		Semipalmated sandpiper			G5	S3M	C			RAPS		17, 34, 35, 36, 37, 57, 60
Birds	Birds	☑	<i>Charadrius melodus</i>		Piping plover			G3	S1B	A	LT	E	RSGCN		17, 18, 37, 60
Birds	Birds	☑	<i>Haematopus palliatus</i>		American oystercatcher			G5	S3B	C			RSGCN		17, 18, 36, 37, 60
Birds	Birds	☑	<i>Limnodromus griseus</i>		Short-billed dowitcher			G3	S3M	B			N/A		35, 36, 37, 57, 60
Birds	Birds	☑	<i>Numenius phaeopus</i>		Whimbrel			G5	S2M	B			RAPS		17, 18, 35, 36, 37, 60
Birds	Birds	☑	<i>Phalaropus fulicarius</i>	<i>Phalaropus fulicaria</i>	Red phalarope			G5	S3N	C			N/A		57, 63, 64, 65
Birds	Birds	☑	<i>Phalaropus lobatus</i>	<i>Lobipes lobatus</i>	Red-necked phalarope			G4G5	S3M	C			N/A		57, 63, 64, 65
Birds	Birds	☑	<i>Pluvialis squatarola</i>		Black-bellied plover			G5	S3N	C			N/A		17, 37, 57, 60
Birds	Birds	☑	<i>Scolopax minor</i>	<i>Philohela minor</i>	American woodcock			G5	S3S4B	C			RSGCN		2, 3, 4, 5, 6, 7, 8, 9, 10, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 33, 54, 55, 61

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Birds	Birds	☑	<i>Tringa flavipes</i>		Lesser yellowlegs			G5	S2S3N	B			N/A		17, 18, 19, 20, 21, 34, 35, 36, 37, 57, 60
Birds	Birds	☑	<i>Tringa melanoleuca</i>		Greater yellowlegs			G5	S3M	C			N/A		17, 18, 19, 20, 34, 35, 36, 37, 57, 60
Birds	Birds	☑	<i>Tringa semipalmata</i>	<i>Catoptrophorus semipalmatus</i> , <i>Tringa semipalmatus</i>	Willet			G5	S3B	C			RAPS		17, 18, 35, 36, 37, 57, 60
Birds	Birds	☑	<i>Gelochelidon nilotica</i>	<i>Sterna nilotica</i>	Gull-billed tern			G5	SHB	E		E	RAPS		17, 18, 36, 37, 57, 60, 63, 64, 65
Birds	Birds	☑	<i>Leucophaeus atricilla</i>	<i>Larus atricilla</i>	Laughing gull			G5	S1B	A			N/A		17, 18, 36, 37, 46, 60, 63, 64, 65
Birds	Birds	☑	<i>Rissa tridactyla</i>		Black-legged kittiwake			G5	S3N	C			N/A		63, 64, 65
Birds	Birds	☑	<i>Rynchops niger</i>		Black skimmer			G5	S1B	A		E	RSGCN		17, 18, 36, 37, 60, 63, 64, 65
Birds	Birds	☑	<i>Sterna dougallii</i>		Roseate tern			G4	SXB	E	LE	X	RSGCN		17, 18, 37, 60, 63, 64, 65
Birds	Birds	☑	<i>Sterna forsteri</i>		Forster's tern			G5	S2B	B		I	RAPS		17, 18, 36, 37, 46, 60, 63, 64, 65
Birds	Birds	☑	<i>Sterna hirundo</i>		Common tern			G5	S1B	A		E	RSGCN		17, 18, 36, 37, 60, 63, 64, 65
Birds	Birds	☑	<i>Sternula antillarum</i>	<i>Sterna antillarum</i>	Least tern			G4	S2B	B		T	RSGCN		17, 18, 34, 35, 36, 37, 46, 58, 60, 63, 64, 65
Birds	Birds	☑	<i>Thalasseus maximus</i>	<i>Sterna maxima</i>	Royal tern			G5	S1B	A		E	RAPS		17, 18, 36, 37, 60, 63, 64, 65
Birds	Birds	☑	<i>Thalasseus sandvicensis</i>	<i>Sterna sandvicensis</i>	Sandwich tern			G5	S1B	A			N/A		17, 18, 36, 37, 60, 63, 64, 65
Birds	Birds	☑	<i>Gavia immer</i>		Common loon			G5	S3S4N	C			N/A		46, 57, 58, 63, 64, 65
Birds	Birds	☑	<i>Gavia stellata</i>		Red-throated loon			G5	S3S4N	C			N/A		46, 63, 64, 65
Birds	Birds	☑	<i>Calonectris borealis</i>		Cory's shearwater		Calonectris diomedea in 2015 SWAP.	GNR	S3N	C			N/A		65
Birds	Birds	☑	<i>Hydrobates leucorhous</i>	<i>Oceanodroma leucorhoa</i>	Leach's storm-petrel		Oceanodroma leucorhoa in 2015 SWAP.	G5	S2N	B			N/A		65
Birds	Birds	☑	<i>Morus bassanus</i>	<i>Sula bassana</i> , <i>Sula bassanus</i>	Northern gannet			G5	S3N	C			N/A		64, 65
Birds	Birds	☑	<i>Puffinus lherminieri</i>		Sargasso shearwater	Audubon's shearwater	Audubon's shearwater in 2015 SWAP.	G4G5	S3N	C			N/A		65
Birds	Birds	☑	<i>Pelecanus occidentalis</i>		Brown pelican			G4	S1B	A			N/A		17, 34, 35, 36, 37, 60, 63, 64, 65
Birds	Birds	☑	<i>Ardea alba</i>	<i>Casmerodius albus</i>	Great egret			G5	S3B	C			N/A		6, 7, 10, 19, 20, 26, 30, 33, 34, 35, 36, 37, 42, 43, 44, 45, 46, 57, 60
Birds	Birds	☑	<i>Ardea herodias</i>		Great blue heron			G5	S4B	C			N/A		6, 7, 10, 19, 20, 26, 30, 33, 34, 35, 36, 37, 42, 43, 44, 45, 46, 57, 60
Birds	Birds	☑	<i>Botaurus exilis</i>	<i>Ixobrychus exilis</i>	Least bittern		Ixobrychus exilis in 2015 SWAP.	G4	S3B	C		I	RAPS		34, 35, 36, 57, 60
Birds	Birds	☑	<i>Botaurus lentiginosus</i>		American bittern			G5	S1B	A		T	N/A		21, 34, 35, 36, 57, 60
Birds	Birds	☑	<i>Egretta caerulea</i>	<i>Florida caerulea</i>	Little blue heron			G5	S1B	A			RAPS		10, 30, 34, 35, 36, 37, 57, 60

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Birds	Birds	☑	<i>Egretta thula</i>		Snowy egret			G5	S2B	B			RAPS		10, 30, 34, 35, 36, 37, 57, 60
Birds	Birds	☑	<i>Egretta tricolor</i>	<i>Hydranassa tricolor</i>	Tricolored heron			G5	S1B	A			RAPS		10, 30, 34, 35, 36, 37, 57, 60
Birds	Birds	☑	<i>Nyctanassa violacea</i>	<i>Nycticorax violaceus</i>	Yellow-crowned night heron			G5	S3B	C			N/A		10, 19, 20, 30, 34, 35, 36, 37, 41, 42, 45, 60
Birds	Birds	☑	<i>Nycticorax nycticorax</i>		Black-crowned night heron			G5	S2S3B	B			RAPS		10, 19, 20, 30, 34, 35, 36, 37, 57, 60
Birds	Birds	☑	<i>Plegadis falcinellus</i>		Glossy ibis			G5	S1B	A			RAPS		10, 30, 34, 35, 36, 37, 57, 60
Birds	Birds	☑	<i>Accipiter striatus</i>		Sharp-shinned hawk			G5	S2B	B			N/A		2, 3, 4, 5, 6, 7, 8, 9, 53
Birds	Birds	☑	<i>Aquila chrysaetos</i>		Golden eagle			G5	S1N	A			RSGCN		1, 2, 3, 4, 5, 15, 35, 36, 55, 57
Birds	Birds	☑	<i>Astur atricapillus</i>	<i>Accipiter atricapillus</i>	American goshawk	Northern goshawk	Accipiter atricapillus in 2015 SWAP.	G5	SHB	E		E*	RAPS		2, 53
Birds	Birds	☑	<i>Buteo platypterus</i>		Broad-winged hawk			G5	S3B	C			N/A		1, 2, 3, 4, 5, 6, 7, 8, 9, 19, 20, 26
Birds	Birds	☑	<i>Circus hudsonius</i>		Northern harrier	American harrier		G5	S2B	B		I	N/A		18, 21, 34, 35, 36, 55, 60
Birds	Birds	☑	<i>Haliaeetus leucocephalus</i>		Bald eagle			G5	S3S4	C			N/A		2, 4, 5, 6, 7, 10, 19, 20, 33, 34, 35, 36, 37, 44, 45, 46, 57, 60, 61, 63, 64, 65
Birds	Birds	☑	<i>Aegolius acadicus</i>		Northern saw-whet owl			G5	S1B	A			N/A		2, 3, 4, 10, 21, 61
Birds	Birds	☑	<i>Asio flammeus</i>		Short-eared owl			G5	S1B	A		E	N/A		18, 34, 35, 36, 55, 60
Birds	Birds	☑	<i>Asio otus</i>		Long-eared owl			G5	S1B	A			N/A		10, 53, 55
Birds	Birds	☑	<i>Tyto furcata</i>	<i>Tyto alba</i>	American barn owl	Barn owl	Tyto alba and Barn owl in 2015 SWAP.	G5	S2B	B		I	RAPS		34, 35, 36, 55, 58
Birds	Birds	☑	<i>Leuconotopicus borealis</i>	<i>Dryobates borealis</i> , <i>Picoides borealis</i>	Red-cockaded woodpecker		Dryobates borealis in 2015 SWAP.	G3	SHB	E	LT	X	N/A		10, 25
Birds	Birds	☑	<i>Falco peregrinus anatum</i>		American peregrine falcon			G4T4	S2S3	B		I	RAPS		15, 35, 36, 37, 58
Birds	Birds	☑	<i>Falco sparverius</i>		American kestrel			G5	S3S4B	C			RAPS		55
Birds	Birds	☑	<i>Contopus cooperi</i>	<i>Contopus borealis</i>	Olive-sided flycatcher			G4	SHB	E		X	RAPS		21, 61
Birds	Birds	☑	<i>Empidonax alnorum</i>		Alder flycatcher			G5	S2B	B		I	N/A		19, 21
Birds	Birds	☑	<i>Empidonax minimus</i>		Least flycatcher			G5	S3B	C			RAPS		2, 3, 5, 54, 61
Birds	Birds	☑	<i>Empidonax traillii</i>		Willow flycatcher			G5	S3S4B	C			N/A		19, 20, 21, 22, 23, 24, 25, 54, 56
Birds	Birds	☑	<i>Empidonax virescens</i>		Acadian flycatcher			G5	S5B	C			N/A		1, 2, 3, 4, 5, 6, 7, 8, 9, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 33, 61
Birds	Birds	☑	<i>Vireo flavifrons</i>		Yellow-throated vireo			G5	S4B	C			N/A		3, 4, 5, 6, 7, 19, 20, 25, 26, 33, 61
Birds	Birds	☑	<i>Lanius ludovicianus</i>		Loggerhead shrike			G4	SHB	E		E	RSGCN		55
Birds	Birds	☑	<i>Riparia riparia</i>		Bank swallow			G5	S3B	C			RAPS		16, 19, 20, 46
Birds	Birds	☑	<i>Regulus satrapa</i>		Golden-crowned kinglet			G5	S3B	C			N/A		2, 19, 21, 53

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Birds	Birds	☑	<i>Sitta canadensis</i>		Red-breasted nuthatch			G5	S3B	C			N/A		2, 21, 53
Birds	Birds	☑	<i>Certhia americana</i>		Brown creeper			G5	S3B	C			N/A		1, 2, 3, 4, 5, 6, 7, 19, 20, 21, 61
Birds	Birds	☑	<i>Cistothorus palustris</i>	<i>Telmatodytes palustris</i>	Marsh wren			G5	S3S4B	C			N/A		34, 35, 36, 60
Birds	Birds	☑	<i>Cistothorus stellaris</i>	<i>Cistothorus platensis</i>	Sedge wren		Cistothorus platensis in 2015 SWAP.	G5	S1B	A		E	N/A		20, 34, 35, 36, 55
Birds	Birds	☑	<i>Troglodytes hiemalis</i>		Winter wren			G5	S2B	B			N/A		1, 2, 3, 15, 19, 20, 21, 22, 23
Birds	Birds	☑	<i>Catharus bicknelli</i>		Bicknell's thrush			G4	S2M	B			RSGCN		6, 7, 8, 9, 20, 26, 61
Birds	Birds	☑	<i>Catharus fuscescens</i>	<i>Hylocichla fuscescens</i>	Veery			G5	S3S4B	C			RAPS		2, 3, 5, 6, 7, 19, 20, 21, 22, 23, 25, 61
Birds	Birds	☑	<i>Catharus ustulatus</i>		Swainson's thrush			G5	SHB	E		X	N/A		2, 21
Birds	Birds	☑	<i>Hylocichla mustelina</i>		Wood thrush			G4	S5B	C			RSGCN		1, 2, 3, 4, 5, 6, 7, 8, 9, 19, 20, 21, 22, 23, 25, 26, 27, 33, 61
Birds	Birds	☑	<i>Spinus pinus</i>	<i>Carduelis pinus</i>	Pine siskin			G5	S1B	A			N/A		2, 21, 53
Birds	Birds	☑	<i>Ammodramus savannarum</i>		Grasshopper sparrow			G5	S4B	C			RAPS		55
Birds	Birds	☑	<i>Ammodramus caudacutus</i>	<i>Ammodramus caudacutus</i>	Saltmarsh sparrow	Saltmarsh sharp-tailed sparrow	Ammodramus caudacutus in 2015 SWAP.	G2	S2B	A		I	RSGCN		35, 36, 60
Birds	Birds	☑	<i>Ammodramus maritima</i>	<i>Ammodramus maritimus</i>	Seaside sparrow		Ammodramus maritimus in 2015 SWAP.	G4	S3S4B	C			RAPS		35, 36, 60
Birds	Birds	☑	<i>Ammodramus nelsoni</i>	<i>Ammodramus nelsoni</i>	Nelson's sparrow	Nelson's sharp-tailed sparrow	Ammodramus nelsoni in 2015 SWAP.	G5	S1N	A			Proposed RAPS		35, 36, 60
Birds	Birds	☑	<i>Centronyx henslowii</i>	<i>Ammodramus henslowii</i>	Henslow's sparrow		Ammodramus henslowii in 2015 SWAP.	G4	S1S2B	A		I	RAPS		55
Birds	Birds	☑	<i>Junco hyemalis</i>		Dark-eyed junco			G5	S3B	C			N/A		1, 2, 3, 5, 15, 21, 22, 23
Birds	Birds	☐	<i>Melospiza georgiana</i>		Swamp sparrow			G5	S3B	C			N/A	Already included subspecies in 2015 SWAP; adding more general species to this SWAP because its breeding area has declined significantly in the past two decades.	21, 24, 28, 34, 35, 54, 55, 56, 57, 60
Birds	Birds	☑	<i>Melospiza georgiana nigrescens</i>		Coastal Plain swamp sparrow			G5T3	S2B	A		I	RSGCN		34, 35, 60
Birds	Birds	☑	<i>Passerculus sandwichensis</i>		Savannah sparrow			G5	S3B	C			N/A		55, 60, 61
Birds	Birds	☐	<i>Passerculus sandwichensis princeps</i>		Ipswich sparrow			G5T1	S1N	A			RSGCN	Have a regional responsibility for this rare subspecies. Also an RSGCN.	17, 18, 60
Birds	Birds	☑	<i>Pooecetes gramineus</i>		Vesper sparrow			G5	S3B	C			RAPS		55
Birds	Birds	☐	<i>Coccyzus erythrophthalmus</i>		Black-billed cuckoo			G5	S3B	C			RAPS	Have seen major decline in breeding area (>75%) over the past two decades.	4, 5, 6, 7, 8, 9, 19, 20, 22, 23, 25, 26, 27, 33, 54, 55, 56, 61
Birds	Birds	☑	<i>Icteria virens</i>		Yellow-breasted chat			G5	S4B	C			RAPS		4, 5, 6, 7, 8, 9, 10, 19, 20, 25, 26, 33, 54, 55, 56

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Birds	Birds	☑	<i>Dolichonyx oryzivorus</i>		Bobolink			G5	S3B	C			RAPS		55
Birds	Birds	☑	<i>Euphagus carolinus</i>		Rusty blackbird			G4	S2S3N	B			RSGCN		19, 20, 21, 33, 34, 61
Birds	Birds	☐	<i>Icterus galbula</i>		Baltimore oriole			G5	S4B	C			N/A	Have seen minor loss in breeding area (<15%) over the past two decades. Also seems to be undergoing range contraction. Partially including because of cultural significance to MD.	3, 4, 5, 6, 7, 8, 9, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 34, 56, 61
Birds	Birds	☑	<i>Quiscalus major</i>		Boat-tailed grackle			G5	S3B	C			N/A		10, 18, 35, 36, 60
Birds	Birds	☑	<i>Sturnella magna</i>		Eastern meadowlark			G5	S4B	C			RSGCN		35, 36, 55
Birds	Birds	☑	<i>Cardellina canadensis</i>	<i>Wilsonia canadensis</i>	Canada warbler			G5	S2B	B			RAPS		1, 2, 3, 5, 19, 21, 22, 23, 61
Birds	Birds	☑	<i>Geothlypis formosa</i>	<i>Oporornis formosus</i>	Kentucky warbler			G5	S3S4B	C			N/A		2, 3, 5, 6, 7, 19, 20, 21, 22, 23, 25, 26, 27, 28, 33, 61
Birds	Birds	☑	<i>Geothlypis philadelphia</i>	<i>Oporornis philadelphia</i>	Mourning warbler			G5	S1B	A		E	N/A		1, 2, 5, 54, 61
Birds	Birds	☑	<i>Helmitheros vermivorum</i>	<i>Helmitheros vermivorus</i>	Worm-eating warbler		Helmitheros vermivorus in 2015 SWAP.	G4G5	S4B	C			N/A		1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 19, 20, 21, 25, 26, 33, 61
Birds	Birds	☑	<i>Leiothlypis ruficapilla</i>	<i>Oreothlypis ruficapilla</i> , <i>Vermivora ruficapilla</i>	Nashville warbler		Oreothlypis ruficapilla in 2015 SWAP.	G5	S1B	A		T	N/A		20, 61
Birds	Birds	☑	<i>Limnothlypis swainsonii</i>		Swainson's warbler			G4	S1B	A		E	N/A		20, 33
Birds	Birds	☑	<i>Mniotilta varia</i>		Black-and-white warbler			G5	S4B	C			N/A		1, 2, 3, 4, 5, 6, 7, 8, 9, 19, 20, 21, 22, 23, 25, 26, 27, 33, 61
Birds	Birds	☑	<i>Parkesia motacilla</i>	<i>Seiurus motacilla</i>	Louisiana waterthrush			G5	S4S5B	C			N/A		19, 20, 21, 22, 23, 25, 26, 27, 33, 38, 39, 40, 41, 42, 43, 44, 45, 46, 61
Birds	Birds	☑	<i>Parkesia noveboracensis</i>	<i>Seiurus noveboracensis</i>	Northern waterthrush			G5	S2B	B		I	N/A		21, 22, 23, 61
Birds	Birds	☑	<i>Protonotaria citrea</i>		Prothonotary warbler			G5	S4B	C			N/A		19, 20, 22, 23, 25, 26, 27, 28, 33
Birds	Birds	☑	<i>Seiurus aurocapilla</i>	<i>Seiurus aurocapillus</i>	Ovenbird		Seiurus aurocapillus in 2015 SWAP.	G5	S4S5B	C			N/A		1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 19, 20, 21, 22, 23, 25, 26, 27, 33, 61
Birds	Birds	☑	<i>Setophaga americana</i>	<i>Parula americana</i>	Northern parula			G5	S4S5B	C			N/A		2, 3, 5, 6, 7, 19, 20, 21, 22, 23, 25, 26, 27, 33, 61
Birds	Birds	☑	<i>Setophaga caerulescens</i>	<i>Dendroica caerulescens</i>	Black-throated blue warbler			G5	S3S4B	C			N/A		1, 2, 3, 5, 19, 21, 22, 23, 61
Birds	Birds	☑	<i>Setophaga cerulea</i>	<i>Dendroica cerulea</i>	Cerulean warbler			G4	S3B	C			RSGCN		3, 5, 6, 7, 19, 61
Birds	Birds	☑	<i>Setophaga citrina</i>	<i>Wilsonia citrina</i>	Hooded warbler			G5	S3S4B	C			N/A		2, 3, 5, 6, 7, 19, 20, 21, 22, 23, 25, 26, 27, 33, 61
Birds	Birds	☑	<i>Setophaga discolor</i>	<i>Dendroica discolor</i>	Prairie warbler			G5	S4B	C			RAPS		3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 33, 54, 56, 61

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Birds	Birds	☑	<i>Setophaga fusca</i>	<i>Dendroica fusca</i>	Blackburnian warbler			G5	S3B	C			N/A		2, 3, 5, 19, 21, 22, 23, 53, 61
Birds	Birds	☑	<i>Setophaga magnolia</i>	<i>Dendroica magnolia</i>	Magnolia warbler			G5	S3S4B	C			N/A		1, 2, 19, 21, 22, 23, 53, 61
Birds	Birds	☐	<i>Setophaga petechia</i>	<i>Dendroica petechia</i>	Yellow warbler			G5	S4B	C			N/A	Have seen moderate loss in breeding area (35%) over the past two decades. Seems to have disappeared from Eastern MD.	19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 34, 35, 36, 54, 56, 57, 60, 61
Birds	Birds	☑	<i>Setophaga ruticilla</i>		American redbird			G5	S3S4B	C			N/A		2, 3, 5, 6, 7, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 33, 61
Birds	Birds	☑	<i>Setophaga virens</i>	<i>Dendroica virens</i>	Black-throated green warbler			G5	S4B	C			N/A		1, 2, 3, 5, 19, 21, 22, 23, 53, 61
Birds	Birds	☑	<i>Vermivora chrysoptera</i>		Golden-winged warbler			G3	S1B	A		I	RSGCN		1, 2, 3, 4, 5, 19, 21, 22, 23, 54, 55, 56, 61
Birds	Birds	☑	<i>Vermivora cyanoptera</i>	<i>Vermivora pinus</i>	Blue-winged warbler		Vermivora pinus in 2015 SWAP.	G5	S3B	C			RSGCN		3, 5, 6, 7, 19, 20, 21, 22, 23, 24, 25, 54, 56, 61
Birds	Birds	☑	<i>Piranga olivacea</i>		Scarlet tanager			G5	S4S5B	C			N/A		1, 2, 3, 4, 5, 6, 7, 8, 9, 19, 20, 21, 22, 23, 25, 26, 27, 33, 61
Birds	Birds	☑	<i>Spiza americana</i>		Dickcissel			G5	S3B	C			N/A		55
Herps (Amphibians)	Herps (Amphibians)	☑	<i>Ambystoma jeffersonianum</i>		Jefferson salamander			G4	S3	C			RAPS		1, 2, 3, 4, 5, 6, 7, 19, 31
Herps (Amphibians)	Herps (Amphibians)	☑	<i>Ambystoma tigrinum</i>		Eastern tiger salamander			G5	S1	A		E	RSGCN		6, 7, 8, 26, 29, 31, 57
Herps (Amphibians)	Herps (Amphibians)	☑	<i>Aneides aeneus</i>		Green salamander			G3G4	S1	A		E	RSGCN		2, 3, 5, 15
Herps (Amphibians)	Herps (Amphibians)	☑	<i>Cryptobranchus alleganiensis</i>		Eastern hellbender	Hellbender		G3	S1	A		E	RSGCN		38, 40, 44, 45
Herps (Amphibians)	Herps (Amphibians)	☑	<i>Desmognathus monticola</i>		Seal salamander			G5	S4	C			N/A		19, 32, 38, 40
Herps (Amphibians)	Herps (Amphibians)	☐	<i>Desmognathus ochrophaeus</i>		Mountain dusky salamander	Allegheny mountain dusky salamander, Allegheny dusky salamander		G5	S5	C			N/A	Limited range and degradation of stream habitat.	19, 32, 38, 40
Herps (Amphibians)	Herps (Amphibians)	☑	<i>Dryophytes gratosus</i>	<i>Hyla gratosus</i>	Barking treefrog		Hyla gratosus in 2015 SWAP	G5	S1	A		E	N/A		6, 7, 26, 29, 57
Herps (Amphibians)	Herps (Amphibians)	☐	<i>Eurycea longicauda</i>		Longtail salamander	Long-tailed salamander		G5	S5	C			N/A	Decline of seepage wetland habitat.	19, 24, 32, 38, 39, 40, 41
Herps (Amphibians)	Herps (Amphibians)	☑	<i>Gastrophryne carolinensis</i>		Eastern narrow-mouthed toad			G5	S2S3	B		E	N/A		6, 7, 8, 20, 26, 31, 33, 56, 57
Herps (Amphibians)	Herps (Amphibians)	☑	<i>Gyrinophilus porphyriticus</i>		Spring salamander	Northern spring salamander	Northern spring salamander in 2015 SWAP.	G5	S4	C			N/A		22, 23, 32, 38, 39, 40, 41
Herps (Amphibians)	Herps (Amphibians)	☑	<i>Lithobates virgatipes</i>		Carpenter frog			G4	S3	C			N/A		7, 8, 26, 27, 28, 29, 30, 31, 33
Herps (Amphibians)	Herps (Amphibians)	☑	<i>Necturus maculosus</i>		Common mudpuppy	Mudpuppy		G5	SX	E		X	RAPS	Not new in 2025, but remaining on SGCN list despite extirpated rank. This is because some recent survey work documented mudpuppy in some PA streams that were not thought to be the species' classic habitat; want to do additional work in MD.	40, 44
Herps (Amphibians)	Herps (Amphibians)	☑	<i>Plethodon hoffmani</i>		Valley and Ridge salamander			G5	S4	C			RSGCN		2, 3, 4, 5, 12, 19

Taxa Group	Taxa (Sub)group for Threats and Actions	SGCN in 2015?	Scientific Name	Synonymous Scientific Names	Common Name	Alternate Common Names	Name changes since 2015	Global Rank	State Rank	Cons. Status Group	Federal Status	State Status	NE Regional Status	Reasoning for adding (if new in 2025)	*Associated KWHs (see Appendix 4a for codes)
Herps	Herps (Amphibians)	<input checked="" type="checkbox"/>	<i>Plethodon wehrlei</i>		Wehrle's salamander			G4	S2	B		I	N/A		1, 2, 3, 15
Herps	Herps (Amphibians)	<input checked="" type="checkbox"/>	<i>Pseudacris brachyphona</i>		Mountain chorus frog			G5	SH	E		E	N/A		2, 3, 4, 5, 21, 22, 23, 31, 32
Herps	Herps (Amphibians)	<input checked="" type="checkbox"/>	<i>Pseudacris feriarum</i>		Upland chorus frog			G5	S4	C			N/A		3, 4, 5, 6, 7, 19, 21, 22, 23, 24, 25, 31, 32, 56
Herps	Herps (Amphibians)	<input checked="" type="checkbox"/>	<i>Pseudotriton montanus</i>		Mud salamander	Eastern mud salamander	Eastern mud salamander in 2015 SWAP.	G5	S2?	B			RAPS		20, 27, 28, 32, 33, 42, 43
Herps	Herps (Amphibians)	<input checked="" type="checkbox"/>	<i>Pseudotriton ruber</i>		Red salamander	Northern red salamander	Northern red salamander in 2015 SWAP.	G5	S5	C			N/A		23, 24, 27, 28, 32, 38, 39, 40, 41, 42
Herps	Herps (Amphibians)	<input type="checkbox"/>	<i>Scaphiopus holbrookii</i>		Eastern spadefoot			G5	S5	C			RAPS	Anecdotal reports of declines.	20, 25, 26, 31
Herps	Herps (Turtles)	<input checked="" type="checkbox"/>	<i>Apalone spinifera</i>		Eastern spiny softshell	Spiny softshell		G5	S1	A		I	RAPS		19, 44, 57
Herps	Herps (Turtles)	<input checked="" type="checkbox"/>	<i>Clemmys guttata</i>		Spotted turtle			G5	S3S4	C			RSGCN		5, 6, 7, 8, 19, 20, 21, 22, 23, 24, 25, 27, 28, 29, 30, 31, 33, 34, 41, 42, 43, 57
Herps	Herps (Turtles)	<input checked="" type="checkbox"/>	<i>Glyptemys insculpta</i>	<i>Clemmys insculpta</i>	Wood turtle			G2G3	S2S3	A			RSGCN		2, 3, 4, 5, 6, 7, 19, 33, 38, 39, 40, 41, 42, 44, 45, 46, 55
Herps	Herps (Turtles)	<input checked="" type="checkbox"/>	<i>Glyptemys mühlenbergii</i>	<i>Clemmys mühlenbergii</i>	Bog turtle			G2G3	S2	A		LT	T	RSGCN	6, 7, 19, 24, 41, 55, 56
Herps	Herps (Turtles)	<input checked="" type="checkbox"/>	<i>Graptemys geographica</i>		Northern map turtle			G4G5	S1	A		E*	N/A		19, 20, 45, 46, 64
Herps	Herps (Turtles)	<input type="checkbox"/>	<i>Kinosternon baurii</i>		Striped mud turtle			G4G5	SU	D			N/A	Recently detected in the state. Also on MD's rare / threatened / endangered species list. Work needs to be done to assess distribution and status.	7, 8, 20, 26, 27, 34, 42, 43
Herps	Herps (Turtles)	<input type="checkbox"/>	<i>Kinosternon subrubrum</i>		Eastern mud turtle	Common mud turtle		G5	S5	C			N/A	Poaching risk; increasing in trade.	5, 7, 8, 19, 20, 26, 27, 34, 42, 43
Herps	Herps (Turtles)	<input checked="" type="checkbox"/>	<i>Malaclemys terrapin</i>		Diamond-backed terrapin	Diamondback terrapin		G4T4	S4	C			RSGCN		17, 18, 34, 35, 36, 37, 46, 57, 58, 60, 63, 64
Herps	Herps (Turtles)	<input type="checkbox"/>	<i>Sternotherus odoratus</i>		Eastern musk turtle	Musk turtle, Stinkpot		G5	S4	C			N/A	Poaching risk; increasing in trade.	41, 42, 57
Herps	Herps (Turtles)	<input checked="" type="checkbox"/>	<i>Terrapene carolina</i>		Eastern box turtle	American box turtle		G5	S5	C			RSGCN		1, 2, 3, 4, 5, 6, 7, 8, 9, 19, 20, 21, 22, 23, 24, 26, 27, 28, 29, 30, 31, 33, 54, 55, 57
Herps	Herps (Snakes and Lizards)	<input type="checkbox"/>	<i>Agkistrodon contortrix</i>		Copperhead	Eastern copperhead		G5	S5	C			N/A	At risk of SFD (snake fungal disease).	1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 14, 15, 19, 20, 21, 54, 56
Herps	Herps (Snakes and Lizards)	<input checked="" type="checkbox"/>	<i>Aspidoscelis sexlineata</i>	<i>Aspidoscelis sexlineatus</i>	Six-lined racerunner			G5	S3	C			N/A		4, 8, 9, 12, 15, 17
Herps	Herps (Snakes and Lizards)	<input checked="" type="checkbox"/>	<i>Cemophora coccinea</i>		Scarletsnake	Northern scarletsnake	Northern scarletsnake in 2015 SWAP.	G5	S1	A			N/A		6, 7, 8, 9, 26, 54
Herps	Herps (Snakes and Lizards)	<input checked="" type="checkbox"/>	<i>Crotalus horridus</i>		Timber rattlesnake			G4	S3	C			RSGCN		1, 2, 3, 4, 5, 6, 7, 12, 13, 14, 15, 19, 21, 54, 56
Herps	Herps (Snakes and Lizards)	<input checked="" type="checkbox"/>	<i>Farancia erytrogramma</i>		Rainbow snake			G4	S1	A		E	N/A		20, 26, 27, 28, 31, 33, 34, 42, 46, 54, 56

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Herps	Herps (Snakes and Lizards)	☑	<i>Lampropeltis getula</i>	<i>Lampropeltis getulus</i>	Eastern kingsnake			G5	S4	C			RAPS		5, 6, 7, 8, 9, 20, 26, 27, 28, 29, 31, 32, 33, 34, 35
Herps	Herps (Snakes and Lizards)	☑	<i>Lampropeltis rhombomaculata</i>	<i>Lampropeltis getulus</i>	Northern mole kingsnake	Mole kingsnake	Lampropeltis calligaster rhombomaculata in 2015 SWAP.	G4	S1	A			N/A		6, 7, 8, 9, 20, 26, 33
Herps	Herps (Snakes and Lizards)	☐	<i>Lampropeltis triangulum</i>		Eastern milksnake			G5	S4	C			N/A	Including in place of Coastal Plain milksnake due to taxonomic uncertainty.	6, 7, 8, 9, 20, 26, 33
Herps	Herps (Snakes and Lizards)	☑	<i>Nerodia erythrogaster</i>		Plain-bellied watersnake	Red-bellied watersnake		G5	S2S3	B			N/A		20, 26, 30, 33, 24, 35, 42, 43, 46, 54
Herps	Herps (Snakes and Lizards)	☑	<i>Ophedrys vernalis</i>		Smooth greensnake			G5	S3S4	C			RAPS		2, 4, 5, 13, 14, 15, 19, 21, 22, 23, 54, 55, 56
Herps	Herps (Snakes and Lizards)	☑	<i>Pantherophis guttatus</i>		Red cornsnake			G5	S2	B			RAPS		4, 5, 8, 9, 12, 15
Herps	Herps (Snakes and Lizards)	☑	<i>Plestiodon anthracinus</i>		Northern coal skink	Coal skink		G5	S1	A		E	RAPS		4, 12, 21
Herps	Herps (Snakes and Lizards)	☐	<i>Regina septemvittata</i>		Queensnake			G5	S4	C			N/A	Added to SGCN list because of documented (and anecdotal) reports of declines of this species.	21, 22, 23, 24, 25, 26, 27, 28, 38, 39, 40, 41, 42, 43, 44, 45, 46, 57
Herps	Herps (Snakes and Lizards)	☑	<i>Thamnophis saurita</i>	<i>Thamnophis sauritus</i>	Eastern ribbonsnake			G5	S4	C			RAPS		6, 7, 19, 20, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 33, 38, 39, 40, 41, 42, 43
Herps	Herps (Snakes and Lizards)	☑	<i>Virginia valeriae pulchra</i>		Mountain earthsnake			G5T3T4	S1S2	A		E	RSGCN		4, 21, 56
Herps	Herps (Sea Turtles)	☑	<i>Caretta caretta</i>		Loggerhead sea turtle			G2G4	S1B, S1S2N	A	LT	T	RSGCN		17, 46, 63, 64, 65
Herps	Herps (Sea Turtles)	☑	<i>Chelonia mydas</i>		Green sea turtle			G4	S1N	A	LT	T	RSGCN		46, 63, 64, 65
Herps	Herps (Sea Turtles)	☑	<i>Dermochelys coriacea</i>		Leatherback sea turtle			G2G3	S1N	A	LE	E	RSGCN		46, 63, 64, 65
Herps	Herps (Sea Turtles)	☑	<i>Lepidochelys kempii</i>		Kemp's ridley sea turtle	Atlantic ridley		G2	S1N	A	LE	E	RSGCN		46, 63, 64, 65
Fish	Fish (Freshwater)	☑	<i>Acantharchus pomotis</i>		Mud sunfish			G4G5	S3	C			RAPS		42, 43
Fish	Fish (Freshwater)	☑	<i>Alburnops chalybaeus</i>	<i>Notropis chalybaeus</i>	Ironcolor shiner		Notropis chalybaeus in 2015 SWAP.	G4	S1	A		E	RSGCN		42, 43
Fish	Fish (Freshwater)	☑	<i>Catostomus catostomus</i>		Longnose sucker			G5	SX	E		X	RAPS		40, 44
Fish	Fish (Freshwater)	☑	<i>Centrarchus macropterus</i>		Flier			G5	S2S3	B		I	N/A		42, 43, 46
Fish	Fish (Freshwater)	☑	<i>Cottus bairdii</i>		Mottled sculpin			G5	S4	C			N/A		38, 40
Fish	Fish (Freshwater)	☑	<i>Cottus sp. 7</i>		Checkered sculpin			G4Q	S2	B			RSGCN		39
Fish	Fish (Freshwater)	☑	<i>Enneacanthus chaetodon</i>		Blackbanded sunfish			G3	S1	A		E	RSGCN		43
Fish	Fish (Freshwater)	☑	<i>Enneacanthus obesus</i>		Banded sunfish			G5	S3S4	C			RSGCN		43
Fish	Fish (Freshwater)	☑	<i>Etheostoma fusiforme</i>		Swamp darter			G5	S3	C			RSGCN		42, 43, 46
Fish	Fish (Freshwater)	☑	<i>Etheostoma nigrum</i>		Johnny darter			G5	S3	C			N/A		40, 44
Fish	Fish (Freshwater)	☑	<i>Etheostoma vitreum</i>		Glassy darter			G4G5	S2	B		T	RSGCN		42, 46

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Fish	Fish (Freshwater)	<input checked="" type="checkbox"/>	<i>Lethenteron appendix</i>		American brook lamprey			G4	S2	B		T	RSGCN		42
Fish	Fish (Freshwater)	<input checked="" type="checkbox"/>	<i>Luxilus chrysocephalus</i>		Striped shiner			G5	S1S2	A		I	N/A		40, 44
Fish	Fish (Freshwater)	<input checked="" type="checkbox"/>	<i>Margariscus margarita</i>	<i>Semotilus margarita</i>	Allegheny pearl dace	Pearl dace	Pearl dace in 2015 SWAP	G5	S2S3	B		I	RSGCN		39
Fish	Fish (Freshwater)	<input checked="" type="checkbox"/>	<i>Notropis amoenus</i>		Comely shiner			G5	S3	C			RAPS		40, 41, 42
Fish	Fish (Freshwater)	<input checked="" type="checkbox"/>	<i>Notropis bifrenatus</i>		Bridle shiner			G3	SH	E		X	RSGCN		42, 46
Fish	Fish (Freshwater)	<input checked="" type="checkbox"/>	<i>Noturus flavus</i>		Stonecat			G5	S1	A		E	N/A		40, 44
Fish	Fish (Freshwater)	<input checked="" type="checkbox"/>	<i>Percina bimaclata</i>		Chesapeake logperch			G1G2	S1S2	A		T	RSGCN		41, 42, 45, 46
Fish	Fish (Freshwater)	<input checked="" type="checkbox"/>	<i>Percina notogramma</i>		Stripeback darter			G4	S1	A		E	RSGCN		42
Fish	Fish (Freshwater)	<input type="checkbox"/>	<i>Percina peltata</i>		Shield darter			G4	S3S4	C			RSGCN	On MD's rare / threatened / endangered species list. Considered in 2015 and not included. Looked into historic population data and decided to include it on the SGCN list based on trends.	41, 42, 45
Fish	Fish (Freshwater)	<input checked="" type="checkbox"/>	<i>Salvelinus fontinalis</i>		Brook trout			G5	S3S4	C			RAPS		38
Fish	Fish (Bay/Ocean)	<input checked="" type="checkbox"/>	<i>Acipenser brevirostrum</i>		Shortnose sturgeon			G3	S1	A	LE	E	RSGCN		46, 64, 65
Fish	Fish (Bay/Ocean)	<input checked="" type="checkbox"/>	<i>Acipenser oxyrinchus</i>		Atlantic sturgeon			G3	S1	A	LE	E	RSGCN		46, 64, 65
Fish	Fish (Bay/Ocean)	<input type="checkbox"/>	<i>Alosa aestivalis</i>		Blueback herring			G3G4	S5	C			RSGCN	Depleted stock status with no obvious trends. Factors besides fishing seem to have significant impact on the status of the stock (habitat, predation, climate change, etc.).	41, 42, 45, 46, 63, 64, 65
Fish	Fish (Bay/Ocean)	<input checked="" type="checkbox"/>	<i>Alosa mediocris</i>		Hickory shad			G4	S3	C			RSGCN		41, 42, 45, 46, 64, 65
Fish	Fish (Bay/Ocean)	<input type="checkbox"/>	<i>Alosa pseudoharengus</i>		Alewife			G5	S5	C			RSGCN	Depleted stock status with no obvious trends. Factors besides fishing seem to have significant impact on the status of the stock (habitat, predation, climate change, etc.).	41, 42, 45, 46, 63, 64, 65
Fish	Fish (Bay/Ocean)	<input checked="" type="checkbox"/>	<i>Alosa sapidissima</i>		American shad			G5	S3	C			RSGCN		41, 42, 45, 46, 64, 65
Fish	Fish (Bay/Ocean)	<input type="checkbox"/>	<i>Carcharhinus obscurus</i>		Dusky shark			G3	SNR	D			RSGCN	On the NOAA & ASMFC prohibited species lists. Despite being a prohibited species for such a long time, it is not recovering as anticipated. Bycatch mortality is high. Encountered in ocean waters off of MD. IUCN listed as Endangered (EN).	65
Fish	Fish (Bay/Ocean)	<input type="checkbox"/>	<i>Carcharhinus plumbeus</i>		Sandbar shark			G4	SNR	D			RSGCN	On the NOAA & ASMFC research species lists, although population seems to be improving. Fishing prohibited in MD. IUCN listed as Endangered (EN).	65

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Fish	Fish (Bay/Ocean)	<input type="checkbox"/>	<i>Carcharias taurus</i>		Sand tiger shark			G3G4	SNR	D			RSGCN	On the NOAA & ASMFC prohibited species lists. Common in ocean waters off of MD. IUCN listed as Critically Endangered (CR)	65
Fish	Fish (Bay/Ocean)	<input type="checkbox"/>	<i>Carcharodon carcharias</i>		White shark			G2	SNR	D			RSGCN	On the NOAA & ASMFC prohibited species lists. MD in range. IUCN listed as Vulnerable (VU).	65
Fish	Fish (Bay/Ocean)	<input type="checkbox"/>	<i>Isurus paucus</i>		Longfin mako			G2G3	SNR	D			RSGCN	On the NOAA & ASMFC prohibited species lists. MD in range. IUCN listed as Endangered (EN).	65
Fish	Fish (Bay/Ocean)	<input type="checkbox"/>	<i>Rhincodon typus</i>		Whale shark			G4G5	SNR	D			RSGCN	On the NOAA & ASMFC prohibited species lists. Uncommon off of MD, but occasionally seen. Could become more common as the habitat changes. IUCN listed as Endangered (EN).	65
Fish	Fish (Bay/Ocean)	<input type="checkbox"/>	<i>Squatina dumeril</i>		Atlantic angel shark			GNR	SNR	D			N/A	On the NOAA & ASMFC prohibited species lists. Encountered in ocean waters off of MD.	65
Inverts	Fish (Bay/Ocean)	<input checked="" type="checkbox"/>	<i>Limulus polyphemus</i>		Horseshoe crab			G5	S3	C			RSGCN		46, 63, 64, 65
Inverts	Inverts (Crayfish)	<input checked="" type="checkbox"/>	<i>Cambarus carinirostris</i>		Rock crayfish			G5	SNR	D			N/A		38, 40
Inverts	Inverts (Crayfish)	<input checked="" type="checkbox"/>	<i>Cambarus sp. n.</i>	<i>Cambarus acuminatus</i>	<i>Cambarus</i> sp. C	Acuminate crayfish	<i>Cambarus acuminatus</i> and acuminate crayfish in 2015 SWAP.	G4Q	S2	B		I	N/A		41, 42
Inverts	Inverts (Crayfish)	<input checked="" type="checkbox"/>	<i>Faxonius obscurus</i>	<i>Orconectes obscurus</i>	Allegheny crayfish		<i>Orconectes obscurus</i> in 2015 SWAP.	G5	S3	C			N/A		40, 41, 44, 45
Inverts	Inverts (Freshwater Mussels)	<input checked="" type="checkbox"/>	<i>Alasmidonta undulata</i>		Triangle floater			G4	S1S2	A		T	RSGCN		40, 41, 42, 44, 45, 46
Inverts	Inverts (Freshwater Mussels)	<input checked="" type="checkbox"/>	<i>Alasmidonta varicosa</i>		Brook floater			G3	S1	A		E	RSGCN		40, 41, 44, 45
Inverts	Inverts (Freshwater Mussels)	<input checked="" type="checkbox"/>	<i>Atlanticoncha ochracea</i>	<i>Leptodea ochracea</i>	Tidewater mucket		<i>Leptodea ochracea</i> in 2015 SWAP.	G3G4	S1S2	A			RSGCN		42, 45, 46
Inverts	Inverts (Freshwater Mussels)	<input checked="" type="checkbox"/>	<i>Elliptio fisheriana</i>		Northern lance			G4	S3S4	C			RAPS		42, 43, 46, 57
Inverts	Inverts (Freshwater Mussels)	<input checked="" type="checkbox"/>	<i>Elliptio lanceolata</i>		Yellow lance			G2	S1	A	LT	T	RSGCN		41, 45, 46
Inverts	Inverts (Freshwater Mussels)	<input checked="" type="checkbox"/>	<i>Lampsilis cariosa</i>		Yellow lampmussel			G3G4	SU	D			RSGCN		44, 45, 46
Inverts	Inverts (Freshwater Mussels)	<input checked="" type="checkbox"/>	<i>Lampsilis radiata</i>		Eastern lampmussel			G5	SU	D			N/A		42, 43, 44, 45, 46, 57

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Inverts	Inverts (Freshwater Mussels)	☑	<i>Lasmigona subviridis</i>	<i>Platynaia subviridis</i>	Green floater		Platynaia subviridis is new 'official' name as of May 2025, but Lasmigona subviridis is still much more widely used.	G2G3	S1	A	PT	E	RSGCN		40, 41, 44, 45
Inverts	Inverts (Freshwater Mussels)	☑	<i>Prolasmidonta heterodon</i>	<i>Alasmidonta heterodon</i>	Dwarf wedgemussel		Alasmidonta heterodon in 2015 SWAP.	G2?	S1	A	LE	E	RSGCN		42
Inverts	Inverts (Freshwater Mussels)	☑	<i>Sagittunio nasutus</i>	<i>Ligumia nasuta</i>	Eastern pondmussel		Ligumia nasuta in 2015 SWAP.	G3	S1S2	A			RSGCN		42, 46
Inverts	Inverts (Freshwater Mussels)	☑	<i>Strophitus undulatus</i>		Creeper			G5	S2S3	B		I	N/A		40, 41, 42, 44, 45, 46
Inverts	Inverts (Freshwater Mussels)	☑	<i>Uterbackia imbecillis</i>		Paper pondshell			G5	S3	C			N/A		42, 44, 45, 46, 57
Inverts	Inverts (Freshwater Mussels)	☑	<i>Uterbackiana implicata</i>	<i>Anodonta implicata</i>	Alewife floater		Anodonta implicata in 2015 SWAP.	G5	S3	C			N/A		42, 43, 45, 46
Inverts	Inverts (Snails)	☑	<i>Discus catskillensis</i>		Angular disc snail			G5	S1	A			N/A		1, 2
Inverts	Inverts (Snails)	☑	<i>Fontigens bottimeri</i>		Appalachian springsnail			G2G3	S2	A		I	N/A		32, 52, 59
Inverts	Inverts (Snails)	☑	<i>Fontigens orolibas</i>		Blue Ridge springsnail			G3	S1	A		E	N/A		32, 52
Inverts	Inverts (Snails)	☑	<i>Hendersonia occulta</i>		Cherrystone drop			G4	S2	B		I	RAPS		6, 14
Inverts	Inverts (Snails)	☑	<i>Triodopsis picea</i>		Spruce knob threetooth			G3	S1	A			RAPS		2, 21
Inverts	Inverts (Snails)	☑	<i>Webbhelix multilineata</i>		Striped whitelip			G5	S1	A			RSGCN		21
Inverts	Inverts (Butterflies)	☑	<i>Amblyscirtes hegon</i>		Pepper and salt skipper			G5	S2	B		I	N/A		4, 5, 11, 12, 19, 56, 61
Inverts	Inverts (Butterflies)	☑	<i>Argynnis atlantis</i>	<i>Speyeria atlantis</i>	Atlantis fritillary		Speyeria atlantis in 2015 SWAP.	G5	S1	A		T	N/A		19, 21
Inverts	Inverts (Butterflies)	☑	<i>Atlides halesus</i>		Great purple hairstreak			G5	S2S3	B			N/A		8, 9, 20, 33, 61
Inverts	Inverts (Butterflies)	☑	<i>Atrytone bulenta</i>	<i>Problema bulenta</i> , <i>Hesperia bulenta</i>	Rare skipper		Problema bulenta in 2015 SWAP.	G3	S1	A		T	RSGCN		34, 35, 36
Inverts	Inverts (Butterflies)	☑	<i>Boloria selene</i>	<i>Boloria myrina</i>	Silver-bordered fritillary	Myrina fritillary	Boloria myrina and Myrina fritillary in 2015 SWAP.	G5?	S3	C			RAPS		19, 21
Inverts	Inverts (Butterflies)	☑	<i>Calephelis borealis</i>	<i>Lephelsica borealis</i> , <i>Nymphidia borealis</i>	Northern metalmark			G3	S2	A		T	RSGCN		4, 12, 56
Inverts	Inverts (Butterflies)	☑	<i>Callophrys irus</i>	<i>Incisalia irus</i> , <i>Polyommatus irus</i>	Frosted elfin			G3	S1	A		E	RSGCN		4, 8, 9, 13, 55, 56, 61
Inverts	Inverts (Butterflies)	☑	<i>Callophrys polios</i>		Hoary elfin			G5	S1	A		E	RSGCN		21

Taxa Group	Taxa (Sub)group for Threats and Actions	SGCN in 2015?	Scientific Name	Synonymous Scientific Names	Common Name	Alternate Common Names	Name changes since 2015	Global Rank	State Rank	Cons. Status Group	Federal Status	State Status	NE Regional Status	Reasoning for adding (if new in 2025)	*Associated KWHs (see Appendix 4a for codes)
Inverts	Inverts (Butterflies)	☑	<i>Chlosyne harrisii</i>	<i>Charidryas harrisii</i> , <i>Phyciodes harrisii</i>	Harris's checkerspot			G4?	S2	B		T	RAPS		19, 21, 56
Inverts	Inverts (Butterflies)	☑	<i>Euchloe olympia</i>		Olympia marble			G5	S2	B		I	RSGCN		4, 12, 56
Inverts	Inverts (Butterflies)	☑	<i>Euphydryas phaeton</i>	<i>Papilio phaeton</i>	Baltimore checkerspot			G4	S2	B			N/A		19, 20, 21, 22, 23, 24
Inverts	Inverts (Butterflies)	☑	<i>Euphyes bimacula</i>		Two-spotted skipper			G4	S1	A		E	RSGCN		21
Inverts	Inverts (Butterflies)	☑	<i>Euphyes conspicua</i>	<i>Euphyes conspicuus</i> , <i>Hesperia conspicua</i>	Black dash			G4G5	S4	C			N/A		19, 21, 22, 23, 24
Inverts	Inverts (Butterflies)	☑	<i>Glaucopsyche lygdamus</i>		Silvery blue			G5	S2	B		I	N/A		4, 12, 56
Inverts	Inverts (Butterflies)	☑	<i>Hesperia leonardus</i>		Leonard's skipper			G4	S2	B			N/A		4, 11, 12, 55, 56, 61
Inverts	Inverts (Butterflies)	☑	<i>Hesperia metea</i>		Cobweb skipper			G4	S3	C			N/A		4, 8, 9, 11, 12, 55, 56, 61
Inverts	Inverts (Butterflies)	☑	<i>Hesperia sassacus</i>		Indian skipper			G5	S3	C			N/A		4, 11, 12, 13, 22, 23, 54, 55, 56, 61
Inverts	Inverts (Butterflies)	☑	<i>Limochores mystic</i>	<i>Polites mystic</i>	Long dash		Polites mystic in 2015 SWAP	G5	S3	C			N/A		19, 21, 22, 23, 24
Inverts	Inverts (Butterflies)	☑	<i>Lycaena hyllus</i>		Bronze copper			G5	S4	C			RAPS		20, 24, 27, 33, 34, 35
Inverts	Inverts (Butterflies)	☐	<i>Pieris virginiensis</i>	<i>Artogeia virginensis</i>	West Virginia white			G4	S1S2	A			RSGCN		2, 3, 19
Inverts	Inverts (Butterflies)	☑	<i>Poanes massasoit</i>		Mulberry wing		Poanes massasoit massasoit in 2015 SWAP.	G4	S4	C			N/A		20, 27, 33
Inverts	Inverts (Butterflies)	☐	<i>Polygonia progne</i>		Gray comma			G5	S3	C			N/A		1, 2, 3, 5, 61
Inverts	Inverts (Butterflies)	☑	<i>Pterourus palamedes</i>	<i>Papilio palamedes</i>	Palamedes swallowtail			G5	S1	A		E	N/A		20, 30, 33, 61
Inverts	Inverts (Butterflies)	☑	<i>Satyrium edwardsii</i>	<i>Thecla edwardsii</i>	Edwards' hairstreak			G4	S1	A		E	RSGCN		4, 11, 13, 56
Inverts	Inverts (Butterflies)	☑	<i>Satyrium favonius ontario</i>		Northern oak hairstreak			G5T4	S1S2	A		E	RAPS		4, 5, 6, 7, 11, 12, 19, 56, 61
Inverts	Inverts (Butterflies)	☑	<i>Satyrium kingi</i>		King's hairstreak			G3G4	S1	A		E	RAPS		8, 9, 20
Inverts	Inverts (Butterflies)	☑	<i>Tharsalea epixanthe</i>	<i>Lycaena epixanthe</i> , <i>Epidemia epixanthe</i> , <i>Polyommatus epixanthe</i>	Bog copper		Lycaena epixanthe in 2015 SWAP.	G4G5	S1	A		E	RAPS		21
Inverts	Inverts (Moths)	☐	<i>Apamea linneri</i>	<i>Ommatostola linneri</i>	Sand wainscot moth			G4	SNR	D			N/A	Only found at one place in Eastern MD. Major threat is erosion of coastal dunes.	17, 18
Inverts	Inverts (Moths)	☐	<i>Caloptilia fraxinella</i>	<i>Gracilaria fraxinella</i>	Ash leaf cone roller moth			GNR	SNR	D			N/A	Added to SGCN list because this species is ash-dependent. Scattered recent records.	19, 20, 21, 22, 23, 24, 61
Inverts	Inverts (Moths)	☑	<i>Chytonix sensilis</i>		Pine barrens fungus moth	Masked marvel moth, A noctuid moth	A noctuid moth in 2015 SWAP.	G4	SNR	D			RAPS	Was a data deficient SGCN in previous SWAP. Historic in Western MD with more recent record in Eastern MD. Does it feed on fungi that grow on charred trunks?	8, 9

Taxa Group	Taxa (Sub)group for Threats and Actions	SGCN in 2015?	Scientific Name	Synonymous Scientific Names	Common Name	Alternate Common Names	Name changes since 2015	Global Rank	State Rank	Cons. Status Group	Federal Status	State Status	NE Regional Status	Reasoning for adding (if new in 2025)	*Associated KWHs (see Appendix 4a for codes)
Inverts	Inverts (Moths)	<input checked="" type="checkbox"/>	<i>Cicinnus melzheimeri</i>	<i>Saccophora melzheimeri</i>	Melzheimer's sack-bearer			G4	SNR	D			N/A	Was a data deficient SGCN in previous SWAP. Historic species that was rediscovered in Western MD in 2023. Barren habitat specialist.	4, 13
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Coleotechnites variella</i>	<i>Gelechia variella</i>	A twirler moth			GNR	SNR	D			N/A	Bald cypress specialist.	20, 33
Inverts	Inverts (Moths)	<input checked="" type="checkbox"/>	<i>Copivaleria grotei</i>	<i>Psaphida grotei</i> , <i>Valeria grotei</i>	Grote's sawfly moth			G5	SNR	D			N/A		19, 20, 21, 22, 23, 24, 61
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Cutina albopunctella</i>		Gray cypress looper	White-spotted cutina moth		GNR	SNR	D			N/A	Few records in MD. Bald cypress specialist.	20, 33
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Cutina distincta</i>	<i>Eustrotia distincta</i>	Distinguished cypress owlet moth			G4	SNR	D			N/A	Few records in MD. Bald cypress specialist.	20, 33
Inverts	Inverts (Moths)	<input checked="" type="checkbox"/>	<i>Cyenia inopinatus</i>	<i>Cyenia collaris</i> , <i>Hyphantria collaris</i>	Unexpected cyenia moth	Unexpected milkweed moth		G4	SNR	D			N/A	Was a data deficient SGCN in previous SWAP. Rediscovered in Central MD in 2025. Milkweed specialist.	11
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Dioryctria pygmaeella</i>		Bald cypress coneworm moth			GNR	SNR	D			N/A	Bald cypress specialist.	20, 33
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Drasteria graphica</i>		Coastal graphic moth	Graphic moth		G4	SNR	D			N/A	Only found at one place in Eastern MD. Major threat is erosion of coastal dunes.	17, 18
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Ethmia macelhostiella</i>		A grass miner moth			GNR	SNR	D			N/A	Recent records in MD in/around vulnerable habitats. Invasive species threaten host plant(s).	19
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Ethmia zelleriella</i>	<i>Hyponomeuta zelleriella</i>	Zeller's grass miner moth			GNR	SNR	D			N/A	Recent records in MD in/around vulnerable habitats. Invasive species threaten host plant(s).	19
Inverts	Inverts (Moths)	<input checked="" type="checkbox"/>	<i>Eucloptocnemis fimbriaris</i>	<i>Eucloptocnemis tripars</i> , <i>Heliophobus fimbriaris</i>	Fringed dart moth			G4	SNR	D			RAPS	Was a data deficient SGCN in previous SWAP. Rare on Coastal Plain, but some recent records. Dune and barren habitat specialist.	8, 9, 17, 18
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Exyra fax</i>	<i>Exyra rolandiana</i> , <i>Xanthoptera fax</i>	Epauletted pitcher plant moth	Pitcher plant moth		G4	SNR	D			RAPS	Recent records in MD in/around vulnerable habitats. Pitcher plant hosts are at risk of (over)collection.	28
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Feltia manifesta</i>	<i>Agrotis manifesta</i> , <i>Trichosilia manifesta</i>	The record keeper moth			G4	SNR	D			N/A	Only found at one location in MD. Barren and sand habitat specialist.	8, 9
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Feralia comstocki</i>		Comstock's sawfly moth			GNR	SNR	D			N/A	Scattered recent records in Western MD. Host plant is hemlock, which is threatened by hemlock wooly adelgid.	2, 3
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Iridopsis pergracilis</i>	<i>Anacamptodes pergracilis</i> , <i>Syneles pergracilis</i>	Cypress looper			G4G5	SNR	D			N/A	Recent records in MD in/around vulnerable habitats.	20, 33
Inverts	Inverts (Moths)	<input checked="" type="checkbox"/>	<i>Isoparce cupressi</i>	<i>Sphinx cupressi</i>	Cypress sphinx moth	Bald cypress sphinx		G4	S1S2	A			N/A		20, 33
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Lithophane abita</i>		Cypress pinion	The cypress lithophane		G4	SNR	D			N/A	Bald cypress specialist.	20, 33
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Macaria subcessaria</i>	<i>Halia subcessaria</i> , <i>Itame subcessaria</i> , <i>Speranza subcessaria</i>	Barred angle moth	Barred itame		G5	SNR	D			N/A	Historic species that was rediscovered in Western MD in 2019.	1, 2, 3, 5

Taxa Group	Taxa (Sub)group for Threats and Actions	SGCN in 2015?	Scientific Name	Synonymous Scientific Names	Common Name	Alternate Common Names	Name changes since 2015	Global Rank	State Rank	Cons. Status Group	Federal Status	State Status	NE Regional Status	Reasoning for adding (if new in 2025)	*Associated KWHs (see Appendix 4a for codes)
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Manduca jasminearum</i>	<i>Sphinx jasminearum</i>	Ash sphinx			G3?	SNR	D			RAPS	Added to SGCN list because this species is ash-dependent. Scattered recent records.	19, 20, 21, 22, 23, 24, 61
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Marmara fraxinicola</i>		Braun's ash bark-mining moth	A gracillariid moth		GNR	SNR	D			N/A	Added to SGCN list because this species is ash-dependent. Recently recorded in both Central and Western MD.	19
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Melipotis jucunda</i>		Merry melipotis moth			G5	SNR	D			N/A	Only found at one place in Eastern MD. Major threat is erosion of coastal dunes.	17, 18
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Melitara prodenialis</i>		Eastern cactus-boring moth			G4	SNR	D			N/A	2013 MD records from one place in Eastern MD. Feeds on prickly pear, which is at risk due to vegetation succession	8, 9, 17, 18
Inverts	Inverts (Moths)	<input checked="" type="checkbox"/>	<i>Meropleon titan</i>		An owl moth	A noctuid moth	A noctuid moth in 2015 SWAP.	G2G4	S2S4	B			N/A		20, 26, 27, 28, 34
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Nemoria elfa</i>		Cypress emerald moth			G4?	SNR	D			N/A	Bald cypress specialist.	20, 33
Inverts	Inverts (Moths)	<input checked="" type="checkbox"/>	<i>Nemoria tuscarora</i>		Tuscarora emerald			GU	SNR	D			N/A		19, 21, 22, 23
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Olceclostera angelica</i>	<i>Parathyris angelica</i>	Angel moth			G5	SNR	D			N/A	Added to SGCN list because this species is ash-dependent. Scattered recent records.	19, 20, 21, 22, 23, 24, 61
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Palpita illibalis</i>	<i>Hapalia illibalis</i>	Inkblot palpita moth			GNR	SNR	D			N/A	Recent records, but rare in MD overall. Host tree is at risk of Emerald Ash Borer.	19, 20, 21, 22, 23, 24, 61
Inverts	Inverts (Moths)	<input checked="" type="checkbox"/>	<i>Palpita magniferalis</i>	<i>Botys magniferalis</i>	Splendid palpita moth	Ash pyralid	Ash pyralid in 2015 SWAP.	GNR	SNR	D			N/A		19, 20, 21, 22, 23, 24, 61
Inverts	Inverts (Moths)	<input checked="" type="checkbox"/>	<i>Papaipema duovata</i>	<i>Hydroecia duovata</i>	Seaside goldenrod stem borer	Seaside goldenrod borer moth		G2G3	SU	D			N/A		17, 18
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Papaipema furcata</i>	<i>Hydroecia furcata</i>	Ash tip borer moth			G4	SNR	D			RAPS	Added to SGCN list because this species is ash-dependent. Scattered recent records.	19, 20, 21, 22, 23, 24, 61
Inverts	Inverts (Moths)	<input checked="" type="checkbox"/>	<i>Plagodis kuetzingi</i>	<i>Eurymene kuetzingi</i>	Purple plagodis moth			G5	SNR	D			RAPS		19, 20, 21, 22, 23, 24, 61
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Podosesia aureocincta</i>		Banded ash clearwing moth			GNR	SNR	D			N/A	Added to SGCN list because this species is ash-dependent. Uncommon species.	19, 20, 21, 22, 23, 24, 61
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Podosesia syringae</i>	<i>Aegeria syringae</i>	Ash borer moth	Lilac borer moth		GNR	SNR	D			N/A	Added to SGCN list because this species is ash-dependent. Common, but ash specialist.	19, 20, 21, 22, 23, 24, 61
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Schinia saturata</i>		Brown flower moth			G5	SNR	D			N/A	Coastal dune habitat specialist.	17, 18
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Sphinx chersis</i>	<i>Lethia chersis</i>	Great ash sphinx			G4	SNR	D			RAPS	Added to SGCN list because this species is ash-dependent. Last seen in MD in 2008.	19, 20, 21, 22, 23, 24, 61
Inverts	Inverts (Moths)	<input checked="" type="checkbox"/>	<i>Sphinx franckii</i>		Franck's sphinx			G4G5	S1S2	A			RAPS		5, 11, 12, 19, 20, 21
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Utetheisa oratrix</i>		Ornate bella moth			G5	SNR	D			N/A	Scattered records across the Coastal Plain. Rattlebox specialist. Diurnal.	8, 9
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Virbia laeta</i>	<i>Holomelina laeta</i> , <i>Lithosia laeta</i>	Joyful holomelina moth	Joyful virbia moth		G5	S1?	A			N/A	Known from Central MD; recent record from Eastern MD. Known from serpentine barrens.	11
Inverts	Inverts (Moths)	<input checked="" type="checkbox"/>	<i>Zale lunifera</i>	<i>Phaeocyma lunifera</i> , <i>Zale sp. 1 nr. lunifera</i>	Bold-based zale moth	Pine barrens zale moth		G3G4	SNR	D			RAPS		8, 9, 11, 13
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Zanclognatha martha</i>		Pine barrens zanclognatha			G4	S1S3	B			RAPS	Few records in Central/Southern MD. Pine barren specialist.	8, 9

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Inverts	Inverts (Odonates)	☑	<i>Aeshna canadensis</i>		Canada darner			G5	S2	B			N/A		19, 21, 57
Inverts	Inverts (Odonates)	☑	<i>Aeshna tuberculifera</i>		Black-tipped darner			G5	S2	B			N/A		19, 21, 28, 57
Inverts	Inverts (Odonates)	☑	<i>Aeshna verticalis</i>		Green-striped darner			G5	S2	B			N/A		19, 21, 57
Inverts	Inverts (Odonates)	☑	<i>Argia bipunctulata</i>		Seepage dancer			G4	S3	C			N/A		22, 23, 24, 27, 28
Inverts	Inverts (Odonates)	☑	<i>Calopteryx amata</i>		Superb jewelwing			G5	S1S2	A		T	RAPS		38
Inverts	Inverts (Odonates)	☑	<i>Calopteryx angustipennis</i>		Appalachian jewelwing			G4	S1S2	A			RSGCN		40, 44
Inverts	Inverts (Odonates)	☑	<i>Calopteryx dimidiata</i>		Sparkling jewelwing			G5	S2	B			N/A		42, 43
Inverts	Inverts (Odonates)	☑	<i>Cordulia shurtleffi</i>		American emerald			G5	S3	C			N/A		21, 57
Inverts	Inverts (Odonates)	☑	<i>Enallagma annexum</i>		Northern bluet			G5	S1	A			N/A		21
Inverts	Inverts (Odonates)	☑	<i>Enallagma antennatum</i>		Rainbow bluet			G5	S1	A			N/A		21, 57
Inverts	Inverts (Odonates)	☑	<i>Enallagma doubledayi</i>		Atlantic bluet			G5	S1	A			N/A		28, 57, 60
Inverts	Inverts (Odonates)	☑	<i>Enallagma dubium</i>		Burgundy bluet			G5	S1	A			N/A		28, 57
Inverts	Inverts (Odonates)	☑	<i>Enallagma pallidum</i>		Pale bluet			G4	S1	A			N/A		28, 57
Inverts	Inverts (Odonates)	☑	<i>Enallagma weewa</i>		Blackwater bluet			G5	S2	B			RAPS		42, 43
Inverts	Inverts (Odonates)	☑	<i>Epithea canis</i>		Beaverpond baskettail			G5	S3	C			N/A		19, 21
Inverts	Inverts (Odonates)	☑	<i>Erythrodiplax minuscula</i>		Little blue dragonlet			G5	S1	A			N/A		27, 31, 57
Inverts	Inverts (Odonates)	☑	<i>Gomphurus fraternus</i>	<i>Gomphus fraternus</i>	Midland clubtail			G5	S2	B			RAPS		44, 45
Inverts	Inverts (Odonates)	☑	<i>Gomphurus lineatifrons</i>	<i>Gomphus lineatifrons</i>	Splendid clubtail			G4	S1	A			N/A		40, 44
Inverts	Inverts (Odonates)	☑	<i>Helocordulia selysii</i>		Selys' sundragon			G4	S2	B		T	N/A		42, 43
Inverts	Inverts (Odonates)	☑	<i>Helocordulia uhleri</i>		Uhler's sundragon			G5	S3	C			N/A		40, 42
Inverts	Inverts (Odonates)	☑	<i>Hylogomphus abbreviatus</i>	<i>Gomphus abbreviatus</i>	Spine-crowned clubtail			G4	S1	A			RAPS		38, 40, 41, 44, 45
Inverts	Inverts (Odonates)	☑	<i>Hylogomphus adelphus</i>	<i>Gomphus adelphus</i> , <i>Gomphus brevis</i>	Mustached clubtail			G5	S1	A			N/A		38, 40
Inverts	Inverts (Odonates)	☑	<i>Hylogomphus viridifrons</i>	<i>Gomphus viridifrons</i>	Green-faced clubtail			G3G4	S1	A			RAPS		40, 44, 45
Inverts	Inverts (Odonates)	☑	<i>Ladona exusta</i>		White corporal			G5	S1	A		E	N/A		28
Inverts	Inverts (Odonates)	☑	<i>Lanthus vernalis</i>		Southern pygmy clubtail			G4	S2	B			RAPS		38, 40, 41
Inverts	Inverts (Odonates)	☑	<i>Leucorrhinia frigida</i>		Frosted whiteface			G5	S1	A			N/A		21
Inverts	Inverts (Odonates)	☑	<i>Leucorrhinia glacialis</i>		Crimson-ringed whiteface			G5	S1	A			RAPS		21
Inverts	Inverts (Odonates)	☑	<i>Leucorrhinia hudsonica</i>		Hudsonian whiteface			G5	S1	A			N/A		21
Inverts	Inverts (Odonates)	☑	<i>Macromia taeniolata</i>		Royal river cruiser			G5	S3	C			N/A		41, 42, 43, 44, 45, 46

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Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Nannothemis bella</i>		Elfin skimmer			G4G5	S1	A		E	RSGCN		20, 27, 28, 57
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Nehalennia gracilis</i>		Sphagnum sprite			G5	S2	B			N/A		28
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Nehalennia integricollis</i>		Southern sprite			G5	S1S2	A			N/A		28
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Ophiogomphus howei</i>		Pygmy snaketail			G3	S1	A			RSGCN		44
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Ophiogomphus incurvatus</i>	<i>Ophiogomphus incurvatus incurvatus</i>	Appalachian snaketail		<i>Ophiogomphus incurvatus incurvatus</i> in 2015 SWAP.	G3T2T3	S1	A		E	Proposed RSGCN		41, 42, 45, 46
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Ophiogomphus mainensis fastigiatus</i>		Maine snaketail			G4G5TU	S1	A			RAPS		40, 44
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Ophiogomphus rupinsulensis</i>		Rusty snaketail			G5	S2	B			N/A		44, 45
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Ophiogomphus susbehcha</i>		St. Croix snaketail		<i>Ophiogomphus</i> sp. 1 and Chesapeake snaketail in 2015 SWAP.	G1	S1	A			Proposed RSGCN		44, 45
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Phanogomphus descriptus</i>	<i>Gomphus descriptus</i>	Harpoon clubtail			G4G5	S1S2	A			RAPS		38, 40
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Phanogomphus quadricolor</i>	<i>Gomphus quadricolor</i>	Rapids clubtail			G3G4	S2	A		I	RSGCN		40, 44, 45, 57
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Rhionaeschna mutata</i>		Spatdock damer	Spring blue damer	Spring blue damer in 2015 SWAP.	G4	S1	A		E	RAPS		21, 57
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Somatochlora elongata</i>		Ski-tailed emerald			G5	S2	B			RSGCN		19, 21, 38, 40
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Somatochlora filosa</i>		Fine-lined emerald			G5	S2	B			N/A		20, 27, 28, 29, 34
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Somatochlora georgiana</i>		Coppery emerald			G3G4	S1	A			RSGCN		42, 43, 46
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Somatochlora provocans</i>		Treetop emerald			G4	S1	A		E	N/A		27, 28
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Stylurus laurae</i>		Laura's clubtail			G4	S2S3	B			N/A		41, 42, 45, 46
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Stylurus scudderii</i>	<i>Gomphus scudderii</i>	Zebra clubtail			G5	S1	A			RAPS		38, 40
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Zoraena obliqua fasciata</i>	<i>Cordulegaster obliqua fasciata</i>	Banded spiketail		<i>Cordulegaster obliqua fasciata</i> in 2015 SWAP.	G4T3Q	S1	A			RAPS		42
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Andrena accepta</i>		Two-spotted miner bee			GNR	SNR	D			N/A	One recent record from Central/Southern MD. Relies heavily on vulnerable barren habitat.	8, 9, 62
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Andrena arabis</i>		Mustard miner bee			GNR	SNR	D			N/A	Scattered records throughout MD. Feeds on native mustards, which are threatened by invasive mustards.	19, 20
Inverts	Inverts (Bees)	<input checked="" type="checkbox"/>	<i>Andrena braccata</i>		A mining bee	An andrenid bee		GNR	SU	D			RAPS		17, 18
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Andrena cornelli</i>		Azalea mining bee	A mining bee		GNR	SNR	D			N/A	Scattered records throughout MD. Host plant is especially vulnerable to overgrazing by deer.	4, 19, 20, 22, 23, 27, 61
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Andrena distans</i>		Cranesbill miner bee	Distant miner bee		GNR	SNR	D			N/A	One record in Western MD, a few more on Geraniums. Geraniums are especially vulnerable to invasive species.	5, 6, 7

Taxa Group	Taxa (Sub)group for Threats and Actions	SGCN in 2015?	Scientific Name	Synonymous Scientific Names	Common Name	Alternate Common Names	Name changes since 2015	Global Rank	State Rank	Cons. Status Group	Federal Status	State Status	NE Regional Status	Reasoning for adding (if new in 2025)	*Associated KWHs (see Appendix 4a for codes)
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Andrena erythronii</i>		Trout lily miner bee			GNR	SNR	D			N/A	Southern edge of range. About 10 MD records. Trout lily is especially vulnerable to invasive species.	19, 20
Inverts	Inverts (Bees)	<input checked="" type="checkbox"/>	<i>Andrena fulvipennis</i>		A mining bee	An andrenid bee		GNR	SU	D			RAPS		8, 9, 62
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Andrena geranii</i>		Waterleaf mining bee	Geranium miner bee		GNR	SNR	D			N/A	10 MD records. At the southern edge of its range in MD. Host plant is especially vulnerable to invasive species.	19, 20
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Andrena helianthi</i>		Sunflower miner bee			GNR	SNR	D			N/A	One recent record from Western MD. Relies on roadside habitat, which is threatened by over-mowing and/or poorly timed mowing.	55, 56, 61
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Andrena lamelliterga</i>		An andrenid bee			GNR	SNR	D			N/A	Host plant is especially vulnerable to invasive species.	19, 20
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Andrena phaceliae</i>		An andrenid bee			GNR	SNR	D			N/A	Records in Western MD. Host plant is especially vulnerable to invasive species.	19, 20
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Andrena ziziae</i>		Golden Alexanders miner bee			GNR	SNR	D			N/A	A few historic MD records and a couple of recent ones, mostly in Western MD. Host plant is especially vulnerable to invasive species. Relies on roadside habitat, which is threatened by over-mowing and/or poorly timed mowing.	6, 7, 19, 20, 61, 56
Inverts	Inverts (Bees)	<input checked="" type="checkbox"/>	<i>Bombus affinis</i>		Rusty-patch bumble bee			G2	S1	A	LE	E	RSGCN		4, 5, 6, 7
Inverts	Inverts (Bees)	<input checked="" type="checkbox"/>	<i>Bombus terricola</i>		Yellowbanded bumble bee			G3G4	S1	A			RSGCN		4, 5, 6, 7
Inverts	Inverts (Bees)	<input checked="" type="checkbox"/>	<i>Bombus vagans</i>	<i>Pyrobombus vagans</i>	Half-black bumble bee			G4	S3	C			N/A		4, 5, 6, 7
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Cemolobus ipomoeae</i>	<i>Xenoglossa ipomoeae, Eucera ipomoeae</i>	A cemolobus bee			GNR	SNR	D			N/A	Only one record in Eastern MD. Seems to rely on a flowering native plant that is treated by some as a weed.	55, 56, 61
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Coelioxys immaculatus</i>	<i>Coelioxys immaculata</i>	A leafcutter bee			GNR	SNR	D			N/A	Very limited records scattered across MD. Relies on vulnerable barren habitat.	8, 9, 62
Inverts	Inverts (Bees)	<input checked="" type="checkbox"/>	<i>Colletes aestivalis</i>		A cellophane bee			GNR	SH	E			N/A		15
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Colletes americanus</i>	<i>Colletes americana</i>	American plasterer bee			GNR	SNR	D			N/A	Relies on vulnerable barren habitat.	17, 18, 62
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Colletes nudus</i>		Nude plasterer bee			GNR	SNR	D			N/A	Scattered MD records in Coastal Plain. Relies on roadside habitat, which is threatened by over-mowing and/or poorly timed mowing.	8, 9, 56, 61
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Colletes speculiferus</i>		A cellophane bee			GNR	SNR	D			N/A	Found in a very limited area of Eastern MD. Relies on vulnerable dune habitat.	17, 18, 60
Inverts	Inverts (Bees)	<input checked="" type="checkbox"/>	<i>Dieunomia heteropoda</i>		Sunflower sweat bee			G5	S1S3	B			N/A		8, 9, 62, 61
Inverts	Inverts (Bees)	<input checked="" type="checkbox"/>	<i>Dieunomia nevadensis</i>	<i>Nomia nevadensis</i>	A dieunomia bee			G5	SU	D			N/A		8, 9, 62
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Epeolus howardi</i>		Howard's cuckoo nomad bee			GNR	SNR	D			N/A	Very rare species globally. So far only found in sandy Coastal Plain areas.	8, 9, 55

Taxa Group	Taxa (Sub)group for Threats and Actions	SGCN in 2015?	Scientific Name	Synonymous Scientific Names	Common Name	Alternate Common Names	Name changes since 2015	Global Rank	State Rank	Cons. Status Group	Federal Status	State Status	NE Regional Status	Reasoning for adding (if new in 2025)	*Associated KWHs (see Appendix 4a for codes)
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Epeolus pusillus</i>		Puny cuckoo nomad bee			GNR	SNR	D			N/A	Handful of records all come from sand mines and/or the Eastern Shore. Relies on vulnerable barren and dune habitat.	8, 9, 17, 18, 62
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Epimelissodes comptus</i>	<i>Svastra compta</i>	A long-horned bee			GNR	SNR	D			N/A	Found regularly in Central/Southern MD in an atypical habitat. Generally relies on vulnerable barren habitat.	8, 9, 62, 61
Inverts	Inverts (Bees)	<input checked="" type="checkbox"/>	<i>Lasioglossum arantium</i>		A sweat bee			GNR	S2S3	B			RAPS		8, 9
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Lasioglossum floridanum</i>		A sweat bee			GNR	SNR	D			N/A	Found in a very limited area of Eastern MD. Relies on vulnerable barren habitat.	8, 9
Inverts	Inverts (Bees)	<input checked="" type="checkbox"/>	<i>Lasioglossum georgeickworti</i>		George Eickwort's sweat bee			GNR	SU	D			N/A		17, 18
Inverts	Inverts (Bees)	<input checked="" type="checkbox"/>	<i>Lasioglossum nymphale</i>		A sweat bee	A hairy-tongue bee	A hairy-tongue bee in 2015 SWAP.	GNR	S2S3	B			N/A		8, 9, 17, 18
Inverts	Inverts (Bees)	<input checked="" type="checkbox"/>	<i>Lasioglossum raleighense</i>		A sweat bee			GNR	SU	D			N/A		8, 9
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Lasioglossum sopinci</i>		A sweat bee			GNR	SNR	D			N/A	Current records come only from specific sites in Southern and Eastern MD. Relies on vulnerable barren habitat.	8, 9, 62
Inverts	Inverts (Bees)	<input checked="" type="checkbox"/>	<i>Macropis ciliata</i>	<i>Macropis longilingua</i>	Fringed loosestrife oil-collecting bee			GNR	S1	A			RSGCN		19, 20, 24, 27
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Melissodes apicatus</i>	<i>Melissodes apicata</i>	Pickereelweed long-horned bee			GNR	SNR	D			N/A	Relies on vulnerable barren habitat.	34
Inverts	Inverts (Bees)	<input checked="" type="checkbox"/>	<i>Nomada rubicunda</i>		A cuckoo bee			GNR	S1S3	B			N/A		8, 9
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Nomada seneciophila</i>		A cuckoo bee			GNR	S1	A			RAPS	To date found in two locations MD -- one in Central MD, one in Southern MD. Depends on another species that has declined.	6, 7, 19, 20, 55
Inverts	Inverts (Bees)	<input checked="" type="checkbox"/>	<i>Nomia maneei</i>		Pearly-banded bee			G3?	S1S3	A			N/A		8, 9
Inverts	Inverts (Bees)	<input checked="" type="checkbox"/>	<i>Osmia chalybea</i>		A mason bee			G4G5	S1S3	B			N/A		8, 9, 17, 18, 60, 62
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Osmia felti</i>		Felt's mason bee			G3	SNR	D			Proposed RAPS	2012 record Western MD. Susceptible to fungal pathogens from non-native Osmias. Relies heavily on vulnerable barren habitat.	12, 13
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Osmia texana</i>		Texas mason bee			G5	SNR	D			N/A	Likely restricted to Central and Western MD. Susceptible to fungal pathogens from non-native Osmias. Seems to rely on a flowering native plant that is treated by some as a weed.	4, 5, 6, 7, 61
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Paranthidium jugatorium</i>		A leafcutter bee			GNR	SNR	D			N/A	Few MD and regional records. Likely restricted to Central and Western MD. Relies on roadside habitat, which is threatened by over-mowing and/or poorly timed mowing.	4, 5, 6, 7, 61, 56
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Perdita boltoniae</i>		A miner bee			GNR	SNR	D			N/A	Only found in open sandy sites, which are at risk. Most records in Southern and Eastern MD.	8, 9
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Perdita bradleyi</i>		A miner bee			GNR	SNR	D			N/A	Two records in MD -- one in Southern MD, one in Eastern MD. Relies heavily on vulnerable barren habitat.	8, 9, 62

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Inverts	Inverts (Bees)	<input checked="" type="checkbox"/>	<i>Protandrena abdominalis</i>		A mining bee			GNR	SU	D			RSGCN		8, 9
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Protandrena aestivalis</i>	<i>Heterosarus aestivalis</i> , <i>Pseudopanurgus aestivalis</i>	Summer miner bee			G5	SNR	D			N/A	2007 and 2013 records in sandy areas. Relies heavily on vulnerable barren habitat.	8, 9, 62
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Sphecodes brachycephalus</i>		A sweat bee			GNR	SNR	D			N/A	Only two MD records -- one in Eastern MD, one in Southern MD. Relies on vulnerable barren habitat.	8, 9, 56
Inverts	Inverts (Tiger Beetles)	<input checked="" type="checkbox"/>	<i>Cicindela abdominalis</i>		Eastern pinebarrens tiger beetle			G3	S1	A		E	RAPS		8, 9
Inverts	Inverts (Tiger Beetles)	<input checked="" type="checkbox"/>	<i>Cicindela ancocisconensis</i>		Appalachian tiger beetle			G3	S1	A		E	RSGCN		19, 40, 44
Inverts	Inverts (Tiger Beetles)	<input type="checkbox"/>	<i>Cicindela limbalis</i>		Common claybank tiger beetle			G5	SNR	D			N/A	Recently discovered in Western MD. Expected to be ranked S1.	1, 13, 15, 56
Inverts	Inverts (Tiger Beetles)	<input checked="" type="checkbox"/>	<i>Cicindela patruela</i>		Northern barrens tiger beetle			G3	S1	A		E	RSGCN		1, 4, 13, 15, 56
Inverts	Inverts (Tiger Beetles)	<input checked="" type="checkbox"/>	<i>Cicindela purpurea</i>		Cow path tiger beetle			G5	S3	C			N/A		1, 4, 11, 12, 13, 15, 56
Inverts	Inverts (Tiger Beetles)	<input checked="" type="checkbox"/>	<i>Cicindela splendida</i>		Splendid tiger beetle			G5	S1	A			N/A		1, 4, 11, 12, 13, 15, 56
Inverts	Inverts (Tiger Beetles)	<input checked="" type="checkbox"/>	<i>Ellipsoptera lepida</i>	<i>Cicindela lepida</i>	Ghost tiger beetle		<i>Cicindela lepida</i> in 2015 SWAP.	G3	S1	A		E	RAPS		17, 18
Inverts	Inverts (Tiger Beetles)	<input checked="" type="checkbox"/>	<i>Ellipsoptera puritana</i>	<i>Cicindela puritana</i>	Puritan tiger beetle		<i>Cicindela puritana</i> in 2015 SWAP.	G1G2	S1S2	A	LT	E	RSGCN		16
Inverts	Inverts (Tiger Beetles)	<input checked="" type="checkbox"/>	<i>Habroscelimorpha dorsalis dorsalis</i>	<i>Cicindela dorsalis dorsalis</i>	Eastern beach tiger beetle	Northeastern beach tiger beetle	<i>Cicindela dorsalis dorsalis</i> and Northeastern beach tiger beetle in 2015 SWAP.	G3T2	S1	A	LT	E	RSGCN		16, 17, 37, 60
Inverts	Inverts (Tiger Beetles)	<input checked="" type="checkbox"/>	<i>Habroscelimorpha dorsalis media</i>	<i>Cicindela dorsalis media</i>	White tiger beetle		<i>Cicindela dorsalis media</i> in 2015 SWAP.	G3T3	S1	A		E	RSGCN		17, 18
Inverts	Inverts (Fireflies)	<input checked="" type="checkbox"/>	<i>Photuris bethaniensis</i>		Bethany Beach firefly			G1	S1	A	PT		RSGCN		18
Inverts	Inverts (Fireflies)	<input type="checkbox"/>	<i>Photuris mysticalampas</i>		Mysterious lantern firefly			G1G2	S1	A			RSGCN	On MD's rare / threatened / endangered species list. Have a lot of new and unpublished data on this species that better explain its taxonomy, habitat, and distribution. Know enough about its needs and vulnerabilities to articulate multiple threats and actions.	20, 26, 27
Inverts	Inverts (Fireflies)	<input type="checkbox"/>	<i>Photuris potomaca</i>		Potomac firefly			GU	SNR	D			Proposed RSGCN	Historical MD species that was rediscovered in 2022. Prefers river scour ecosystem, which comes with inherent vulnerabilities.	19, 44
Inverts	Inverts (Fireflies)	<input type="checkbox"/>	<i>Photuris salina</i>	<i>Photuris salinus</i>	Salt marsh firefly			G3	SNR	D			RSGCN	Salt marsh specialist, which comes with inherent vulnerabilities. Also has multiple information needs.	35, 36
Inverts	Inverts (Fireflies)	<input type="checkbox"/>	<i>Pyrractomena ecostata</i>	<i>Pyrractomena nitidiventris</i>	Keel-necked firefly			G3	SNR	D			RSGCN	Rare species. Salt marsh specialist, which comes with inherent vulnerabilities.	35, 36
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Acroneuria internata</i>		Lobed stone			G4	SNR	D			N/A	Have a few records in Western MD. Possibly extirpated from PA.	38
Inverts	Inverts (Aquatic Orders)	<input checked="" type="checkbox"/>	<i>Alloperla biserrata</i>		Dusky sallfly			G3	SNR	D			RSGCN		38

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Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Helopicus subvarians</i>		Vernal springfly			G4	SNR	D			N/A	Historically collected from the Potomac River; more recent records from other locations in Central MD. Have concerns that its apparent preferred habitat of low-elevation piedmont streams and rivers overlaps heavily with urbanization in MD.	41, 45
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Leuctra variabilis</i>		Variable needelfly			G3	SNR	D			N/A	Have recent records in Coastal Plain bogs of MD. Listed as SGCN in an adjacent state, but not in MD (until this SWAP). Ranked S3 in PA.	28
Inverts	Inverts (Aquatic Orders)	<input checked="" type="checkbox"/>	<i>Megaleuctra flinti</i>		Shenandoah needelfly			G2G3	S1	A			RSGCN		32
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Remenus bilobatus</i>		Lash springfly			G4?	SNR	D			N/A	Have a good number of recent (2020) records at multiple locations in Western MD.	38
Inverts	Inverts (Aquatic Orders)	<input checked="" type="checkbox"/>	<i>Sweltsa palearata</i>		Shenandoah sallfly			G2G3	S2	A			RSGCN		32, 38
Inverts	Inverts (Aquatic Orders)	<input checked="" type="checkbox"/>	<i>Sweltsa pocahontas</i>		Pocahontas sallfly			G2G3	S2	A			RSGCN		38
Inverts	Inverts (Cave & Groundwater)	<input checked="" type="checkbox"/>	<i>Caecidotea alleghenyensis</i>		Allegheny spring isopod			G1G2	S1	A		E	N/A		32, 52, 59
Inverts	Inverts (Cave & Groundwater)	<input checked="" type="checkbox"/>	<i>Caecidotea franzi</i>	<i>Asellus franzi</i>	Franz's cave isopod			G2G4	S1	A		E	N/A		52, 59
Inverts	Inverts (Cave & Groundwater)	<input checked="" type="checkbox"/>	<i>Conasellus pricei</i>	<i>Caecidotea pricei</i> , <i>Asellus pricei</i>	Price's cave isopod		<i>Caecidotea pricei</i> in 2015 SWAP.	G5	S3	C			N/A		32, 52
Inverts	Inverts (Cave & Groundwater)	<input checked="" type="checkbox"/>	<i>Crangonyx dearolfi</i>		Pennsylvania cave amphipod	Pennsylvania cave crangonyctid, Dearolf's cave amphipod	<i>Pennsylvania cave crangonyctid</i> in 2015 SWAP	G2	S1	A		E	N/A		52
Inverts	Inverts (Cave & Groundwater)	<input checked="" type="checkbox"/>	<i>Paraplanaria dactyligera</i>	<i>Planaria dactyligera</i>	A planarian			GNR	S2	B			N/A		32
Inverts	Inverts (Cave & Groundwater)	<input checked="" type="checkbox"/>	<i>Procotyla typhlops</i>		A planarian	A groundwater planarian		G1G2	S1	A		E	N/A		32
Inverts	Inverts (Cave & Groundwater)	<input checked="" type="checkbox"/>	<i>Pseudobaicalasellus holsingeri</i>	<i>Caecidotea holsingeri</i> , <i>Asellus holsingeri</i>	Holsinger's cave isopod		<i>Caecidotea holsingeri</i> in 2015 SWAP	G5	S1	A		E	N/A		52
Inverts	Inverts (Cave & Groundwater)	<input checked="" type="checkbox"/>	<i>Pseudobaicalasellus mausi</i>	<i>Caecidotea mausi</i>	Maus' cave isopod		<i>Caecidotea mausi</i> in 2015 SWAP.	G2	S1	A		E	N/A		52, 59
Inverts	Inverts (Cave & Groundwater)	<input checked="" type="checkbox"/>	<i>Pseudobaicalasellus vandeli</i>	<i>Caecidotea vandeli</i>	Vandel's cave isopod		<i>Caecidotea vandeli</i> in 2015 SWAP.	G3G4	S1	A		E	N/A		52, 59
Inverts	Inverts (Cave & Groundwater)	<input checked="" type="checkbox"/>	<i>Sphalloplana buchmanani</i>		A cave obligate planarian			G1G2	SNR	D			N/A		32, 52
Inverts	Inverts (Cave & Groundwater)	<input checked="" type="checkbox"/>	<i>Sphalloplana hoffmasteri</i>	<i>Kenkia hoffmasteri</i> , <i>Macrocotyla hoffmasteri</i>	Hoffmaster's cave planarian			G3G4	S1	A		E	N/A		52, 59
Inverts	Inverts (Cave & Groundwater)	<input checked="" type="checkbox"/>	<i>Sphalloplana pricei</i>		Refton Cave planarian	A planarian	A planarian in 2015 SWAP	G2G3	SNR	D			N/A		32
Inverts	Inverts (Cave & Groundwater)	<input checked="" type="checkbox"/>	<i>Stygobromus amicus</i>		Friendly cave amphipod			G1	S1	A		E	N/A		32, 52
Inverts	Inverts (Cave & Groundwater)	<input checked="" type="checkbox"/>	<i>Stygobromus biggersi</i>	<i>Stygobromus sp. 1</i>	Biggers' cave amphipod			G2G4	S1	A		E	N/A		32, 52

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Inverts	Inverts (Cave & Groundwater)	<input checked="" type="checkbox"/>	<i>Stygobromus caecilius</i>		Cecil groundwater amphipod			G1	S1	A		E	N/A		32
Inverts	Inverts (Cave & Groundwater)	<input checked="" type="checkbox"/>	<i>Stygobromus emarginatus</i>		Greenbrier cave amphipod			G3	S1	A		E	N/A		32, 52
Inverts	Inverts (Cave & Groundwater)	<input checked="" type="checkbox"/>	<i>Stygobromus felleri</i>		Feller's groundwater amphipod			G1	S1	A		E	N/A		32
Inverts	Inverts (Cave & Groundwater)	<input checked="" type="checkbox"/>	<i>Stygobromus foliatus</i>		Rappahannock spring amphipod			G2	S1	A		E	N/A		32
Inverts	Inverts (Cave & Groundwater)	<input checked="" type="checkbox"/>	<i>Stygobromus gracilipes</i>		Shenandoah Valley cave amphipod			G3G4	S1	A		E	N/A		32, 52
Inverts	Inverts (Cave & Groundwater)	<input checked="" type="checkbox"/>	<i>Stygobromus indentatus</i>		Tidewater amphipod			G3	S1	A			N/A		32
Inverts	Inverts (Cave & Groundwater)	<input checked="" type="checkbox"/>	<i>Stygobromus kenki</i>		Rock Creek groundwater amphipod	Kenk's amphipod		G2	S1	A		E	N/A		32
Inverts	Inverts (Cave & Groundwater)	<input checked="" type="checkbox"/>	<i>Stygobromus paxillus</i>		Prettyboy groundwater amphipod			G1	S1	A		E	N/A		32
Inverts	Inverts (Cave & Groundwater)	<input checked="" type="checkbox"/>	<i>Stygobromus pizzinii</i>	<i>Stygonectes pizzinii</i>	Pizzini's cave amphipod	Pizzini's amphipod	Pizzini's amphipod in 2015 SWAP.	G3G4	S1	A			N/A		32
Inverts	Inverts (Cave & Groundwater)	<input checked="" type="checkbox"/>	<i>Stygobromus sextarius</i>		Capital Area groundwater amphipod			G1	S1	A		E	N/A		32
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Agrilus subcinctus</i>		Encircled borer			GNR	SNR	D			N/A	Ash specialist that was recently found in MD.	19, 20, 21, 22, 23, 24, 61
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Capraita sexmaculata</i>		Charlie Brown's flea beetle			GNR	SNR	D			N/A	Ash specialist that was recently found in MD.	19, 20, 21, 22, 23, 24, 61
Inverts	Inverts (Other)	<input checked="" type="checkbox"/>	<i>Helops cisteloides</i>	<i>Doyenellus cisteloides</i>	A tenebrionid beetle	A darkling beetle		GNR	S1	A		E	N/A		8, 9
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Hoperius planatus</i>		A dytiscid beetle	A predaceous diving beetle		GNR	S2	B			N/A	On MD's rare / threatened / endangered species list. Records in Southern and Eastern MD.	29, 31
Inverts	Inverts (Other)	<input checked="" type="checkbox"/>	<i>Hydrochus spangleri</i>		Seth Forest water scavenger beetle			G1	S1	A		E	N/A		29, 31
Inverts	Inverts (Other)	<input checked="" type="checkbox"/>	<i>Hylesinus aculeatus</i>		Eastern ash bark beetle			G5	SNR	D			N/A		19, 20, 21, 22, 23, 24, 61
Inverts	Inverts (Other)	<input checked="" type="checkbox"/>	<i>Lignodytes bischoffi</i>	<i>Thysanocnemis bischoffi</i>	An ash seed weevil		Thysanocnemis bischoffi in 2015 SWAP.	G5	SNR	D			N/A		19, 20, 21, 22, 23, 24, 61
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Lignodytes fraxini</i>		An ash seed weevil			GNR	SNR	D			N/A	Ash specialist that was recently found in MD.	19, 20, 21, 22, 23, 24, 61
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Lignodytes helvolus</i>		An ash seed weevil			GNR	SNR	D			N/A	Ash specialist that was recently found in MD.	19, 20, 21, 22, 23, 24, 61
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Lignodytes horridulus</i>		An ash seed weevil			GNR	SNR	D			N/A	Ash specialist that was recently found in MD.	19, 20, 21, 22, 23, 24, 61
Inverts	Inverts (Other)	<input checked="" type="checkbox"/>	<i>Schoenicus puberulus</i>		A tenebrionid beetle			GNR	S1	A		E	N/A		8, 9
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Blera pictipes</i>	<i>Calliprobola pictipes</i>	Painted wood fly			G4G5	SNR	D			N/A	Added because this species is a specialist in moist, undisturbed forests that are threatened by development.	6, 7, 8, 9, 20, 26
Inverts	Inverts (Other)	<input checked="" type="checkbox"/>	<i>Dasineura pellex</i>		Ash bullet gall midge			GNR	SNR	D			N/A		19, 20, 21, 22, 23, 24, 61
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Dasineura tumidosae</i>		Swollen ash gall midge	Ash petiole gall midge		GNR	SNR	D			N/A	Added to SGCN list because this species is ash-dependent. Scattered records across MD.	19, 20, 21, 22, 23, 24, 61

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Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Fletcherimyia fletcheri</i>	<i>Sarcophaga fletcheri</i>	Pitcher plant flesh fly	Pitcher plant fly		G5	SNR	D			N/A	Added because pitcher plants are under-surveyed and at risk of poaching.	28
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Metricnemus knabi</i>		Pitcher plant midge			G5	SNR	D			N/A	Added because pitcher plants are under-surveyed and at risk of poaching.	28
Inverts	Inverts (Other)	<input checked="" type="checkbox"/>	<i>Wyeomyia smithii</i>	<i>Wyeomyia haynei</i>	Pitcher plant mosquito			G5	S2	B			N/A		28
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Leptopypha mutica</i>		Fringetree lace bug	A lace bug		GNR	SNR	D			N/A	Frequently relies upon ash; at risk due to emerald ash borer.	19, 20, 61
Inverts	Inverts (Other)	<input checked="" type="checkbox"/>	<i>Limotettix minuendus</i>		Eastern sedge barrens leafhopper	Eastern sedge barrens planthopper		G1	S1	A		E	N/A		11
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Magiccicada tredecim</i>		Riley's 13-year cicada	Riley's thirteen-year cicada		GNR	SNR	D			N/A	Only found at one location in Southern MD.	8, 9, 20, 61
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Colobopsis mississippiensis</i>	<i>Camponotus mississippiensis</i>	A carpenter ant			GNR	SNR	D			N/A	Added to SGCN list because this species is ash-dependent.	19, 20, 21, 22, 23, 24
Inverts	Inverts (Other)	<input checked="" type="checkbox"/>	<i>Tethida barda</i>		Blackheaded ash sawfly			GNR	SNR	D			N/A		19, 20, 21, 22, 23, 24, 61
Inverts	Inverts (Other)	<input checked="" type="checkbox"/>	<i>Aceria fraxini</i>	<i>Aceria chondriphora</i>	Ash leaf gall mite	Ash bead gall mite	<i>Aceria chondriphora</i> in 2015 SWAP.	GNR	SNR	D			N/A		19, 20, 21, 22, 23, 24, 61
Inverts	Inverts (Other)	<input checked="" type="checkbox"/>	<i>Aceria fraxiniflora</i>		Ash flower gall mite			GNR	SNA	D			N/A		19, 20, 21, 22, 23, 24, 61
Inverts	Inverts (Other)	<input checked="" type="checkbox"/>	<i>Aceria fraxinivora</i>	<i>Aceria fraxinivorus</i> , <i>Eriophyes fraxinivorus</i>	Ash key gall mite		<i>Aceria fraxinivorus</i> in 2015 SWAP.	GNR	SNA	D			N/A		19, 20, 21, 22, 23, 24, 61
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Sarraceniopus gibsoni</i>		Pitcher plant mite	A mite		GNR	SNR	D			N/A	Added because pitcher plants are under-surveyed and at risk of poaching.	28
Plants	N/A	<input type="checkbox"/>	<i>Abies balsamea</i>		Balsam fir			G5	S1	A			N/A		21
Plants	N/A	<input type="checkbox"/>	<i>Aconitum uncinatum</i>		Blue monkshood			G4	S1	A		E	N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Actaea podocarpa</i>		American bugbane			G4	S2	B			N/A		3
Plants	N/A	<input type="checkbox"/>	<i>Adlumia fungosa</i>		Climbing fumitory			G4	S2	B		T	N/A		1
Plants	N/A	<input type="checkbox"/>	<i>Aeschynomene virginica</i>		Sensitive joint-vetch			G2	S1	A	LT	E	N/A		35
Plants	N/A	<input type="checkbox"/>	<i>Agalinis auriculata</i>		Earleaf false foxglove			G3	S1	A		E	N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Agalinis decemloba (acuta)</i>		Sandplain gerardia			G3G4	S1	A	LE*	E	N/A		11
Plants	N/A	<input type="checkbox"/>	<i>Agalinis setacea</i>		Threadleaf gerardia			G5?	S2	B		E	N/A		8, 9
Plants	N/A	<input type="checkbox"/>	<i>Agalinis skinneriana</i>		Pale false foxglove			G3G4	S1	A		E	N/A		56
Plants	N/A	<input type="checkbox"/>	<i>Agastache scrophulariifolia</i>		Purple giant-hyssop			G4	S1S2	A		T	N/A		56
Plants	N/A	<input type="checkbox"/>	<i>Agrimonia striata</i>		Woodland agrimony			G5	S1	A		E	N/A		6, 7
Plants	N/A	<input type="checkbox"/>	<i>Alnus maritima ssp. maritima</i>		Seaside alder			G3	S3.1	B			N/A		34
Plants	N/A	<input type="checkbox"/>	<i>Amaranthus pumilus</i>		Seabeach amaranth			G2	S1	A	LT	E	N/A		17
Plants	N/A	<input type="checkbox"/>	<i>Amelanchier humilis</i>		Running shadbush			G5	S1	A		T	N/A		15

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Plants	N/A	<input type="checkbox"/>	<i>Amelanchier nantucketensis</i>		Nantucket shadbush			G3Q	S1	A		T	N/A		15
Plants	N/A	<input type="checkbox"/>	<i>Amelanchier sanguinea</i>		Roundleaf serviceberry			G5	S1	A		E	N/A		13
Plants	N/A	<input type="checkbox"/>	<i>Amelanchier spicata</i>		Running serviceberry			G5	S2	B			N/A		13
Plants	N/A	<input type="checkbox"/>	<i>Amianthium muscitoxicum</i>		Fly-poison			G4G5	S2	B			N/A		5
Plants	N/A	<input type="checkbox"/>	<i>Ammannia latifolia</i>		Koehne ammannia			G5	S2	B			N/A		35
Plants	N/A	<input type="checkbox"/>	<i>Angelica triquinata</i>		Filmy angelica			G4	S1	A		E	N/A		2
Plants	N/A	<input type="checkbox"/>	<i>Antennaria solitaria</i>		Single-head pussytoes			G5	S2	B		T	N/A		8, 9
Plants	N/A	<input type="checkbox"/>	<i>Arabis adpressipilis</i>		Hairy rockcress			G4	S1S2	A			N/A		14
Plants	N/A	<input type="checkbox"/>	<i>Arabis patens</i>		Spreading rockcress			G3	S2	A			N/A		14
Plants	N/A	<input type="checkbox"/>	<i>Arabis pycnocarpa</i>		Western hairy rockcress			G5	S1	A			N/A		15
Plants	N/A	<input type="checkbox"/>	<i>Aralia hispida</i>		Bristly sarsaparilla			G5	S1	A		E	N/A		13
Plants	N/A	<input type="checkbox"/>	<i>Arctostaphylos uva-ursi</i>		Bearberry			G5	S1	A		E	N/A		15
Plants	N/A	<input type="checkbox"/>	<i>Aristida lanosa</i>		Woolly three-awn			G5	S1	A		E	N/A		8, 9
Plants	N/A	<input type="checkbox"/>	<i>Aristida virgata</i>		Wand-like three-awn grass			G4G5	S2	B		T	N/A		56
Plants	N/A	<input type="checkbox"/>	<i>Armoracia lacustris</i>		Lake-cress			G4?	S1	A		E	N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Arnica acaulis</i>		Leopard's-bane			G4	S1	A		E	N/A		8, 9
Plants	N/A	<input type="checkbox"/>	<i>Arundinaria tecta</i>		Switch cane			G5	S2	B			N/A		34
Plants	N/A	<input type="checkbox"/>	<i>Asclepias lanceolata</i>		Smooth orange milkweed			G5	S1	A			N/A		34
Plants	N/A	<input type="checkbox"/>	<i>Asclepias purpurascens</i>		Purple milkweed			G4G5	S2	B			N/A		56
Plants	N/A	<input type="checkbox"/>	<i>Asclepias rubra</i>		Red milkweed			G4G5	S1	A		E	N/A		28
Plants	N/A	<input type="checkbox"/>	<i>Asplenium bradleyi</i>		Bradley's spleenwort			G4	S1	A		T	N/A		15
Plants	N/A	<input type="checkbox"/>	<i>Asplenium pinnatifidum</i>		Lobed spleenwort			G4	S1	A		E	N/A		15
Plants	N/A	<input type="checkbox"/>	<i>Asplenium resiliens</i>		Black-stem spleenwort			G5	S1	A			N/A		15
Plants	N/A	<input type="checkbox"/>	<i>Astragalus canadensis</i>		Canadian milkvetch			G5	S1	A		E	N/A		13
Plants	N/A	<input type="checkbox"/>	<i>Astragalus distortus</i>		Ozark milkvetch			G5	S2	B		T	N/A		13
Plants	N/A	<input type="checkbox"/>	<i>Atriplex mucronata</i>		Seabeach orach			G3G4	S1S2	A			N/A		17
Plants	N/A	<input type="checkbox"/>	<i>Bacopa monnieri</i>		Coastal water-hyssop			G5?	S1	A			N/A		10
Plants	N/A	<input type="checkbox"/>	<i>Baptisia australis</i>		Blue wild indigo			G3G4	S2	A		T	N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Bidens bidentoides</i>		Maryland bur-marigold			G3G4	S3.1	B			N/A		36
Plants	N/A	<input type="checkbox"/>	<i>Blephilia hirsuta</i>		Hairy woodmint			G5	S1S2	A			N/A		4
Plants	N/A	<input type="checkbox"/>	<i>Bolboschoenus novae-angliae</i>		Saltmarsh bulrush			G3	S2	A			N/A		34

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Plants	N/A	<input type="checkbox"/>	<i>Boltonia asteroides</i> var. <i>asteroides</i>		Susquehanna doll's-daisy			G5TNR	S1	A			N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Boltonia asteroides</i> var. <i>glastifolia</i>		White doll's-daisy			G5TNR	S1	A		E	N/A		28
Plants	N/A	<input type="checkbox"/>	<i>Borodinia missouriensis</i>		Missouri rockcress			G5	S1	A		E	N/A		15
Plants	N/A	<input type="checkbox"/>	<i>Botrychium angustisegmentum</i>		Lanceleaf grapefern			G4	S1	A		X	N/A		2
Plants	N/A	<input type="checkbox"/>	<i>Bouteloua curtipendula</i>		Side-oats grama			G5	S2	B			N/A		14
Plants	N/A	<input type="checkbox"/>	<i>Bromus latiglumis</i>		Broad-glumed brome			G5	S1	A		E	N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Calla palustris</i>		Wild calla			G5	S1	A		E	N/A		21
Plants	N/A	<input type="checkbox"/>	<i>Calopogon tuberosus</i>		Tuberous grass-pink			G5T5	S1	A		E	N/A		28
Plants	N/A	<input type="checkbox"/>	<i>Campanula rotundifolia</i>		American harebell			G5	S2	B			N/A		15
Plants	N/A	<input type="checkbox"/>	<i>Cardamine longii</i>		Long's bittercress			G3?	S2	A		E	N/A		34
Plants	N/A	<input type="checkbox"/>	<i>Carex aestivalis</i>		Summer sedge			G4	S1	A		E	N/A		4
Plants	N/A	<input type="checkbox"/>	<i>Carex buxbaumii</i>		Buxbaum's sedge			G5	S2	B		T	N/A		21
Plants	N/A	<input type="checkbox"/>	<i>Carex careyana</i>		Carey's sedge			G4G5	S1	A		E	N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Carex conoidea</i>		Field sedge			G5	S1	A		E	N/A		56
Plants	N/A	<input type="checkbox"/>	<i>Carex davisii</i>		Davis' sedge			G4	S1	A		E	N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Carex decomposita</i>		Cypress-knee sedge			G3G4	S1	A		E	N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Carex diandra</i>		Lesser panicled sedge			G5	S1	A		E	N/A		21
Plants	N/A	<input type="checkbox"/>	<i>Carex eburnea</i>		Ebony sedge			G5	S1	A		E	N/A		15
Plants	N/A	<input type="checkbox"/>	<i>Carex exilis</i>		Coastal sedge			G5	S1	A		E	N/A		28
Plants	N/A	<input type="checkbox"/>	<i>Carex fraseriana</i>		Fraser's sedge			G4	S1	A		E	N/A		3
Plants	N/A	<input type="checkbox"/>	<i>Carex glaucescens</i>		Southern waxy sedge			G4	S1	A		E	N/A		28
Plants	N/A	<input type="checkbox"/>	<i>Carex haydenii</i>		Cloud sedge			G5	S1	A		E	N/A		22, 23
Plants	N/A	<input type="checkbox"/>	<i>Carex hitchcockiana</i>		Hitchcock's sedge			G5	S1	A		E	N/A		6, 7
Plants	N/A	<input type="checkbox"/>	<i>Carex hyalinolepis</i>		Shoreline sedge			G4G5	S2S3	B			N/A		35
Plants	N/A	<input type="checkbox"/>	<i>Carex hystericina</i>		Porcupine sedge			G5	S1	A		E	N/A		11
Plants	N/A	<input type="checkbox"/>	<i>Carex interior</i>		Inland sedge			G5	S1	A			N/A		11
Plants	N/A	<input type="checkbox"/>	<i>Carex lacustris</i>		Lake-bank sedge			G5	S2	B			N/A		21
Plants	N/A	<input type="checkbox"/>	<i>Carex lasiocarpa</i>		Slender sedge			G5T5	S1	A		E	N/A		21
Plants	N/A	<input type="checkbox"/>	<i>Carex lucorum</i>		Blue ridge sedge			G5	S1	A			N/A		4
Plants	N/A	<input type="checkbox"/>	<i>Carex meadii</i>		Mead's sedge			G4G5	S1	A		E	N/A		11
Plants	N/A	<input type="checkbox"/>	<i>Carex mitchelliana</i>		Mitchell's sedge			G4	S2	B			N/A		34
Plants	N/A	<input type="checkbox"/>	<i>Carex oxylepis</i>		Sharp-scale sedge			G5?	S1	A			N/A		20
Plants	N/A	<input type="checkbox"/>	<i>Carex pedunculata</i>		Long-stalked sedge			G5	S1	A		E	N/A		14
Plants	N/A	<input type="checkbox"/>	<i>Carex planispicata</i>		Flat-spiked sedge			G4Q	S1S2	A			N/A		14
Plants	N/A	<input type="checkbox"/>	<i>Carex projecta</i>		Necklace sedge			G5	S2	B			N/A		21
Plants	N/A	<input type="checkbox"/>	<i>Carex richardsonii</i>		Richardson's sedge			G5	S1	A		E	N/A		11
Plants	N/A	<input type="checkbox"/>	<i>Carex silicea</i>		Seabeach sedge			G5	S1	A		E	N/A		17

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Plants	N/A	<input type="checkbox"/>	<i>Carex straminea</i>		Eastern straw sedge			G5	S1S2				N/A		26
Plants	N/A	<input type="checkbox"/>	<i>Carex tetanica</i> var. <i>canbyi</i>		Rigid sedge			G4G5T1T2Q	S1			E	N/A		56
Plants	N/A	<input type="checkbox"/>	<i>Carex trichocarpa</i>		Hairy-fruited sedge			G4	S2	B			N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Carex tuckermanii</i>		Tuckerman's sedge			G5	S1			E	N/A		21
Plants	N/A	<input type="checkbox"/>	<i>Carex vesicaria</i>		Inflated sedge			G5	S1			T	N/A		21
Plants	N/A	<input type="checkbox"/>	<i>Carex vestita</i>		Velvety sedge			G5	S2			T	N/A		56
Plants	N/A	<input type="checkbox"/>	<i>Carya laciniosa</i>		Big shellbark hickory			G5	S1			E	N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Castanea dentata</i>		American chestnut			G3	S2S3				N/A		5
Plants	N/A	<input type="checkbox"/>	<i>Castilleja coccinea</i>		Scarlet Indian-paintbrush			G5	S1	A		E	N/A		22, 23
Plants	N/A	<input type="checkbox"/>	<i>Centrosema virginianum</i>		Coastal butterfly pea			G5	S2	B			N/A		8, 9
Plants	N/A	<input type="checkbox"/>	<i>Cerastium velutinum</i> var. <i>villosissimum</i>		Octoraro Creek chickweed			G5T1	S1	A			N/A		11
Plants	N/A	<input type="checkbox"/>	<i>Chamaecrista fasciculata</i> var. <i>macrosperma</i>		Partridge pea			G5T3	S1	A		E	N/A		34
Plants	N/A	<input type="checkbox"/>	<i>Chamaedaphne calyculata</i>		Leatherleaf			G5	S1	A		T	N/A		28
Plants	N/A	<input type="checkbox"/>	<i>Chamaelirium luteum</i>		Devil's-bit			G4G5	S2	B			N/A		5
Plants	N/A	<input type="checkbox"/>	<i>Chamaepericlymenum canadense</i>		Bunchberry			G5	S1			E	N/A		2
Plants	N/A	<input type="checkbox"/>	<i>Chelone obliqua</i>		Red turtlehead			G4	S2			T	N/A		27
Plants	N/A	<input type="checkbox"/>	<i>Chenopodium simplex</i>		Giant-seed goosefoot			G5	S2			T	N/A		1
Plants	N/A	<input type="checkbox"/>	<i>Chenopodium standleyanum</i>		Standley's goosefoot			G5	S2S3	B			N/A		14
Plants	N/A	<input type="checkbox"/>	<i>Cicuta bulbifera</i>		Bulb-bearing water-hemlock			G5	S1	A		E	N/A		27
Plants	N/A	<input type="checkbox"/>	<i>Cleisteslopsis divaricata</i>		Spreading pogonia			G4	S1	A		E	N/A		28
Plants	N/A	<input type="checkbox"/>	<i>Clematis occidentalis</i>		Purple clematis			G5	S1	A		E	N/A		2
Plants	N/A	<input type="checkbox"/>	<i>Clintonia alleghaniensis</i>		Harned's clintonia			G1Q	S1	A			N/A		2
Plants	N/A	<input type="checkbox"/>	<i>Clintonia borealis</i>		Clinton lily			G5	S2	B		T	N/A		2
Plants	N/A	<input type="checkbox"/>	<i>Convolvulus spithamea</i>		Low bindweed			G4G5T4T5	S2	B			N/A		14
Plants	N/A	<input type="checkbox"/>	<i>Coptis trifolia</i>		Goldthread			G5	S1	A		E	N/A		2
Plants	N/A	<input type="checkbox"/>	<i>Corallorhiza trifida</i>		Early coralroot			G5	S1	A		E	N/A		22, 23
Plants	N/A	<input type="checkbox"/>	<i>Corallorhiza wisteriana</i>		Spring coralroot			G5	S1	A		E	N/A		6, 7
Plants	N/A	<input type="checkbox"/>	<i>Coreopsis rosea</i>		Rose coreopsis			G3	S1	A		E	N/A		29
Plants	N/A	<input type="checkbox"/>	<i>Coreopsis tripteris</i>		Tall tickseed			G5	S1	A		E	N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Coryphopteris simulata</i>		Bog fern			G4G5	S2	B		T	N/A		27
Plants	N/A	<input type="checkbox"/>	<i>Crassula aquatica</i>		Water pygmyweed			G5	S1	A		E	N/A		37

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Plants	N/A	<input type="checkbox"/>	<i>Crocianthemum bicknellii</i>		Plains frostweed			G5	S1	A		E	N/A		11
Plants	N/A	<input type="checkbox"/>	<i>Cuscuta coryli</i>		Hazel dodder			G4	S1	A			N/A		33
Plants	N/A	<input type="checkbox"/>	<i>Cuscuta polygonorum</i>		Smartweed dodder			G4G5	S1	A		E	N/A		20
Plants	N/A	<input type="checkbox"/>	<i>Cuscuta rostrata</i>		Beaked dodder			G4	S1	A		E	N/A		1
Plants	N/A	<input type="checkbox"/>	<i>Cyperus diandrus</i>		Umbrella flats flatsedge			G5?	S1	A			N/A		18
Plants	N/A	<input type="checkbox"/>	<i>Cyperus houghtonii</i>		Houghton's umbrella-sedge			G4?	S1	A			N/A		13
Plants	N/A	<input type="checkbox"/>	<i>Cyperus hystricinus</i>		Flatsedge			G4	S2	B			N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Cyperus lancastriensis</i>		Many-flowered umbrella-sedge			G5	S2S3	B			N/A		8, 9
Plants	N/A	<input type="checkbox"/>	<i>Cyperus plukenetii</i>		Plukenet's flatsedge			G5	S1	A		E	N/A		8, 9
Plants	N/A	<input type="checkbox"/>	<i>Cyperus retrofractus</i>		Rough flatsedge			G5	S2	B			N/A		8, 9
Plants	N/A	<input type="checkbox"/>	<i>Cyperus subsquarrosus</i>		Dwarf bulrush			G5	S1	A		E	N/A		20
Plants	N/A	<input type="checkbox"/>	<i>Cypripedium candidum</i>		Small white lady's-slipper			G4	S1	A		E	N/A		6, 7
Plants	N/A	<input type="checkbox"/>	<i>Cystopteris tennesseensis</i>		Tennessee bladderfern			G5	S1	A			N/A		58
Plants	N/A	<input type="checkbox"/>	<i>Dactylorhiza viridis</i>		Long-bract green orchis			G5	S1	A		E	N/A		2
Plants	N/A	<input type="checkbox"/>	<i>Delphinium exaltatum</i>		Tall larkspur			G3	S1	A		E	N/A		14
Plants	N/A	<input type="checkbox"/>	<i>Deschampsia cespitosa</i>		Tufted hairgrass			G5	S1	A		E	N/A		11
Plants	N/A	<input type="checkbox"/>	<i>Desmodium cuspidatum</i>		Toothed tick-trefoil			G5	S1	A			N/A		12
Plants	N/A	<input type="checkbox"/>	<i>Desmodium fernaldii</i>		Fernald's tick-trefoil			G4	S1	A			N/A		8, 9
Plants	N/A	<input type="checkbox"/>	<i>Desmodium obtusum</i>		Stiff tick-trefoil			G4G5	S1	A		E	N/A		8, 9
Plants	N/A	<input type="checkbox"/>	<i>Desmodium ochroleucum</i>		Cream tick-trefoil			G2G3	S1	A		E	N/A		14
Plants	N/A	<input type="checkbox"/>	<i>Desmodium strictum</i>		Pineland tick-trefoil			G4	S1	A		E	N/A		8, 9
Plants	N/A	<input type="checkbox"/>	<i>Dicentra eximia</i>		Wild bleedinghearts			G4	S2	B		T	N/A		13
Plants	N/A	<input type="checkbox"/>	<i>Dichanthelium annulum</i>		Ringed witchgrass			G4	S1	A			N/A		14
Plants	N/A	<input type="checkbox"/>	<i>Dichanthelium filiramum</i>		Hairy needle-leaved witchgrass			GNR	S2	B			N/A		8, 9
Plants	N/A	<input type="checkbox"/>	<i>Dichanthelium oligosanthes</i> var. <i>oligosanthes</i>		Few-flowered witchgrass			G5T5?	S2S3	B			N/A		8, 9
Plants	N/A	<input type="checkbox"/>	<i>Dichanthelium oligosanthes</i> var. <i>scribnerianum</i>		Scribner's witchgrass			G5T5	S2	B			N/A		11
Plants	N/A	<input type="checkbox"/>	<i>Dichanthelium ravenelii</i>		Ravenel's witchgrass			G5	S1	A			N/A		4
Plants	N/A	<input type="checkbox"/>	<i>Dichanthelium scabriusculum</i>		Tall swamp witchgrass			G4	S1	A		T	N/A		28

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Plants	N/A	<input type="checkbox"/>	<i>Dichanthelium tenue</i>	<i>Panicum tenue</i> , <i>Dichanthelium dichotomum</i> var. <i>tenue</i>	White-edged witchgrass			GNR	S1	A			N/A		28
Plants	N/A	<input type="checkbox"/>	<i>Dichanthelium wrightianum</i>		Wright's witchgrass			G4	S1	A		E	N/A		29
Plants	N/A	<input type="checkbox"/>	<i>Dirca palustris</i>		Eastern leatherwood			G5	S2	B		T	N/A		6, 7
Plants	N/A	<input type="checkbox"/>	<i>Drosera brevifolia</i>	<i>Drosera leucantha</i>	Dwarf sundew			G5	S1	A			N/A		28
Plants	N/A	<input type="checkbox"/>	<i>Drosera capillaris</i>		Pink sundew			G5	S1	A		E	N/A		28
Plants	N/A	<input type="checkbox"/>	<i>Dryopteris campyloptera</i>		Mountain woodfern			G5	S1	A		E	N/A		1
Plants	N/A	<input type="checkbox"/>	<i>Dryopteris clintoniana</i>		Clinton's woodfern			G5	S1	A		E	N/A		27
Plants	N/A	<input type="checkbox"/>	<i>Dryopteris goldieana</i>		Goldie's fern			G4G5	S2	B			N/A		6, 7
Plants	N/A	<input type="checkbox"/>	<i>Echinodorus cordifolius</i>		Creeping burhead			G5	S1	A		E	N/A		20
Plants	N/A	<input type="checkbox"/>	<i>Eleocharis albidia</i>		White spikerush			G4G5	S2S3	B			N/A		36
Plants	N/A	<input type="checkbox"/>	<i>Eleocharis compressa</i> var. <i>compressa</i>		Flat-stem spikerush			GNRT4	S1	A		E	N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Eleocharis equisetoides</i>		Horsetail spikerush			G4	S1	A		E	N/A		28
Plants	N/A	<input type="checkbox"/>	<i>Eleocharis halophila</i>		Saltmarsh spikerush			G4Q	S1	A		E	N/A		36
Plants	N/A	<input type="checkbox"/>	<i>Eleocharis intermedia</i>		Matted spikerush			G5	S1	A		E	N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Eleocharis melanocarpa</i>		Black-fruit spikerush			G4	S1	A		E	N/A		29
Plants	N/A	<input type="checkbox"/>	<i>Eleocharis robbinsii</i>		Robbins' spikerush			G4G5	S1	A		E	N/A		29
Plants	N/A	<input type="checkbox"/>	<i>Eleocharis tricostata</i>		Three-angle spikerush			G4	S1	A		E	N/A		26
Plants	N/A	<input type="checkbox"/>	<i>Elephantopus tomentosus</i>		Tobaccoweed			G5	S2	B		T	N/A		8, 9
Plants	N/A	<input type="checkbox"/>	<i>Epilobium densum</i>		Downy willowherb			G5	S1	A		E	N/A		22, 23
Plants	N/A	<input type="checkbox"/>	<i>Epilobium leptophyllum</i>		Linear-leaf willowherb			G5	S2S3	B			N/A		22, 23
Plants	N/A	<input type="checkbox"/>	<i>Equisetum fluviatile</i>		Water horsetail			G5	S1	A		E	N/A		34
Plants	N/A	<input type="checkbox"/>	<i>Equisetum sylvaticum</i>		Woodland horsetail			G5	S1	A		E	N/A		22, 23
Plants	N/A	<input type="checkbox"/>	<i>Erianthus strictus</i>		Slender plume grass			G5	S1	A		E	N/A		56
Plants	N/A	<input type="checkbox"/>	<i>Erigeron pulchellus</i> var. <i>brauniae</i>		Braun's robin's-plantain			G5T4	S1	A			N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Eriocaulon aquaticum</i>		Seven-angle pipewort			G5	S1	A		E	N/A		28
Plants	N/A	<input type="checkbox"/>	<i>Eriocaulon compressum</i>		Flattened pipewort			G5	S2	B			N/A		28
Plants	N/A	<input type="checkbox"/>	<i>Eriocaulon decangulare</i>		Ten-angle pipewort			G5	S1	A			N/A		28

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Plants	N/A	<input type="checkbox"/>	<i>Eriocaulon parkeri</i>		Parker's pipewort			G3	S2	A		T	N/A		34
Plants	N/A	<input type="checkbox"/>	<i>Eriophorum gracile</i>		Slender cottongrass			G5	S1	A		E	N/A		21
Plants	N/A	<input type="checkbox"/>	<i>Erythronium albidum</i>		White trout lily			G5	S2	B		T	N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Eupatorium leucolepis</i>		White-bracted boneset			G5	S2S3	B		T	N/A		28
Plants	N/A	<input type="checkbox"/>	<i>Euphorbia purpurea</i>		Glade spurge			G3	S1	A		E	N/A		22, 23
Plants	N/A	<input type="checkbox"/>	<i>Euphorbia spathulata</i>		Warty spurge			G5	S1	A		E	N/A		14
Plants	N/A	<input type="checkbox"/>	<i>Eurybia radula</i>		Low rough aster			G5	S1	A		E	N/A		24
Plants	N/A	<input type="checkbox"/>	<i>Eurybia spectabilis</i>		Low showy aster			G5	S1	A		E	N/A		56
Plants	N/A	<input type="checkbox"/>	<i>Filipendula rubra</i>		Queen-of-the-prairie			G4G5	S1	A		E	N/A		22, 23
Plants	N/A	<input type="checkbox"/>	<i>Fimbristylis caroliniana</i>		Carolina fimbry			G4	S1S2	A			N/A		10
Plants	N/A	<input type="checkbox"/>	<i>Fimbristylis perpusilla</i>		Harper's fimbriatylis			G2	S2	A		E	N/A		29
Plants	N/A	<input type="checkbox"/>	<i>Fraxinus caroliniana</i>		Carolina ash			G4G5	S2	B			N/A		33
Plants	N/A	<input type="checkbox"/>	<i>Fuirena pumila</i>		Dwarf umbrella-sedge			G5	S2S3	B			N/A		34
Plants	N/A	<input type="checkbox"/>	<i>Galium boreale</i>		Northern bedstraw			G5	S1	A		E	N/A		15
Plants	N/A	<input type="checkbox"/>	<i>Galium hispidulum</i>		Coast bedstraw			G5	S1	A		E	N/A		10
Plants	N/A	<input type="checkbox"/>	<i>Gaultheria hispidula</i>		Creeping snowberry			G5	S1	A		E	N/A		21
Plants	N/A	<input type="checkbox"/>	<i>Gaylussacia brachycera</i>		Box huckleberry			G3	S1	A		E	N/A		8, 9
Plants	N/A	<input type="checkbox"/>	<i>Gaylussacia dumosa</i>		Dwarf huckleberry			G5	S1	A		E	N/A		27
Plants	N/A	<input type="checkbox"/>	<i>Gentiana andrewsii</i>		Fringe-top bottle gentian			G5	S2	B		T	N/A		22, 23
Plants	N/A	<input type="checkbox"/>	<i>Gentiana villosa</i>		Striped gentian			G4	S1	A		E	N/A		13
Plants	N/A	<input type="checkbox"/>	<i>Gentianella quinquefolia</i>		Stiff gentian			G5	S1	A		E	N/A		56
Plants	N/A	<input type="checkbox"/>	<i>Gentianopsis crinita</i>		Fringed gentian			G5	S1	A		E	N/A		24
Plants	N/A	<input type="checkbox"/>	<i>Geocarpon glabrum</i>		Appalachian sandwort			G4	S1	A		E	N/A		15
Plants	N/A	<input type="checkbox"/>	<i>Geum aleppicum</i>		Yellow avens			G5	S1	A		E	N/A		21
Plants	N/A	<input type="checkbox"/>	<i>Glyceria acutiflora</i>		Sharp-scaled mannagrass			G5	S1	A		E	N/A		29
Plants	N/A	<input type="checkbox"/>	<i>Glyceria grandis</i>		American mannagrass			G5	S1	A		E	N/A		21
Plants	N/A	<input type="checkbox"/>	<i>Gonolobus suberosus</i> var. <i>suberosus</i>		Angular-fruit milkvine			G5T5	S2	B			N/A		6, 7
Plants	N/A	<input type="checkbox"/>	<i>Gratiola viscidula</i>		Short's hedge-hyssop			G4G5	S1	A		E	N/A		26
Plants	N/A	<input type="checkbox"/>	<i>Gymnocarpium dryopteris</i>		Northern oak fern			G5	S1	A		E	N/A		3
Plants	N/A	<input type="checkbox"/>	<i>Gymnopogon brevifolius</i>		Shortleaf beardgrass			G5	S1	A		E	N/A		56
Plants	N/A	<input type="checkbox"/>	<i>Harperella nodosa</i>		Harperella			G2	S1	A	LE	E	N/A		19

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Plants	N/A	<input type="checkbox"/>	<i>Hasteola suaveolens</i>		Sweet-scented Indian-plantain			G4	S1	A		E	N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Helianthus hirsutus</i>		Stiff-hair sunflower			G5	S1	A			N/A		12
Plants	N/A	<input type="checkbox"/>	<i>Helianthus laevigatus</i>		Smooth sunflower			G4	S1	A		E	N/A		12
Plants	N/A	<input type="checkbox"/>	<i>Helianthus occidentalis</i>		McDowell's sunflower			G5	S1	A		T	N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Helonias bullata</i>		Swamp pink			G3	S2	A	LT	E	N/A		24
Plants	N/A	<input type="checkbox"/>	<i>Hexalectris spicata</i>		Crested coralroot			G5	S1	A		E	N/A		14
Plants	N/A	<input type="checkbox"/>	<i>Hexastylis virginica</i>		Virginia heartleaf			G4	S1	A		E	N/A		6, 7
Plants	N/A	<input type="checkbox"/>	<i>Hierochloa hirta</i>		Vanilla grass			G5	S1	A		E	N/A		11
Plants	N/A	<input type="checkbox"/>	<i>Homalosorus pycnocarpus</i>		Glade fern			G5	S2	B		T	N/A		6, 7
Plants	N/A	<input type="checkbox"/>	<i>Honckenya peploides</i>		Sea chickweed			G5	S1	A		E	N/A		18
Plants	N/A	<input type="checkbox"/>	<i>Hottonia inflata</i>		Featherfoil			G4	S1	A		T	N/A		29
Plants	N/A	<input type="checkbox"/>	<i>Houstonia tenuifolia</i>		Slender-leaved bluets			G5T4T5	S1	A			N/A		13
Plants	N/A	<input type="checkbox"/>	<i>Hudsonia ericoides</i>		Golden heather			G4	S1	A		E	N/A		8, 9
Plants	N/A	<input type="checkbox"/>	<i>Hydrastis canadensis</i>		Golden-seal			G3G4	S2	A		T	N/A		6, 7
Plants	N/A	<input type="checkbox"/>	<i>Hydrophyllum macrophyllum</i>		Large-leaf waterleaf			G5	S2	B		T	N/A		6, 7
Plants	N/A	<input type="checkbox"/>	<i>Hylodesmum pauciflorum</i>		Few-flowered tick-trefoil			G5	S2	B		E	N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Hypericum adpressum</i>		Creeping St. John's-wort			G3	S1	A		E	N/A		29
Plants	N/A	<input type="checkbox"/>	<i>Hypericum denticulatum</i>		Coppery St. John's-wort			G5	S2	B		T	N/A		29
Plants	N/A	<input type="checkbox"/>	<i>Ilex decidua</i>		Deciduous holly			G5	S2	B			N/A		20
Plants	N/A	<input type="checkbox"/>	<i>Iresine rhizomatosa</i>		Eastern bloodleaf			G5	S1	A		E	N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Iris cristata</i>		Dwarf crested iris			G5	S1	A		E	N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Iris prismatica</i>		Slender blueflag			G4G5	S2	B		E	N/A		20
Plants	N/A	<input type="checkbox"/>	<i>Iris verna</i> var. <i>verna</i>		Dwarf iris			G5T5	S1	A		E	N/A		56
Plants	N/A	<input type="checkbox"/>	<i>Iris verna</i> var. <i>smalliana</i>		Upland dwarf iris			G4T4T5	S1	A			N/A		6, 7
Plants	N/A	<input type="checkbox"/>	<i>Isotrema macrophyllum</i>		Pipevine			G5	S2	B		T	N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Juglans cinerea</i>		Butternut			G3	S2S3	A			N/A		6, 7
Plants	N/A	<input type="checkbox"/>	<i>Juncus articulatus</i>		Jointed rush			G5	S1	A			N/A		21
Plants	N/A	<input type="checkbox"/>	<i>Juncus caesariensis</i>		New Jersey rush			G2G3	S1	A		E	N/A		27
Plants	N/A	<input type="checkbox"/>	<i>Juncus elliotii</i>		Elliott's rush			G4G5	S1	A			N/A		28
Plants	N/A	<input type="checkbox"/>	<i>Juncus longii</i>		Long's rush			G3Q	S1	A		E	N/A		28
Plants	N/A	<input type="checkbox"/>	<i>Juncus pelocarpus</i>		Brown-fruit rush			G5	S1	A		E	N/A		28
Plants	N/A	<input type="checkbox"/>	<i>Juncus tweedyi</i>		Narrow-panicle rush			G5	S2	B			N/A		21
Plants	N/A	<input type="checkbox"/>	<i>Krigia dandelion</i>		Potato dwarf-dandelion			G5	S2S3	B			N/A		8, 9
Plants	N/A	<input type="checkbox"/>	<i>Lachnanthes caroliniana</i>		Red root			G4	S1	A		E	N/A		29

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Plants	N/A	<input type="checkbox"/>	<i>Lactuca hirsuta</i>		Hairy lettuce			G5?	S1	A			N/A		4
Plants	N/A	<input type="checkbox"/>	<i>Larix laricina</i>		American larch			G5	S1	A		E	N/A		21
Plants	N/A	<input type="checkbox"/>	<i>Lathyrus palustris</i>		Vetchling peavine			G5	S1	A		E	N/A		34
Plants	N/A	<input type="checkbox"/>	<i>Leersia hexandra</i>		Club-head cutgrass			G5	S1	A		E	N/A		29
Plants	N/A	<input type="checkbox"/>	<i>Leersia lenticularis</i>		Catchfly cutgrass			G5	S1	A		E	N/A		26
Plants	N/A	<input type="checkbox"/>	<i>Lemna trisulca</i>		Star duckweed			G5	S1	A		E	N/A		26
Plants	N/A	<input type="checkbox"/>	<i>Liatris spicata</i>		Prairie blazing star			G5	S1	A			N/A		11
Plants	N/A	<input type="checkbox"/>	<i>Liatris squarrosa</i>		Scaly gayfeather			G5	S1	A		E	N/A		8, 9
Plants	N/A	<input type="checkbox"/>	<i>Limnobium spongia</i>		American frog's-bit			G4	S1	A		E	N/A		20
Plants	N/A	<input type="checkbox"/>	<i>Limosella australis</i>		Mudwort			G5	S2	B		E	N/A		37
Plants	N/A	<input type="checkbox"/>	<i>Linum intercursum</i>		Sandplain flax			G4	S2	B		T	N/A		8, 9
Plants	N/A	<input type="checkbox"/>	<i>Linum sulcatum</i>		Grooved yellow flax			G5	S1	A		E	N/A		11
Plants	N/A	<input type="checkbox"/>	<i>Liparis loeselii</i>		Loesel's twayblade			G5	S1S2	A			N/A		22, 23
Plants	N/A	<input type="checkbox"/>	<i>Lithospermum latifolium</i>		American gromwell			G4	S1	A		E	N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Lithospermum parviflorum</i>		Hairy false gromwell			G4G5T4	S1	A		E	N/A		14
Plants	N/A	<input type="checkbox"/>	<i>Lithospermum virginianum</i>		Virginia false gromwell			G4	S1	A		E	N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Litsea aestivalis</i>		Pondspice			G3?	S1	A		E	N/A		29
Plants	N/A	<input type="checkbox"/>	<i>Lobelia canbyi</i>		Canby's lobelia			G4	S2	B		E	N/A		29
Plants	N/A	<input type="checkbox"/>	<i>Lonicera canadensis</i>		American fly honeysuckle			G5	S1	A		E	N/A		2
Plants	N/A	<input type="checkbox"/>	<i>Ludwigia decurrens</i>		Primrose-willow			G5	S2S3	B			N/A		20
Plants	N/A	<input type="checkbox"/>	<i>Ludwigia hirtella</i>		Hairy ludwigia			G5	S1	A		E	N/A		56
Plants	N/A	<input type="checkbox"/>	<i>Lupinus perennis</i>		Sundial lupine			G5	S2	B		T	N/A		8, 9
Plants	N/A	<input type="checkbox"/>	<i>Lycopodiella inundata</i>		Bog clubmoss			G5	S2	B			N/A		2
Plants	N/A	<input type="checkbox"/>	<i>Lycopus amplexans</i>		Sessile-leaf bugleweed			G5	S1	A		E	N/A		27
Plants	N/A	<input type="checkbox"/>	<i>Lygodium palmatum</i>		Climbing fern			G4	S2	B		T	N/A		26
Plants	N/A	<input type="checkbox"/>	<i>Lysimachia thyrsiflora</i>		Water loosestrife			G5	S1	A		E	N/A		27
Plants	N/A	<input type="checkbox"/>	<i>Lythrum alatum</i>		Winged loosestrife			G5	S1	A		E	N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Maianthemum stellatum</i>		Starflower Solomon's-plume			G5	S2	B		E	N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Malaxis unifolia</i>		Green adder's-mouth orchid			G5	S2	B			N/A		5
Plants	N/A	<input type="checkbox"/>	<i>Matelea carolinensis</i>		Carolina anglepod			G4	S2S3	B		T	N/A		8, 9
Plants	N/A	<input type="checkbox"/>	<i>Matelea obliqua</i>		Climbing milkweed			G4?	S1S2	A		E	N/A		14
Plants	N/A	<input type="checkbox"/>	<i>Matteuccia struthiopteris</i>		Ostrich fern			G5	S2S3	B			N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Mecardonia acuminata</i>		Purple mecardonia			G5	S2	B		E	N/A		19

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Plants	N/A	<input type="checkbox"/>	<i>Melica nitens</i>		Three-flower melicgrass			G5	S2	B		T	N/A		14
Plants	N/A	<input type="checkbox"/>	<i>Menyanthes trifoliata</i>		Bog buckbean			G5	S1	A		E	N/A		21
Plants	N/A	<input type="checkbox"/>	<i>Mnesithea rugosa</i>		Wrinkled joingrass			G5	S1	A		E	N/A		29
Plants	N/A	<input type="checkbox"/>	<i>Moehringia lateriflora</i>		Grove sandwort			G5	S1	A		E	N/A		21
Plants	N/A	<input type="checkbox"/>	<i>Monotropsis odorata</i>		Sweet pinesap			G3	S1	A		E	N/A		4
Plants	N/A	<input type="checkbox"/>	<i>Morella carolinensis</i>		Evergreen bayberry			G5	S2	B		T	N/A		27
Plants	N/A	<input type="checkbox"/>	<i>Muhlenbergia capillaris</i>		Hair-awn muhly			G5	S1	A		E	N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Muhlenbergia torreyana</i>		Torrey's dropseed			G3	S1	A		E	N/A		29
Plants	N/A	<input type="checkbox"/>	<i>Myriophyllum heterophyllum</i>		Broadleaf water-milfoil			G5	S1	A			N/A		57
Plants	N/A	<input type="checkbox"/>	<i>Myriophyllum verticillatum</i>		Whorled water-milfoil			G5	S1	A			N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Nabalus autumnalis</i>		Slender rattlesnake-root			G4G5	S1	A		E	N/A		56
Plants	N/A	<input type="checkbox"/>	<i>Napaea dioica</i>		Glade mallow			G4	S1	A		E	N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Nemophila aphylla</i>		Small-flower baby-blue-eyes			G5	S2	B			N/A		20
Plants	N/A	<input type="checkbox"/>	<i>Neottia smallii</i>		Kidneyleaf twayblade			G4	S1	A		E	N/A		2
Plants	N/A	<input type="checkbox"/>	<i>Nymphoides aquatica</i>		Big floatingheart			G5	S1	A		E	N/A		29
Plants	N/A	<input type="checkbox"/>	<i>Nymphoides cordata</i>		Little floatingheart			G5	S1	A		E	N/A		26
Plants	N/A	<input type="checkbox"/>	<i>Oreojuncus trifidus</i>		Highland rush			G5	S1	A		E	N/A		15
Plants	N/A	<input type="checkbox"/>	<i>Oryzopsis asperifolia</i>		Roughleaf ricegrass			G5	S2	B		T	N/A		14
Plants	N/A	<input type="checkbox"/>	<i>Oxydendrum arboreum</i>		Sourwood			G5	S1	A		E	N/A		5
Plants	N/A	<input type="checkbox"/>	<i>Panax quinquefolius</i>		American ginseng			G3G4	S2S3	A			N/A		6, 7
Plants	N/A	<input type="checkbox"/>	<i>Panicum flexile</i>		Wiry witch grass			G5	S1	A		E	N/A		14
Plants	N/A	<input type="checkbox"/>	<i>Parnassia asarifolia</i>		Kidneyleaf grass-of-parnassus			G4	S1	A		E	N/A		28
Plants	N/A	<input type="checkbox"/>	<i>Paronychia virginica</i>		Yellow nailwort			G4	S1	A		E	N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Parthenium integrifolium</i>		American feverfew			G5	S1	A		E	N/A		14
Plants	N/A	<input type="checkbox"/>	<i>Paspalum dissectum</i>		Walter's paspalum			G4?	S2	B		T	N/A		29
Plants	N/A	<input type="checkbox"/>	<i>Paspalum fluitans</i>		Horse-tail paspalum			G5	S2	B		T	N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Patis racemosa</i>		Mountain-ricegrass			G5	S2S3	B			N/A		4
Plants	N/A	<input type="checkbox"/>	<i>Paxistima canbyi</i>		Canby's mountain-lover			G2?	S1	A		E	N/A		15
Plants	N/A	<input type="checkbox"/>	<i>Pedicularis lanceolata</i>		Swamp lousewort			G4	S1	A		E	N/A		6, 7
Plants	N/A	<input type="checkbox"/>	<i>Pellaea glabella</i>		Smooth cliffbrake			G5	S1	A		E	N/A		15
Plants	N/A	<input type="checkbox"/>	<i>Penstemon pallidus</i>		Pale beardtongue			G5	S1	A			N/A		14

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Plants	N/A	<input type="checkbox"/>	<i>Phacelia covillei</i>		Coville's phacelia			G3	S2	A		T	N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Phegopteris connectilis</i>		Northern beechfern			G5	S2	B			N/A		15
Plants	N/A	<input type="checkbox"/>	<i>Phemeranthus teretifolius</i>		Roundleaf fameflower			G4	S2	B		T	N/A		11
Plants	N/A	<input type="checkbox"/>	<i>Phlox glaberrima</i>		Smooth phlox			G5	S1	A		E	N/A		14
Plants	N/A	<input type="checkbox"/>	<i>Phlox pilosa</i>		Downy phlox			G5	S1	A		E	N/A		14
Plants	N/A	<input type="checkbox"/>	<i>Platanthera blephariglottis</i>		White fringed orchid			G4G5	S2	B		T	N/A		28
Plants	N/A	<input type="checkbox"/>	<i>Platanthera ciliaris</i>		Yellow fringed orchid			G5	S2	B		T	N/A		22, 23
Plants	N/A	<input type="checkbox"/>	<i>Platanthera flava</i>		Pale green orchid			G4?	S2S3	B			N/A		22, 23
Plants	N/A	<input type="checkbox"/>	<i>Platanthera grandiflora</i>		Large purple fringed orchid			G5	S2	B		T	N/A		22, 23
Plants	N/A	<input type="checkbox"/>	<i>Platanthera peramoena</i>		Purple fringeless orchid			G5	S1S2	A		T	N/A		22, 23
Plants	N/A	<input type="checkbox"/>	<i>Platanthera psycodes</i>		Small purple fringed orchid			G5	S1	A		X	N/A		22, 23
Plants	N/A	<input type="checkbox"/>	<i>Platanthera shriveri</i>		Shriver's frilly orchid			G1	S1	A			N/A		22, 23
Plants	N/A	<input type="checkbox"/>	<i>Pluchea camphorata</i>		Marsh fleabane			G5	S2	B		T	N/A		20
Plants	N/A	<input type="checkbox"/>	<i>Poa palustris</i>		Fowl bluegrass			G5	S1	A			N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Poa saltuensis</i>		Drooping bluegrass			G5	S1	A		E	N/A		3
Plants	N/A	<input type="checkbox"/>	<i>Polanisia dodecandra</i>		Common clammyweed			G5	S1	A		E	N/A		17
Plants	N/A	<input type="checkbox"/>	<i>Polemonium vanbruntiae</i>		Bog Jacob's ladder			G3G4	S2	B		T	N/A		21
Plants	N/A	<input type="checkbox"/>	<i>Polygala cruciata</i>	<i>Senega cruciata</i>	Crossleaf milkwort			G5	S2	B		T	N/A		28
Plants	N/A	<input type="checkbox"/>	<i>Polygonum glaucum</i>		Seabeach knotweed			G3	S1	A		E	N/A		17
Plants	N/A	<input type="checkbox"/>	<i>Potamogeton amplifolius</i>		Large-leaved pondweed			G5	S1S2	A			N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Potamogeton foliosus</i>		Leafy pondweed			G5	S2	B			N/A		20
Plants	N/A	<input type="checkbox"/>	<i>Potamogeton illinoensis</i>		Illinois pondweed			G5	S2	B			N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Potamogeton zosteriformis</i>		Flatstem pondweed			G5	S1	A		E	N/A		57
Plants	N/A	<input type="checkbox"/>	<i>Prunus alleghaniensis</i>		Allegheny plum			G4	S2	B		T	N/A		12
Plants	N/A	<input type="checkbox"/>	<i>Prunus maritima</i>		Beach plum			G4	S1	A		E	N/A		17
Plants	N/A	<input type="checkbox"/>	<i>Pseudolycopodiella caroliniana</i>		Carolina clubmoss			G4	S1	A		E	N/A		27
Plants	N/A	<input type="checkbox"/>	<i>Pycnanthemum torreyi</i>		Torrey's mountainmint			G2	S1	A		E	N/A		14
Plants	N/A	<input type="checkbox"/>	<i>Pycnanthemum verticillatum</i>		Whorled mountainmint			G5	S2	B		T	N/A		24
Plants	N/A	<input type="checkbox"/>	<i>Pycnanthemum virginianum</i>		Virginia mountainmint			G5	S2	B			N/A		4
Plants	N/A	<input type="checkbox"/>	<i>Quercus macrocarpa</i>		Bur oak			G5	S1S2	A			N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Quercus shumardii</i>		Shumard oak			G5	S2	B		T	N/A		6, 7

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Plants	N/A	<input type="checkbox"/>	<i>Ranunculus ambigens</i>		Water-plantain spearwort			G4	S1	A			N/A		20
Plants	N/A	<input type="checkbox"/>	<i>Ranunculus fascicularis</i>		Early buttercup			G5	S1	A		E	N/A		14
Plants	N/A	<input type="checkbox"/>	<i>Ranunculus flabellaris</i>		Yellow water-crowfoot			G5	S1	A		E	N/A		20
Plants	N/A	<input type="checkbox"/>	<i>Ranunculus hederaceus</i>		Northeastern white water-crowfoot			G5	S1	A		E	N/A		24
Plants	N/A	<input type="checkbox"/>	<i>Ranunculus laxicaulis</i>		Mississippi buttercup			G5?	S1	A		E	N/A		20
Plants	N/A	<input type="checkbox"/>	<i>Ranunculus trichophyllus</i>		Northeastern white water crowfoot			G5	S1	A		E	N/A		20
Plants	N/A	<input type="checkbox"/>	<i>Rhamnus alnifolia</i>		Alderleaf buckthorn			G5	S1	A			N/A		21
Plants	N/A	<input type="checkbox"/>	<i>Rhynchosia tomentosa</i>		Hairy snoutbean			G5	S2	B		T	N/A		8, 9
Plants	N/A	<input type="checkbox"/>	<i>Rhynchospora cephalantha</i>		Capitate beakrush			G5	S1	A		E	N/A		29
Plants	N/A	<input type="checkbox"/>	<i>Rhynchospora globularis</i>		Globe beakrush			G5?	S1	A		E	N/A		8, 9
Plants	N/A	<input type="checkbox"/>	<i>Rhynchospora inundata</i>		Drowned hornrush			G4	S1	A		E	N/A		29
Plants	N/A	<input type="checkbox"/>	<i>Rhynchospora mesoatlantica</i>		Mid-Atlantic beakrush			G1	S1	A		E	N/A		29
Plants	N/A	<input type="checkbox"/>	<i>Rhynchospora microcephala</i>		Small-headed beakrush			G5T5	S2	B			N/A		26
Plants	N/A	<input type="checkbox"/>	<i>Rhynchospora nitens</i>		Short-beaked baldrush			G4	S1	A		E	N/A		28
Plants	N/A	<input type="checkbox"/>	<i>Rhynchospora recognita</i>		Cymose beakrush			G5?	S2	B			N/A		26
Plants	N/A	<input type="checkbox"/>	<i>Rhynchospora scirpoides</i>		Long-beaked baldrush			G4	S2	B		T	N/A		29
Plants	N/A	<input type="checkbox"/>	<i>Rhynchospora torreyana</i>		Torrey's beakrush			G4	S2	B		T	N/A		26
Plants	N/A	<input type="checkbox"/>	<i>Ribes americanum</i>		Wild black currant			G5	S1	A		X	N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Ripariosida hermaphrodita</i>		Virginia mallow			G3	S1	A		E	N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Rosa blanda</i>		Smooth rose			G5	S1	A		E	N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Ruellia humilis</i>		Hairy wild petunia			G5	S1	A		E	N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Ruellia purshiana</i>		Pursh's wild petunia			G3	S1	A		E	N/A		14
Plants	N/A	<input type="checkbox"/>	<i>Ruellia strepens</i>		Limestone wild petunia			G4G5	S2S3	B			N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Rumex altissimus</i>		Tall dock			G5	S1	A		E	N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Sabatia campanulata</i>		Slender marsh pink			G4	S1	A		E	N/A		29
Plants	N/A	<input type="checkbox"/>	<i>Sabatia difformis</i>		Two-formed pink			G4G5	S1	A		E	N/A		29
Plants	N/A	<input type="checkbox"/>	<i>Sabulina caroliniana</i>		Carolina sandwort			G5	S1	A		E	N/A		8, 9
Plants	N/A	<input type="checkbox"/>	<i>Sabulina michauxii</i>		Michaux's stitchwort			G5	S2	B		T	N/A		15
Plants	N/A	<input type="checkbox"/>	<i>Sacciolepis striata</i>		Gibbous panic-grass			G5	S1	A		E	N/A		34
Plants	N/A	<input type="checkbox"/>	<i>Sagittaria engelmanniana</i>		Engelmann's arrowhead			G5?	S2	B		T	N/A		29

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Plants	N/A	<input type="checkbox"/>	<i>Sagittaria rigida</i>		Sessile-fruit arrowhead			G5	S1	A		E	N/A		29
Plants	N/A	<input type="checkbox"/>	<i>Sagittaria spatulata</i>		Spongy arrowhead			G5T4	S2	B			N/A		37
Plants	N/A	<input type="checkbox"/>	<i>Salix interior</i>		Narrowleaf willow			G5	S1	A		E	N/A		17
Plants	N/A	<input type="checkbox"/>	<i>Salix occidentalis</i>		Dwarf prairie willow			G5T5	S2	B			N/A		11
Plants	N/A	<input type="checkbox"/>	<i>Sanguisorba canadensis</i>		Canada burnet			G5	S2	B		T	N/A		24
Plants	N/A	<input type="checkbox"/>	<i>Sarracenia purpurea</i>		Northern pitcherplant			G5	S2	B		T	N/A		28
Plants	N/A	<input type="checkbox"/>	<i>Sceptridium oneidense</i>		Blunt-lobe grapefern			G4	S1	A		E	N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Schizachne purpurascens</i>		Purple oat			G5	S1	A		E	N/A		2
Plants	N/A	<input type="checkbox"/>	<i>Schoenoplectus subterminalis</i>		Water bulrush			G5	S1	A		E	N/A		20
Plants	N/A	<input type="checkbox"/>	<i>Schoenoplectus torreyi</i>		Torrey's bulrush			G4	S1	A			N/A		21
Plants	N/A	<input type="checkbox"/>	<i>Scirpus ancistrochaetus</i>		Northeastern bulrush			G3	S1	A		E	N/A		31
Plants	N/A	<input type="checkbox"/>	<i>Scleria minor</i>		Slender nutrush			G4	S1	A		E	N/A		28
Plants	N/A	<input type="checkbox"/>	<i>Scleria muehlenbergii</i>		Muehlenberg's nutrush			G5	S1S2	A			N/A		11
Plants	N/A	<input type="checkbox"/>	<i>Scleria oligantha</i>		Little-head nutrush			G5	S1	A			N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Scleria reticularis</i>		Reticulated nutrush			G4	S2S3	B			N/A		29
Plants	N/A	<input type="checkbox"/>	<i>Scleria verticillata</i>		Low nutrush			G5	S1	A		E	N/A		28
Plants	N/A	<input type="checkbox"/>	<i>Sclerolepis uniflora</i>		One-flower sclerolepis			G3	S2	A		T	N/A		29
Plants	N/A	<input type="checkbox"/>	<i>Scutellaria galericulata</i>		Hooded skullcap			G5	S2	B			N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Scutellaria leonardii</i>		Shale barren skullcap			G5	S2	B		T	N/A		14
Plants	N/A	<input type="checkbox"/>	<i>Scutellaria nervosa</i>		Veined skullcap			G5	S1S2	A		T	N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Scutellaria saxatilis</i>		Rock skullcap			G3G4	S1	A		E	N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Sedum glaucophyllum</i>		Cliff stonecrop			G4	S2	B		T	N/A		15
Plants	N/A	<input type="checkbox"/>	<i>Senega incarnata</i>		Pink milkwort			G5	S2S3	B			N/A		56
Plants	N/A	<input type="checkbox"/>	<i>Senega officinalis</i>		Seneca snakeroot			G4G5	S2	B		T	N/A		14
Plants	N/A	<input type="checkbox"/>	<i>Senega polygama</i>		Racemed milkwort			G5	S1	A		T	N/A		13
Plants	N/A	<input type="checkbox"/>	<i>Sesuvium maritimum</i>		Puerto Rico sea-purslane			G5	S1	A		E	N/A		17
Plants	N/A	<input type="checkbox"/>	<i>Silene nivea</i>		Snowy campion			G4?	S1	A		E	N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Sisyrinchium arenicola</i>		Sandyland blue-eyed grass			GNR	S1	A		E	N/A		8, 9
Plants	N/A	<input type="checkbox"/>	<i>Smilax pseudochina</i>		Long-stalk greenbrier			G4G5	S2	B		T	N/A		27
Plants	N/A	<input type="checkbox"/>	<i>Solidago racemosa</i>		Racemose goldenrod			G5T3?	S1	A		T	N/A		15
Plants	N/A	<input type="checkbox"/>	<i>Solidago rigida</i>		Prairie goldenrod			G5	S1	A		E	N/A		14

Taxa Group	Taxa (Sub)group for Threats and Actions	SGCN in 2015?	Scientific Name	Synonymous Scientific Names	Common Name	Alternate Common Names	Name changes since 2015	Global Rank	State Rank	Cons. Status Group	Federal Status	State Status	NE Regional Status	Reasoning for adding (if new in 2025)	*Associated KWHs (see Appendix 4a for codes)
Plants	N/A	<input type="checkbox"/>	<i>Solidago rupestris</i>		Rock goldenrod			G4?	S1	A			N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Solidago speciosa</i>		Showy goldenrod			G5	S2	B		T	N/A		8, 9
Plants	N/A	<input type="checkbox"/>	<i>Solidago tarda</i>		Late goldenrod			G4?Q	S1	A			N/A		8, 9
Plants	N/A	<input type="checkbox"/>	<i>Solidago vaseyi</i>		Vasey's goldenrod			G4	S1	A			N/A		12
Plants	N/A	<input type="checkbox"/>	<i>Sorghastrum elliottii</i>		Long-bristle Indian grass			G5	S1	A		E	N/A		8, 9
Plants	N/A	<input type="checkbox"/>	<i>Spermacoce glabra</i>		Smooth false buttonweed			G4G5	S1	A		E	N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Sphenopholis pennsylvanica</i>		Swamp wedgescale			G4	S2	B		T	N/A		34
Plants	N/A	<input type="checkbox"/>	<i>Spiranthes lucida</i>		Shining ladies'-tresses			G4	S1	A		E	N/A		24
Plants	N/A	<input type="checkbox"/>	<i>Spiranthes ochroleuca</i>		Yellow nodding ladies' tresses			G4	S1	A		E	N/A		14
Plants	N/A	<input type="checkbox"/>	<i>Sporobolus clandestinus</i>		Rough dropseed			G4G5	S2	B			N/A		8, 9
Plants	N/A	<input type="checkbox"/>	<i>Sporobolus heterolepis</i>		Northern dropseed			G5	S1	A		E	N/A		11
Plants	N/A	<input type="checkbox"/>	<i>Stachys aspera</i>		Gritty hedge-nettle			G4?	S1	A		E	N/A		20
Plants	N/A	<input type="checkbox"/>	<i>Stachys eplingii</i>		Epling's hedge-nettle			G1G2	S1	A			N/A		24
Plants	N/A	<input type="checkbox"/>	<i>Stachys hyssopifolia</i>		Hyssopleaf hedge-nettle			G4G5	S1	A			N/A		20
Plants	N/A	<input type="checkbox"/>	<i>Steironema hybridum</i>		Lowland loosestrife			G5	S2	B		T	N/A		20
Plants	N/A	<input type="checkbox"/>	<i>Stellaria alsine</i>		Trailing stitchwort			G5	S1	A		E	N/A		24
Plants	N/A	<input type="checkbox"/>	<i>Stenanthium gramineum</i>		Eastern featherbells			G4T4	S1	A		T	N/A		22, 23
Plants	N/A	<input type="checkbox"/>	<i>Stenanthium leimanthoides</i>		Pinebarrens death-camas			G4Q	S1	A		E	N/A		24
Plants	N/A	<input type="checkbox"/>	<i>Streptopus lanceolatus</i>		Rosy twisted-stalk			G5	S1S2	A		T	N/A		2
Plants	N/A	<input type="checkbox"/>	<i>Swida rugosa</i>		Roundleaf dogwood			G5	S1	A		E	N/A		4
Plants	N/A	<input type="checkbox"/>	<i>Symphoricarpos albus</i>		Common snowberry			G5	S1	A		T	N/A		12
Plants	N/A	<input type="checkbox"/>	<i>Symphyotrichum concolor</i>		Eastern silvery aster			G5	S1	A		E	N/A		8, 9
Plants	N/A	<input type="checkbox"/>	<i>Symphyotrichum depauperatum</i>		Serpentine aster			G2	S1	A		E	N/A		11
Plants	N/A	<input type="checkbox"/>	<i>Symphyotrichum drummondii</i>		Drummond's aster			G5	S1	A			N/A		4
Plants	N/A	<input type="checkbox"/>	<i>Symphyotrichum praealtum</i>		Willow aster			G5	S1	A			N/A		6, 7
Plants	N/A	<input type="checkbox"/>	<i>Taenidia montana</i>		Mountain parsley			G3	S2	A		T	N/A		12
Plants	N/A	<input type="checkbox"/>	<i>Tamala palustris</i>		Red bay			G5	S1	A		E	N/A		27
Plants	N/A	<input type="checkbox"/>	<i>Taxus canadensis</i>		Canada yew			G5	S2	B		T	N/A		2
Plants	N/A	<input type="checkbox"/>	<i>Tephrosia spicata</i>		Spiked hoary-pea			G4G5	S1S2	A		T	N/A		8, 9
Plants	N/A	<input type="checkbox"/>	<i>Thaspium trifoliatum</i>		Purple meadow-parsnip			G5	S1	A		E	N/A		6, 7
Plants	N/A	<input type="checkbox"/>	<i>Thuja occidentalis</i>		Northern white-cedar			G5	S1	A		T	N/A		14

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Plants	N/A	<input type="checkbox"/>	<i>Thyrsanthella difformis</i>		Climbing dogbane			G4G5	S1	A		E	N/A		20
Plants	N/A	<input type="checkbox"/>	<i>Tiedemannia canbyi</i>		Canby's dropwort			G2	S1	A	LE	E	N/A		29
Plants	N/A	<input type="checkbox"/>	<i>Torreyochloa pallida</i> var. <i>fernaldii</i>		Fernald's mannagrass			G5T5Q	S1	A			N/A		21
Plants	N/A	<input type="checkbox"/>	<i>Trichophorum planifolium</i>		Bashful bulrush			G4G5	S2	B			N/A		5
Plants	N/A	<input type="checkbox"/>	<i>Trichostema setaceum</i>		Narrowleaf bluecurls			G5	S1	A			N/A		13
Plants	N/A	<input type="checkbox"/>	<i>Tridens chapmanii</i>		Chapman's redtop			G5T3	S1	A			N/A		8, 9
Plants	N/A	<input type="checkbox"/>	<i>Trifolium virginicum</i>		Kate's Mountain clover			G3	S2S3	A		T	N/A		12
Plants	N/A	<input type="checkbox"/>	<i>Triglochin striata</i>		Three-ribbed arrow-grass			G5	S1S2	A		E	N/A		33
Plants	N/A	<input type="checkbox"/>	<i>Trillium flexipes</i>		Nodding trillium			G5	S1	A		E	N/A		6, 7
Plants	N/A	<input type="checkbox"/>	<i>Trillium nivale</i>		Snow trillium			G4	S1	A		E	N/A		14
Plants	N/A	<input type="checkbox"/>	<i>Trillium pusillum</i> var. <i>virginianum</i>		Virginia least trillium			G4T3	S2	A		T	N/A		6, 7
Plants	N/A	<input type="checkbox"/>	<i>Triosteum angustifolium</i>		Yellowleaf tinker's-weed			G5	S1	A		E	N/A		6, 7
Plants	N/A	<input type="checkbox"/>	<i>Triphora trianthophoros</i>		Nodding pogonia			G4?T4?	S1	A		E	N/A		6, 7
Plants	N/A	<input type="checkbox"/>	<i>Utricularia cornuta</i>		Horned bladderwort			G5	S1	A			N/A		21
Plants	N/A	<input type="checkbox"/>	<i>Utricularia inflata</i>		Swollen bladderwort			G5	S2	B			N/A		29
Plants	N/A	<input type="checkbox"/>	<i>Utricularia intermedia</i>		Flatleaf bladderwort			G5	S1	A			N/A		28
Plants	N/A	<input type="checkbox"/>	<i>Utricularia purpurea</i>		Purple bladderwort			G5	S1	A		T	N/A		29
Plants	N/A	<input type="checkbox"/>	<i>Utricularia resupinata</i>		Northeastern bladderwort			G4	S1	A		E	N/A		29
Plants	N/A	<input type="checkbox"/>	<i>Utricularia striata</i>		Fibrous bladderwort			G4G5	S1	A		E	N/A		29
Plants	N/A	<input type="checkbox"/>	<i>Uvularia grandiflora</i>		Large-flower bellwort			G5	S1	A			N/A		2
Plants	N/A	<input type="checkbox"/>	<i>Vaccinium oxycoccos</i>		Small cranberry			G5	S2	B		T	N/A		21
Plants	N/A	<input type="checkbox"/>	<i>Valeriana pauciflora</i>		Valerian			G4	S1	A		E	N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Valerianella chenopodiifolia</i>		Goosefoot cornsalad			G4	S1	A		E	N/A		14
Plants	N/A	<input type="checkbox"/>	<i>Veratrum hybridum</i>		Broadleaf bunchflower			G5	S1	A		E	N/A		14
Plants	N/A	<input type="checkbox"/>	<i>Veronica scutellata</i>		Marsh speedwell			G5	S1	A		E	N/A		24
Plants	N/A	<input type="checkbox"/>	<i>Viburnum lentago</i>		Nannyberry			G5	S1	A			N/A		21
Plants	N/A	<input type="checkbox"/>	<i>Viola esculenta (edulis)</i>		Salad violet			G4G5	S2	B			N/A		20
Plants	N/A	<input type="checkbox"/>	<i>Vitis rupestris</i>		Rock grape			G3	S1	A			N/A		19
Plants	N/A	<input type="checkbox"/>	<i>Woodsia ilvensis</i>		Rusty woodsia			G5	S2	B		T	N/A		12
Plants	N/A	<input type="checkbox"/>	<i>Xyris fimbriata</i>		Fringed yellow-eyed-grass			G5	S1	A		E	N/A		29
Plants	N/A	<input type="checkbox"/>	<i>Xyris smalliana</i>		Small's yellow-eyed-grass			G4G5	S1	A		E	N/A		29

Taxa Group	Taxa (Sub)group for Threats and Actions	SGCN in 2015?	Scientific Name	Synonymous Scientific Names	Common Name	Alternate Common Names	Name changes since 2015	Global Rank	State Rank	Cons. Status Group	Federal Status	State Status	NE Regional Status	Reasoning for adding (if new in 2025)	*Associated KWHs (see Appendix 4a for codes)
Plants	N/A	<input type="checkbox"/>	<i>Zanthoxylum americanum</i>		Northern prickly-ash			G5	S1S2	A		E	N/A		14
Plants	N/A	<input type="checkbox"/>	<i>Zephyranthes atamasca</i>		Atamasco lily			G4G5	S1	A		E	N/A		20
Plants	N/A	<input type="checkbox"/>	<i>Zizaniopsis miliacea</i>		Southern wild rice			G5	S1	A		E	N/A		34

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Appendix 3b. List of State Assessment Priority Species (SAPS)

Taxa Group	Taxa Subgroup	SGCN in 2015?	Scientific Name	Synonymous Scientific Names	Common Name	Alternate Common Names	Name changes since 2015	Global Rank	State Rank	Federal Status	State Status	NE Regional Status	Comments/Reasoning for SAPS
Mammals	Mammals (Terrestrial)	<input checked="" type="checkbox"/>	<i>Condylura cristata parva</i>		Southeastern star-nosed mole			G5T4	SU			N/A	Was a data deficient SGCN in previous SWAP. Main needs still related to research.
Mammals	Mammals (Terrestrial)	<input checked="" type="checkbox"/>	<i>Glaucomys sabrinus fuscus</i>		Virginia northern flying squirrel			G5T2T3	SNA			RSGCN	Was a data deficient SGCN in previous SWAP. Not yet proven to have a presence in MD.
Mammals	Mammals (Terrestrial)	<input type="checkbox"/>	<i>Mustela richardsonii</i>	<i>Mustela erminea richardsonii</i>	American ermine	Short-tailed weasel, Ermine		G5	SNA			N/A	Although it was last recorded in MD more than 50 years ago, we are trying to determine if it is still extant in western parts of the state and may turn up proof through ongoing camera monitoring.
Mammals	Mammals (Terrestrial)	<input type="checkbox"/>	<i>Neogale frenata</i>	<i>Mustela frenata</i>	Long-tailed weasel			G5	S5			N/A	Data deficiency, rangewide indication of long-term declines.
Mammals	Mammals (Terrestrial)	<input checked="" type="checkbox"/>	<i>Reithrodontomys humilis</i>		Eastern harvest mouse			G5	SH		X	N/A	Possibly extirpated; need to know more about population.
Mammals	Mammals (Terrestrial)	<input type="checkbox"/>	<i>Sciurus niger vulpinus</i>		Eastern fox squirrel			G5T4T5	SNR			RSGCN	Data deficiency, genetic introgression by western fox squirrel subspecies. Not ranked in MD, but has a rank of S2 in PA.
Mammals	Mammals (Bats)	<input type="checkbox"/>	<i>Corynorhinus townsendii virginianus</i>		Virginia big-eared bat			G4T3	SNR	LE		RSGCN	Recent acoustic records from Western MD. Work needs to be done to assess distribution and status. Federally endangered subspecies.
Mammals	Mammals (Bats)	<input type="checkbox"/>	<i>Lasiurus intermedius</i>	<i>Dasypterus intermedius</i>	Northern yellow bat			G5	SNR			N/A	Recent acoustic records in MD.
Mammals	Mammals (Bats)	<input checked="" type="checkbox"/>	<i>Lasiurus seminolus</i>		Seminole bat			G5	SNA			RAPS	Was a data deficient SGCN in previous SWAP. Only recently documented at a MD wind farm.
Mammals	Mammals (Bats)	<input checked="" type="checkbox"/>	<i>Myotis austroriparius</i>		Southeastern bat	Southeastern myotis		G4	SNA			RAPS	Was a data deficient SGCN in previous SWAP. Not yet proven to have a presence in MD, but a military installation in Southern MD reported suspected calls from this species during a recent acoustic survey,
Mammals	Mammals (Bats)	<input checked="" type="checkbox"/>	<i>Nycticeius humeralis</i>		Evening bat			G5	SUB, SUN			N/A	Was a data deficient SGCN in previous SWAP. Main needs still related to research.
Mammals	Mammals (Bats)	<input type="checkbox"/>	<i>Tadarida brasiliensis</i>		Mexican free-tailed bat	Brazilian free-tailed bat		G5	SNR			N/A	Recent acoustic records in MD.
Mammals	Mammals (Marine)	<input type="checkbox"/>	<i>Delphinus delphis</i>		Short-beaked common dolphin			G5	SNA			N/A	Increased sightings in MD over the past 10 years. NOAA stock assessment 2023 indicates not enough data for population trend estimate.
Mammals	Mammals (Marine)	<input type="checkbox"/>	<i>Halichoerus grypus</i>		Gray seal			G5	SNA			N/A	Commonly stranded species in more populated areas of coastal MD. Population seems to be doing well, but want to keep an eye on.
Mammals	Mammals (Marine)	<input type="checkbox"/>	<i>Pagophilus groenlandicus</i>	<i>Pagophilus groenlandica</i> , <i>Phoca groenlandica</i>	Harp seal			G5	SNA			N/A	Commonly stranded species in more populated areas of coastal MD. Likely at the southern edge of its range in MD.
Mammals	Mammals (Marine)	<input type="checkbox"/>	<i>Phoca vitulina</i>		Harbor seal			G5	SNA			N/A	Commonly stranded species in more populated areas of coastal MD. Do not have a good grasp of population trends.

Taxa Group	Taxa Subgroup	SGCN in 2015?	Scientific Name	Synonymous Scientific Names	Common Name	Alternate Common Names	Name changes since 2015	Global Rank	State Rank	Federal Status	State Status	NE Regional Status	Comments/Reasoning for SAPS
Birds	Birds	<input checked="" type="checkbox"/>	<i>Oxyura jamaicensis</i>		Ruddy duck			G5	S3N			N/A	Responsibility as an overwintering species in MD and improvements in monitoring methods are needed.
Birds	Birds	<input type="checkbox"/>	<i>Calonectris diomedea</i>		Scopoli's shearwater			GNR	SNR			N/A	Previously considered a subspecies of Cory's shearwater; recently split into its own species.
Birds	Birds	<input type="checkbox"/>	<i>Oporornis agilis</i>		Connecticut warbler			G4G5	S3M			N/A	May have a global responsibility for fall migrants, but do not yet know enough about presence in MD to create targeted threats and actions.
Birds	Birds	<input checked="" type="checkbox"/>	<i>Setophaga virens waynei</i>	<i>Dendroica virens waynei</i>	Wayne's black-throated green warbler	Wayne's warbler, Black-throated green warbler		G5T1	SUB			N/A	Was a data deficient SGCN in previous SWAP. Ranked SU in MD due to lack of information or substantially conflicting information about status or trends. Main need is related to research needs.
Birds	Birds	<input type="checkbox"/>	<i>Pandion haliaetus</i>		Osprey			G5	S4B			N/A	Currently undergoing a reproduction crisis and is in need of additional research to determine extent, exact causes, etc.
Herps	Herps (Amphibians)	<input checked="" type="checkbox"/>	<i>Eurycea cirrigera</i>		Southern two-lined salamander			G5	SU			N/A	Was a data deficient SGCN in previous SWAP. Main needs still related to research.
Herps	Herps (Amphibians)	<input type="checkbox"/>	<i>Eurycea guttolineata</i>		Three-lined salamander			G5	SNR			N/A	Added to SAPS list due to an old, undocumented report of this species being found in MD that deserves some follow-up survey work
Herps	Herps (Amphibians)	<input checked="" type="checkbox"/>	<i>Lithobates kauffeldi</i>		Atlantic coast leopard frog	Mid-Atlantic coast leopard frog		G3G4	SU			RSGCN	Was a data deficient SGCN in previous SWAP. Main needs still related to research.
Herps	Herps (Amphibians)	<input checked="" type="checkbox"/>	<i>Siren sp. 1</i>		Undetermined siren			GNR	SNR			N/A	Was a data deficient SGCN in previous SWAP. Main needs still related to research.
Herps	Herps (Sea Turtles)	<input checked="" type="checkbox"/>	<i>Eretmochelys imbricata</i>		Atlantic hawksbill sea turtle			G3	SNA	LE	E	RAPS	Was a data deficient SGCN in previous SWAP. Reported from MD as a non-breeding species, but with poor or insufficient documentation. Range tends to be south of MD.
Fish	Fish (Freshwater)	<input type="checkbox"/>	<i>Aphredoderus ornatus</i>		Blackstripe pirate perch			GNR	SNR			N/A	Newly described, recently split from the more common pirate perch. Occurs in a portion of the Potomac River in MD, although unsure of current distribution or status.
Fish	Fish (Freshwater)	<input type="checkbox"/>	<i>Carpiodes cyprinus</i>		Quillback			G5	S4?			N/A	Do not have a lot of data on this species, possibly due to sampling issues (its habitat straddles fresh and tidal).
Fish	Fish (Freshwater)	<input type="checkbox"/>	<i>Esox americanus vermiculatus</i>		Grass pickerel			G5T5	SNR			N/A	Subspecies of redfin pickerel. Want to figure out genetics of population in Western MD.
Fish	Fish (Freshwater)	<input type="checkbox"/>	<i>Moxostoma macrolepidotum</i>		Shorthead redhorse			G5	S4			N/A	Potomac River population affected by blue catfish invasion. Do not have a lot of data on this species, possibly due to sampling issues (its habitat straddles fresh and tidal).

Taxa Group	Taxa Subgroup	SGCN in 2015?	Scientific Name	Synonymous Scientific Names	Common Name	Alternate Common Names	Name changes since 2015	Global Rank	State Rank	Federal Status	State Status	NE Regional Status	Comments/Reasoning for SAPS
Fish	Fish (Freshwater) AND Fish (Bay/Ocean)	<input checked="" type="checkbox"/>	<i>Amia calva</i>		Bowfin			G5	SNA			N/A	Data deficient species in MD. Genetic work also needed. Nativity questions for some populations.
Fish	Fish (Freshwater) AND Fish (Bay/Ocean)	<input checked="" type="checkbox"/>	<i>Fundulus luciae</i>		Spotfin killifish			G4	S3			N/A	Data deficient species in MD. Habitat lies between commonly surveyed areas, so has likely been overlooked. Believe to be more common than records indicate.
Fish	Fish (Freshwater) AND Fish (Bay/Ocean)	<input type="checkbox"/>	<i>Lepisosteus osseus</i>		Longnose gar			G5	S4			N/A	Main needs are related to research. Especially interested in learning more about population distribution and possible decline. Threatened by bowfishing.
Fish	Fish (Bay/Ocean)	<input type="checkbox"/>	<i>Alopias superciliosus</i>		Bigeye thresher			G3	SNR			N/A	Data deficient species. On the NOAA & ASMFC prohibited species lists. MD within its range, though do not have many (any?) records, as it tends to be found far offshore. IUCN listed as Vulnerable (VU).
Fish	Fish (Bay/Ocean)	<input type="checkbox"/>	<i>Apeltes quadracus</i>		Fourspine stickleback			G5	S4			N/A	Data deficient species in MD. Habitat lies between commonly surveyed areas, so has likely been overlooked. Believe to be more common than records indicate.
Fish	Fish (Bay/Ocean)	<input type="checkbox"/>	<i>Carcharhinus leuca</i>		Bull shark			G5	SNR			N/A	Considered a data poor species by NOAA. On list of allowable recreational fishing in MD (one per day). Caught in commercial and recreational fisheries on the ocean, coastal bays, and the Chesapeake Bay and its tidal tributaries.
Fish	Fish (Bay/Ocean)	<input type="checkbox"/>	<i>Gasterosteus aculeatus</i>		Threespine stickleback			G5	S4			N/A	Know it's the least common stickleback in MD, but likely partially be due to data deficiency. Habitat lies between commonly surveyed areas, so has likely been overlooked. Believe to be more common than records indicate.
Fish	Fish (Bay/Ocean)	<input type="checkbox"/>	<i>Gymnura altavela</i>		Spiny butterfly ray			GNR	SNR			N/A	Data deficient species that was occasionally caught during a recent trawl survey.
Fish	Fish (Bay/Ocean)	<input type="checkbox"/>	<i>Gymnura lessae</i>		Atlantic butterfly ray			GNR	SNR			N/A	Data deficient species in MD. Have a handful of records.
Fish	Fish (Bay/Ocean)	<input type="checkbox"/>	<i>Hippocampus erectus</i>		Lined seahorse	Northern seahorse		GNR	SNR			RAPS	Have some recent records in iNaturalist in MD, though not many. Likely more abundant than records show, given its small size and SAV habitat (i.e., it can be hard to survey for). When seen, seems to be locally abundant in SAV beds in higher salinity portions of the Chesapeake Bay up to the Bay Bridge and throughout the MD coastal bays. Would like more data on this species.

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Fish	Fish (Bay/Ocean)	<input type="checkbox"/>	<i>Isurus oxyrinchus</i>		Shortfin mako			GNR	SNR			RSGCN	Data deficient species; lots of uncertainty in the most recent assessment (2019) and more life history information is needed. Caught in federal waters off of Maryland. Recreational fishing currently limited to one per day in MD. IUCN listed as Vulnerable (VU).
Inverts	Inverts (Crayfish)	<input type="checkbox"/>	<i>Cambarus dubius</i>		Upland burrowing crayfish			GNR	S3S4			N/A	Burrowing crayfish that's difficult to survey; need to put more effort/funds into data collection.
Inverts	Inverts (Crayfish)	<input checked="" type="checkbox"/>	<i>Creaserinus uhleri</i>	<i>Creaserinus fodiens</i> , <i>Fallicambarus fodiens</i>	Mid-Atlantic digger crayfish	Digger crayfish	Fallicambarus fodiens and digger crayfish in 2015 SWAP.	G5	S4			RSGCN	Was a data deficient SGCN in previous SWAP. Burrowing crayfish that's difficult to survey; need to put more effort/funds into data collection.
Inverts	Inverts (Freshwater Mussels)	<input checked="" type="checkbox"/>	<i>Elliptio producta</i>		Atlantic spike		May be synonymized with <i>Elliptio fisheriana</i> in the near future.	G3	S2S3		I	RAPS	Now believed that " <i>Elliptio producta</i> " is actually <i>Elliptio fisheriana</i> ; prior recognition as two species in MD was not based on morphological or genetic data and taxonomic relationships within the genus were muddled by numerous synonyms. Considerable evidence indicates that <i>Elliptio producta</i> and <i>Elliptio fisheriana</i> are the same species.
Inverts	Inverts (Snails)	<input checked="" type="checkbox"/>	<i>Glyphyalinia picea</i>		Rust glyph			G3	SU			RSGCN	Lack of information on the status of this species in MD. Found one broken shell from this species during 2025 survey.
Inverts	Inverts (Snails)	<input checked="" type="checkbox"/>	<i>Glyphyalinia raderi</i>		Maryland glyph			G2	SH		X	RAPS	Maryland Biodiversity Project has one record, but there are no other recent records in MD.
Inverts	Inverts (Snails)	<input type="checkbox"/>	<i>Lobosculum pustuloides</i>		Tiny liptooth			G4	SNR			N/A	Found during surveys in Prince George's County in the early 2000s, but not since then. Additional survey work needed.
Inverts	Inverts (Snails)	<input checked="" type="checkbox"/>	<i>Oxyloma effusum</i>	<i>Oxyloma salleanum</i>	Coastal-plain ambersnail			G3	SNR			N/A	Taxonomic uncertainty and very limited records in state.
Inverts	Inverts (Snails)	<input checked="" type="checkbox"/>	<i>Stenotrema simile</i>		Bear creek slitmouth			G2G3	SU			RSGCN	No records in MD since the 1970s. However, there are recent records in WV from three counties that border MD's westernmost county (Garrett).
Inverts	Inverts (Snails)	<input type="checkbox"/>	<i>Vertigo cristata</i>		Crested vertigo snail			G5	SNR			N/A	Found four in Garrett County during 2025 surveys. Listed as S1 in WV and S3 in PA. New species for MD state list.
Inverts	Inverts (Snails)	<input checked="" type="checkbox"/>	<i>Vertigo ventricosa</i>		Five-tooth vertigo	Cylindrically-ornate wood snail	Cylindrically-ornate wood snail in 2015 SWAP.	G5	SU			RAPS	Maryland Biodiversity Project has one record, but there are no other records in MD.
Inverts	Inverts (Butterflies)	<input type="checkbox"/>	<i>Amblyscirtes vialis</i>		Common roadside-skipper			G5	S4			N/A	More info/surveys needed.
Inverts	Inverts (Butterflies)	<input checked="" type="checkbox"/>	<i>Anatrytone logan</i>		Delaware skipper			G5	S3			N/A	More info/surveys needed.
Inverts	Inverts (Butterflies)	<input checked="" type="checkbox"/>	<i>Atrytonopsis hianna</i>		Dusted skipper			G4G5	S4			RAPS	Possibly needs lower rank.
Inverts	Inverts (Butterflies)	<input type="checkbox"/>	<i>Callophrys augustinus</i>	<i>Incisalia augustinus</i>	Brown elfin			G5	S4			N/A	Likely needs lower rank.
Inverts	Inverts (Butterflies)	<input type="checkbox"/>	<i>Cecropterus lyciades</i>	<i>Thorybes lyciades</i>	Hoary edge		Thorybes lyciade in 2015 SWAP.	G5	S5			N/A	More info/surveys needed.

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Inverts	Inverts (Butterflies)	<input type="checkbox"/>	<i>Celastrina idella</i>		American holly azure			G4G5	SNR			N/A	Azures in general need work.
Inverts	Inverts (Butterflies)	<input type="checkbox"/>	<i>Celastrina ladon</i>		Spring azure			G4G5	S5			N/A	Azures in general need work.
Inverts	Inverts (Butterflies)	<input type="checkbox"/>	<i>Celastrina lucia</i>		Northern azure			G5				N/A	Azures in general need work.
Inverts	Inverts (Butterflies)	<input type="checkbox"/>	<i>Celastrina neglecta</i>		Summer azure			G5	SNR			N/A	Azures in general need work.
Inverts	Inverts (Butterflies)	<input checked="" type="checkbox"/>	<i>Celastrina neglectamajor</i>		Appalachian blue	Appalachian azure		G3?	S3S4			RAPS	More info/surveys needed.
Inverts	Inverts (Butterflies)	<input type="checkbox"/>	<i>Celastrina serotina</i>		Cherry gall azure			G5	SNR			N/A	Azures in general need work.
Inverts	Inverts (Butterflies)	<input type="checkbox"/>	<i>Coenonympha californica</i>	<i>Coenonympha tullia</i>	Common ringlet			G5	SU			N/A	These likely have come from the introduced WV population.
Inverts	Inverts (Butterflies)	<input checked="" type="checkbox"/>	<i>Colias interior</i>		Pink-edged sulphur			G5	SH			RAPS	Currently extirpated but WV has recent records.
Inverts	Inverts (Butterflies)	<input checked="" type="checkbox"/>	<i>Danaus plexippus</i>	<i>Papilio plexippus</i>	Monarch			G4	S5			RSGCN	Need more information regarding breeding vs non-breeding population in MD. Know the breeding population is stable, but there is some concern about the migration pathway along the Chesapeake. Going to rerank this species in MD to have separate non-breeding and breeding population ranks.
Inverts	Inverts (Butterflies)	<input checked="" type="checkbox"/>	<i>Erora laeta</i>	<i>Thecla laeta</i>	Early hairstreak			G2G3	S1		E	RSGCN	Difficult to survey for. Is beech host plant under threat?
Inverts	Inverts (Butterflies)	<input checked="" type="checkbox"/>	<i>Euphyes dion</i>	<i>Euphyes alabamae</i> , <i>Euphyes macguirei</i> , <i>Pamphila dion</i>	Dion skipper			G5	S3			N/A	ID difficulty.
Inverts	Inverts (Butterflies)	<input type="checkbox"/>	<i>Feniseca tarquinius</i>		Harvester			G5	S4			N/A	More info/surveys needed.
Inverts	Inverts (Butterflies)	<input checked="" type="checkbox"/>	<i>Heraclides cresphontes</i>	<i>Papilio cresphontes</i>	Giant swallowtail		Papilio cresphonte in 2015 SWAP.	G5	S2		I	N/A	After moving onto bladdernut as host plant, much more common. Delisting possible.
Inverts	Inverts (Butterflies)	<input checked="" type="checkbox"/>	<i>Hermeuptychia sosybius</i>		Carolina satyr			G5	S1S3			N/A	Species has been moving north into MD. Do not know enough about to create targeted threats and actions.
Inverts	Inverts (Butterflies)	<input type="checkbox"/>	<i>Panoquina panoquin</i>		Salt marsh skipper			G5	S4			N/A	More info/surveys needed.
Inverts	Inverts (Butterflies)	<input type="checkbox"/>	<i>Phyciodes batesii</i>	<i>Eresia batesii</i>	Tawny crescent			G3G4	SH		X	N/A	ID difficulty -- was it ever in MD in the first place?
Inverts	Inverts (Butterflies)	<input checked="" type="checkbox"/>	<i>Phyciodes cocyta</i>		Northern crescent			G5	SU			N/A	Was a data deficient SGCN in previous SWAP. ID difficulty.
Inverts	Inverts (Butterflies)	<input type="checkbox"/>	<i>Poanes aaroni</i>		Aaron's skipper			G4	S4			N/A	More info/surveys needed.
Inverts	Inverts (Butterflies)	<input type="checkbox"/>	<i>Pontia protodice</i>		Checkered white			G4	S4			RAPS	Uncommon in MD and northern states; S1 in WV, S4 in VA.
Inverts	Inverts (Butterflies)	<input type="checkbox"/>	<i>Speyeria idalia</i>	<i>Argynnis idalia</i> , <i>Papilio idalia</i>	Regal fritillary			G3?	SH	PE	X	RSGCN	Extirpated but possibility for reintroduction from Indiantown Gap.
Inverts	Inverts (Butterflies)	<input type="checkbox"/>	<i>Staphylus hayhurstii</i>		Hayhurst's scalloping			G5	S4			N/A	Main needs related to research.

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Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Abagrotis anchocelioides</i>	<i>Cerastis anchocelioides</i> , <i>Rhynchagrotis anchocelioides</i>	Blueberry budworm moth			G4	SNR			N/A	Scattered recent records.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Abrostola ovalis</i>		Oval abrostola moth			G4	SNR			N/A	Rare in MD, but some recent records.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Abrostola urentis</i>		Spectacled nettle moth	Variiegated brindle moth		G5	SNR			N/A	Rare in MD, but some recent records.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Acasis viridata</i>	<i>Lobophora viridata</i>	Olive-and-black carpet moth			G5	SNR			N/A	Pre-2000 records, but one recent record from Western MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Acronicta connecta</i>	<i>Acronycta connecta</i>	Connected dagger moth			GNR	SNR			N/A	Scattered recent records.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Acronicta dolli</i>	<i>Merolonche dolli</i> , <i>Acronycta dolli</i>	Doll's dagger moth	Doll's merolonche moth		G3G4	SNR			RSGCN	No records in MD, but records nearby.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Acronicta hastulifera</i>	<i>Phalaena hastulifera</i> , <i>Acronycta hastulifera</i>	Frosted dagger moth			G5	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Acronicta heitzmani</i>	<i>Acronycta heitzmani</i>	Heitzman's dagger moth			GNR	SNR			N/A	Scattered recent records.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Acronicta impressa</i>	<i>Acronicta distans</i> , <i>Acronycta impressa</i>	Impressed dagger moth	Printed dagger moth, willow dagger moth		G5	SNR			N/A	Recent records in Western MD
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Acronicta innotata</i>	<i>Acronycta innotata</i>	Unmarked dagger moth	Birch dagger moth		G5	SNR			N/A	Rediscovered in Western MD in 2020.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Acronicta insita</i>	<i>Acronicta dactylina</i> , <i>Acronycta insita</i>	Large gray dagger moth			G5	SNR			N/A	Typically northern species found in Western MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Acronicta lepusculina</i>	<i>Acronicta populi</i> , <i>Acronycta lepusculina</i>	Cottonwood dagger moth			G5	SNR			N/A	Typically northern species found in Western MD in 2022 and 2023.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Acronicta noctivaga</i>	<i>Acronycta noctivaga</i>	Night-wandering dagger moth			G5	SNR			N/A	Only two records in the same MD county since 2000.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Acronicta superans</i>	<i>Acronycta superans</i>	Splendid dagger moth			G5	SNR			N/A	Only records from Western MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Acronicta vinnula</i>	<i>Microcoelia vinnula</i> , <i>Acronycta vinnula</i>	Delightful dagger moth			G5	SNR			N/A	Scattered recent records. Seems to have once been more common.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Agrotis vetusta</i>	<i>Mythimna vetusta</i>	Old man dart moth			G5	SNR			N/A	Scattered records near Assateague. Little info on hostplants.
Inverts	Inverts (Moths)	<input checked="" type="checkbox"/>	<i>Amolita roseola</i>		A noctuid moth	Roseate grass moth		G5	SNR			N/A	Was a data deficient SGCN in previous SWAP. Only historic records in MD, but recent record in NJ.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Apamea amputatrix</i>	<i>Hadena amputatrix</i>	Yellow-headed cutworm moth			G5	SNR			N/A	Rediscovered in Western MD in 2020.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Apamea cariosa</i>	<i>Xylophasia cariosa</i>	Nondescript dagger moth	A noctuid moth		G4	SNR			N/A	Rediscovered in Western MD in 2023.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Apamea dubitans</i>	<i>Mamestra dubitans</i>	Doubtful apamea moth			G5	SNR			N/A	Rediscovered in Western MD in 2025.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Apamea helva</i>	<i>Agroperina helva</i> , <i>Orthosia helva</i>	Yellow three-spot moth			G5	SNR			N/A	Recent record in Western MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Apamea nigrior</i>	<i>Xylophasia nigrior</i>	Black-dashed apamea moth			G5	SNR			N/A	Rare in MD, but some recent records.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Apamea plutonia</i>	<i>Hadena plutonia</i>	Dusky apamea moth	Dusky quaker moth		G5	SU			N/A	Historic records in Western MD, but recent find over PA border.

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Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Apamea sordens</i>	<i>Phalaena sordens</i>	Rustic shoulder-knot moth	Pale-banded quaker moth, Bordered apamea moth		G5	SNR			N/A	Mostly historic records with some recent records from Western MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Apamea verbascoides</i>	<i>Xylophasia verbascoides</i>	Mullein apamea moth	Verbascoides apamea moth, boreal apamea moth		G5	SNR			N/A	Rediscovered in Western MD in 2025.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Apamea vultuosa</i>	<i>Hadena vultuosa</i>	Airy apamea moth			G5	SNR			N/A	Mostly historic records with some recent records from Western MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Apantesis arge</i>	<i>Grammia arge</i>	Arge moth			G5	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Apantesis phyllira</i>	<i>Grammia oithona</i> , <i>Grammia phyllira</i>	Phyllira tiger moth			G3G5	SNR			N/A	Rare on Coastal Plain, but some recent records.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Argyrogramma verruca</i>	<i>Noctua verruca</i>	Golden looper moth			G5	SNR			N/A	Few records in MD, but may be because it is easily confused with soybean looper.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Argyrostromis anilis</i>	<i>Phalaena anilis</i>	Short-lined chocolate moth			G5	SNR			N/A	Scattered recent records.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Autographa ampla</i>	<i>Plusia ampla</i>	Large looper moth	Broken-banded Y moth, brown-patched looper moth, raspberry looper moth		G5	SNR			N/A	Rediscovered in Western MD in 2023.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Bagisara rectifascia</i>	<i>Schinia rectifascia</i>	Straight lined mallow moth			G4	SNR			N/A	Scattered recent records.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Bellura brehmei</i>	<i>Arzama brehmei</i>	A noctuid moth	A wetland borer moth		GNR	SNR			N/A	Rare on Coastal Plain, but some recent records.
Inverts	Inverts (Moths)	<input checked="" type="checkbox"/>	<i>Bellura gortynoides</i>	<i>Arzama gortynoides</i> , <i>Bellura diffusa</i>	White-tailed diver moth			G4	SNR			N/A	Was a data deficient SGCN in previous SWAP. Rare on Coastal Plain, but some recent records.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Cabera quadrifasciaria</i>	<i>Aspilates quadrifasciaria</i>	Four-lined cream moth			GNR	SNR			N/A	Recent records scattered across Coastal Plain.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Cabera variolaria</i>		Vestal moth	Pink-striped willow spanworm		G5	SNR			N/A	Recent records in MD's northern and western counties.
Inverts	Inverts (Moths)	<input checked="" type="checkbox"/>	<i>Capis curvata</i>		Curved halter moth			G5	S1S2			N/A	Need to rerank in MD; need more info to truly rank.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Caripeta angustiorata</i>		Brown pine looper moth			G5	SNR			N/A	Only found on pines in Western MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Caripeta aretaria</i>	<i>Azelina aretaria</i>	Southern pine looper moth			G4	S4			N/A	Scattered recent records.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Catocala andromedae</i>	<i>Hypogramma andromedae</i>	Andromeda underwing moth			G4	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Catocala angusi</i>		Angus' underwing			G4	SNR			N/A	Scattered recent records from both Western and Southern MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Catocala blandula</i>		Charming underwing			G5	SNR			N/A	Rare in MD, but some recent records.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Catocala cara</i>		Darling underwing moth	Bronze underwing moth		G5	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Catocala carissima</i>		Carissima underwing			G4	SNR			N/A	Eastern MD records in past decade.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Catocala cerogama</i>		Yellow-banded underwing			G5	SNR			N/A	Only found in Western MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Catocala concumbens</i>		Pink underwing moth	Sleepy underwing moth		G5	SNR			N/A	Possible rediscovery in Western MD in 2019.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Catocala connubialis</i>		Connubial underwing			G5	SNR			N/A	Rare in MD, but some recent records.

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Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Catocala crataegi</i>		Hawthorn underwing			G5	SNR			N/A	Rare in Western MD, but some recent records.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Catocala dejecta</i>		Dejected underwing			G4	SNR			N/A	Two new state records.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Catocala dulciola</i>		Sweet underwing	Quiet underwing		G3G4	SNR			N/A	Rediscovered in Western MD in 2024.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Catocala gracilis</i>		Graceful underwing			G5	SNR			N/A	Scattered recent records.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Catocala habilis</i>		Habilis underwing			G5	SNR			N/A	Only found in Western MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Catocala innubens</i>		Betrothed underwing			G5	SNR			N/A	Scattered recent records.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Catocala lacrymosa</i>		Tearful underwing			G5	SNR			N/A	Scattered records on Coastal Plain.
Inverts	Inverts (Moths)	<input checked="" type="checkbox"/>	<i>Catocala marmorata</i>		Marbled underwing			G3?	SH			RSGCN	Recently rediscovered in Central MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Catocala minuta</i>		Little underwing			G5	SNR			N/A	Recent records in Central MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Catocala mira</i>		Wonderful underwing			G5	SNR			N/A	Only found in Western MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Catocala nebulosa</i>		Clouded underwing			G5?	SNR			N/A	Scattered recent records.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Catocala obscura</i>		Obscure underwing			G4G5	SNR			N/A	Only found in Western MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Catocala parta</i>		Mother underwing			G5	SNR			N/A	2014 record in Central MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Catocala praeclara</i>		Praeclara underwing			G5	SNR			N/A	Historic records in MD, but recent records in surrounding states.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Catocala relictata</i>		White underwing			G5	SNR			N/A	Recent rediscovery in Western MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Catocala residua</i>		Residua underwing			G4G5	SNR			N/A	Only found in Western MD, but one possibly erroneous record from Eastern MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Catocala robinsonii</i>	<i>Catocala robinsoni</i>	Robinson's underwing			G4?	SNR			N/A	2003 record from Western MD and recent records close by in WV.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Catocala serena</i>		Serene underwing moth			G4G5	SNR			N/A	Hickory feeder. Scattered records in MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Catocala similis</i>		Similar underwing			G5?	SNR			N/A	Rare in MD, but some recent records.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Catocala sordida</i>		Sordid underwing moth	Blueberry underwing moth		G5	SNR			N/A	Recent records in Western MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Catocala ulalume</i>		Ulalume underwing			G4	SNR			N/A	Recent rediscovery in Eastern MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Catocala unijuga</i>		Once-married underwing			G5	SNR			N/A	Rare in MD, but some recent records.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Cerastis salicarum</i>	<i>Hydraecia salicarum</i> , <i>Metalepsis salicarum</i>	Willow dart moth			G5	SNR			N/A	Common in Western MD; rare elsewhere.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Ceratonia undulosa</i>	<i>Daremma undulosa</i>	Waved sphinx			G4G5	SNR			RAPS	Very common, but an ash feeder.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Cerma cora</i>		Bird dropping moth			G3G4	SNR			RAPS	2025 record from Western MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Chaetagnathia rhonda</i>		Trembling sawfly moth	Barrens chaetagnathia		GNR	SNR			N/A	2014 record from Assateague; flies in fall, so could be more.

Taxa Group	Taxa Subgroup	SGCN in 2015?	Scientific Name	Synonymous Scientific Names	Common Name	Alternate Common Names	Name changes since 2015	Global Rank	State Rank	Federal Status	State Status	NE Regional Status	Comments/Reasoning for SAPS
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Cingilia catenaria</i>	<i>Phalaena catenaria</i>	Chain-dotted geometer moth			G5	SNR			N/A	Historic species that was rediscovered in Western MD in 2020.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Cladara atroliturata</i>	<i>Lobophora atroliturata</i>	Scribbler moth			G5	SNR			N/A	Only recently found in Western MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Clostera apicalis</i>	<i>Clostera apicalis apicalis</i> , <i>Ichthyura apicalis</i>	Apical prominent moth	Red-marked tentmaker moth		G5	SNR			N/A	Scattered records in MD, but uncommon.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Colobochoyla interpuncta</i>	<i>Madopa interpuncta</i>	Yellow-lined owlet moth			G4	SNR			N/A	Rare in MD, but some recent records.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Condica confederata</i>	<i>Hadena confederata</i>	Confederate moth			G5	SNR			N/A	Seems to be moving north, but only found on Coastal Plain in MD.
Inverts	Inverts (Moths)	<input checked="" type="checkbox"/>	<i>Cucullia speyeri</i>		Speyer's hooded owlet moth	Speyer's cucullia moth	Speyer's cucullia moth in 2015 SWAP.	G4	SNR			N/A	Was a data deficient SGCN in previous SWAP. Scattered recent records.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Cyclophora myrtaria</i>	<i>Ephyra myrtaria</i>	Waxmyrtle wave moth			G4G5	SNR			N/A	Rare in MD, but some recent records.
Inverts	Inverts (Moths)	<input checked="" type="checkbox"/>	<i>Cyclophora nanaria</i>	<i>Ephyra nanaria</i>	A geometrid moth			G5	SNA			N/A	Was a data deficient SGCN in previous SWAP. Both historic and recent records from Central MD.
Inverts	Inverts (Moths)	<input checked="" type="checkbox"/>	<i>Darapsa versicolor</i>	<i>Choerocampa versicolor</i>	Hydrangea sphinx			G4?	SNR			N/A	Was a data deficient SGCN in previous SWAP. Scattered pre-2000 records and one from 2014.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Dargida rubripennis</i>	<i>Faronta rubripennis</i> , <i>Leucania rubripennis</i>	Pink streak moth	The pink streak		G3G4	SNR			N/A	Scattered recent Coastal Plain records.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Dasychira atrivenosa</i>	<i>Parorgyia atrivenosa</i>	Cypress tussock moth	An erebid moth, A lymantriid moth		G4	SU			N/A	Historic species with a few recent records from Central/Southern MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Dasychira dorsipennata</i>	<i>Olene dorsipennata</i>	Sharp-lined tussock moth	Hardwood tussock moth		G4G5	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Dasychira meridionalis</i>	<i>Olene meridionalis</i>	Southern tussock moth			G4G5	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Dasychira plagiata</i>	<i>Edema plagiata</i>	Northern pine tussock moth	Northern conifer tussock moth		G5	SNR			N/A	Recent records in Western MD. Feeds on white pine and eastern hemlock.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Dasychira vagans</i>	<i>Olene vagans</i>	Variable tussock moth			G5	SNR			N/A	Rare in MD, but some recent records.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Datana major</i>		Major datana	Azalea caterpillar		G5	SNR			N/A	Scattered records in MD. May be more rare than once thought. Heath feeder.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Diachrysia aereoides</i>	<i>Plusia aereoides</i>	Dark-spotted looper moth	Lined cooper looper moth		G5	SNR			N/A	Rediscovered in Western MD in 2023.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Diachrysia balluca</i>	<i>Plusia balluca</i>	Green-patched looper moth	Large brassy plusia moth		G5	SNR			N/A	Recent records in Western MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Dyspyralis nigellus</i>	<i>Dyspyralis nigella</i> , <i>Epizeuxis nigellus</i>	Slaty dyspyralis moth	An erebid moth		GNR	SNR			N/A	Uncommon in MD, but not necessarily rare.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Dysstroma citrata</i>	<i>Chloroclysta citrata</i> , <i>Phalaena citrata</i>	Dark marbled carpet moth	Northern marbled carpet moth		G5	SNR			N/A	Recently rediscovered in Western MD after 20 years.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Elaphria cornutinis</i>	<i>Elaphria cornutinus</i>	A midget moth			G5	SNR			N/A	Records scattered across all MD.
Inverts	Inverts (Moths)	<input checked="" type="checkbox"/>	<i>Elaphria georgei</i>	<i>Monodes georgei</i>	George's midget moth			G4	SU			N/A	Was a data deficient SGCN in previous SWAP. Records scattered across all MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Emarginea percara</i>	<i>Bryophila percara</i>	Beloved emarginea moth			G4	SNR			N/A	Mostly Eastern MD species.

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Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Enyo lugubris</i>	<i>Sphinx lugubris</i>	Mournful sphinx			G5	SNR			N/A	Central/Southern MD record from 2025.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Eosporopteryx thyatyroides</i>	<i>Plusia thyatyroides</i>	Pink-patched looper moth	Pink-patched beauty moth		G4G5	SNR			N/A	Rediscovered in Western MD in 2024. Meadow rue feeder?
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Episemasia solitaria</i>	<i>Ephyra solitaria</i>	Solitary ruddy moth	A geometrid moth		G5	SNR			N/A	2015 record from Eastern MD. Holly feeder.
Inverts	Inverts (Moths)	<input checked="" type="checkbox"/>	<i>Erastria coloraria</i>	<i>Catopyrrha coloraria</i> , <i>Phalaena coloraria</i>	Broad-lined erastria	Broad-lined catopyrrha	Broad-lined catopyrrha in 2015 SWAP.	G3G4	SH			N/A	Historical records from Western MD; recent records just across the PA border.
Inverts	Inverts (Moths)	<input checked="" type="checkbox"/>	<i>Eubaphe meridiana</i>	<i>Eudule meridiana</i> , <i>Euphanessa meridiana</i>	Little beggar moth			G4	SNR			N/A	Was a data deficient SGCN in previous SWAP. Rare, but recent records in Central/Southern MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Eublemma minima</i>	<i>Micra minima</i>	Everlasting bud moth			G5	SNR			N/A	Scattered records in MD's Coastal Plain.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Euchlaena muzaria</i>	<i>Endropia muzaria</i>	Muzaria euchlaena moth			G5	SNR			N/A	A few recent records from Western MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Euchlaena tigrinaria</i>	<i>Endropia tigrinaria</i>	Mottled euchlaena moth			G5	SNR			N/A	Rediscovered in Western MD in 2025.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Euclidia cuspeida</i>	<i>Drasteria cuspeida</i>	Toothed somberwing moth			G5	SNR			N/A	Scattered recent records.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Eudeilinia herminiata</i>	<i>Corycia herminiata</i>	Northern eudeilinea moth			G5	SNR			N/A	Scattered records in Western and Eastern MD. Dogwood specialist?
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Eueretagrotis sigmoides</i>	<i>Noctua sigmoides</i>	Sigmoid dart moth			G5	SNR			N/A	Rediscovered in Western MD in 2024.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Eulithis explanata</i>	<i>Cidaria explanata</i>	White eulithis moth			G5	SNR			N/A	Only found on blueberries in Western MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Eupithecia indistincta</i>		A geometrid moth			GNR	SNR			N/A	Rediscovered in Western MD in 2023.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Eupsilia devia</i>	<i>Scopelosoma devia</i>	Lost sawfly moth			G5	SNR			N/A	Rediscovered in Central/Southern MD in 2025.
Inverts	Inverts (Moths)	<input checked="" type="checkbox"/>	<i>Euxoa immixta</i>	<i>Agrotis immixta</i>	Mixed dart			G4	SNR			N/A	Was a data deficient SGCN in previous SWAP. Historic species in MD, but recent record from WV.
Inverts	Inverts (Moths)	<input checked="" type="checkbox"/>	<i>Euxoa violaris</i>	<i>Agrotis violaris</i>	Violet dart			G4	SNR			N/A	Was a data deficient SGCN in previous SWAP. Rare in MD with some recent records in Eastern MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Fagitana littera</i>	<i>Leucania littera</i>	Marsh fern moth			G4	SNR			N/A	Scattered records in MD's Coastal Plain.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Fishia illocata</i>	<i>Hadena illocata</i> , <i>Oligia illocata</i>	Wandering brocade moth			G5	SNR			N/A	Rediscovered in Western MD in 2025.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Glena plumosaria</i>	<i>Cymatophora plumosaria</i>	Dainty gray moth			G4	SNR			N/A	Rare in Coastal Plain MD, but some recent records. Have questions about its potential host plant.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Globia oblonga</i>	<i>Archanara oblonga</i> , <i>Capsula oblonga</i> , <i>Nonagria oblonga</i>	Oblong sedge borer moth			G5	SNR			N/A	Rare in MD, but some recent records scattered across MD wetlands.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Habrosyne gloriosa</i>	<i>Thyatira gloriosa</i>	Glorious habrosyne moth			GNR	SNR			N/A	Less than 5 recent Western MD records. May be a specialist on ninebark (<i>Physocarpus</i>).
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Haploa colona</i>	<i>Bombyx colona</i>	Colona moth			G4G5	SNR			N/A	Recent records in Eastern MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Haploa confusa</i>	<i>Callimorpha confusa</i>	Confused haploa moth			G5	SNR			N/A	Recent records in Western MD.

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Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Heliomata infulata</i>	<i>Baptria infulata</i>	Rare spring moth			G3G4	SNR			N/A	Rediscovered in Western MD in 2025.
Inverts	Inverts (Moths)	<input checked="" type="checkbox"/>	<i>Hemaris gracilis</i>	<i>Haemorrhagia gracilis</i>	Slender clearwing	Graceful clearwing		G4G5	SNR			RAPS	Was a data deficient SGCN in previous SWAP. One historic record from Western MD, but recent records in surrounding states.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Hemipachnobia monochromatea</i>	<i>Agrotis monochromatea</i>	Sundew cutworm moth			G4	SNR			N/A	No records in the state but found in NJ and PA. Possibility that <i>H. subporphyrea</i> historic record from Gum Bottom Bog is actually this species.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Hesperumia sulphuraria</i>		Sulphur moth			G5	SNR			N/A	Handful of records from Ridge and Valley.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Heterophleps refusaria</i>	<i>Macaria refusaria</i>	Three-patched bigwing moth			G4	SNR			N/A	Rare in MD, but some recent records.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Hydrelia albifera</i>	<i>Acidalia albifera</i>	Fragile white carpet moth			G5	SNR			N/A	New records from Western MD. Old records from Central MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Hydrelia condensata</i>	<i>Melanthia condensata</i>	A geometrid moth	A carpet moth		G4	SNR			N/A	Rare in MD, but some recent records.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Hydrelia lucata</i>	<i>Asthena lucata</i>	Light carpet moth			G4G5	SNR			N/A	Rare in MD, but some recent records.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Hydriomena divisaria</i>	<i>Cleora divisaria</i>	Black-dashed hydriomena moth			G5	SNR			N/A	Scattered recent records.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Hydriomena perfracta</i>		Shattered hydriomena moth			G5	SNR			N/A	New 2024 record for MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Hydriomena pluviala</i>	<i>Ypsipetes pluviala</i>	Sharp green hydriomena moth			G4	SNR			N/A	Most recent record from Central/Southern MD in 2014.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Hyles gallii</i>	<i>Sphinx gallii</i>	Galium sphinx	Bedstraw hawkmoth		G5	SNR			N/A	Recent records in Western MD; believed to be southern edge of range.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Hypagyrtis piniata</i>	<i>Paraphia piniata</i>	Pine measuringworm moth			G5	SNR			N/A	Rediscovered in Western MD in 2023.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Hyparpax aurora</i>	<i>Phalaena aurora</i>	Pink prominent moth			G5?	SNR			N/A	Uncommon, but widely distributed in MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Hypena appalachiensis</i>	<i>Bomolocha appalachiensis</i>	Appalachian bomolocha moth			G3G4	SNR			N/A	No records in the state but found in nearby in WV.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Hypena edictalis</i>	<i>Bomolocha edictalis</i>	Large hypena moth	Large bomolocha moth		G4	SNR			N/A	Only known from one county in Western MD, but relatively common there.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Hypena eductalis</i>	<i>Lomanaltes eductalis</i>	Red-footed bomolocha moth			G5	SNR			N/A	Wetland specialist? Scattered records in MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Hypena sordidula</i>	<i>Bomolocha sordidula</i>	Sordid hypena moth	Sordid bomolocha moth		G4?	SNR			N/A	Scattered recent records, but relatively uncommon.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Hypenodes franclemonti</i>		A noctuid moth			GNR	SNR			N/A	Recent addition to MD fauna; difficult to ID.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Hyppa xylinoides</i>	<i>Hadena xylinoides</i>	Common hyppa moth			G5	SNR			N/A	Recent rediscovery in Western MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Hypsoropha monilis</i>	<i>Noctua monilis</i>	Large necklace moth			G5	SNR			N/A	Found in Eastern MD; believed to be this species' northern limit.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Idaea eremiata</i>	<i>Eois eremiata</i>	Straw wave moth	A geometrid moth		G4	S1?			N/A	Recent records in Western MD; historic records scattered across MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Idia diminuendis</i>	<i>Camptylchila diminuendis</i>	Orange-spotted idia moth			G4G5	SNR			N/A	Recent records in Western MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Idia laurentii</i>	<i>Epizeuxis laurentii</i> , <i>Idia laurenti</i>	Laurentine idia moth	An idia moth		GNR	SNR			N/A	Both historic and recent records from Western MD.

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Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Idia majoralis</i>	<i>Epizeuxis majoralis</i>	Greater idia moth			GNR	SNR			N/A	Historic records in Central MD, but more recently known from woodrat nests.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Isturgia dislocaria</i>	<i>Enconista dislocaria</i> , <i>Semiothisa dislocaria</i>	Pale-veined isturgia	Pale-veined econista		G4G5	SNR			N/A	Rare in MD, but some recent records.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Lacanobia grandis</i>	<i>Hadena grandis</i> , <i>Spiramater grandis</i>	Grand arches moth			G5	SNR			N/A	Only recent record is from Western MD, but some historic records in MD from Coastal Plain.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Lapara bombycoides</i>		Northern pine sphinx			G5	SNR			N/A	Only in pine barrens in Western MD.
Inverts	Inverts (Moths)	<input checked="" type="checkbox"/>	<i>Lemmeria digitalis</i>	<i>Anchocelis digitalis</i>	Fingered lemmeria moth			G4	SNR			N/A	Was a data deficient SGCN in previous SWAP. Pre-2000 records, but one recent record from Western MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Leptostales ferruminaria</i>	<i>Acidalia ferruminaria</i>	Light-ribbed wave moth	Flanged looper		G5	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Leucania multilinea</i>		Many-lined wainscot moth			G5	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Leucanopsis longa</i>	<i>Euhalisidota longa</i>	Long-streaked tussock moth			G5	SNR			N/A	Recent records in Eastern MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Leuconycta lepidula</i>	<i>Jaspidia lepidula</i>	Marbled-green leuconycta moth			G5	SNR			N/A	Rediscovered in Western MD in 2023.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Lintneria eremitus</i>	<i>Agrilus eremitus</i> , <i>Sphinx eremitus</i>	Hermit sphinx			G4G5	SNR			N/A	Uncommon; only in northern part of MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Lithomoia germana</i>	<i>Calocampa germana</i> , <i>Lithomoia solidaginis germana</i>	American brindle moth	Goldenrod brindle moth		G5	SNR			N/A	Pre-2000 records, but one recent record from Western MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Lithophane baileyi</i>		Bailey's pinion moth			G5	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Lithophane hemina</i>		Hemina pinion moth			G5	SNR			N/A	Rare in MD, but some recent records.
Inverts	Inverts (Moths)	<input checked="" type="checkbox"/>	<i>Lithophane lemmeri</i>	<i>Graptolitha lemmeri</i>	Lemmer's pinion moth	Lemmer's noctuid moth	Lemmer's noctuid moth in 2015 SWAP.	G3G4	SNR			RAPS	Was a data deficient SGCN in previous SWAP. Historic species that is now found only in NJ. Chance it will be found in MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Lithophane oriunda</i>		Immigrant pinion moth			G4	SNR			N/A	Only records from Western MD. Typically a more northern species.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Lithophane querquera</i>		Shivering pinion moth			GNR	SNR			N/A	Scattered records in MD, but uncommon.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Lithophane viridipallens</i>		Pale green pinion moth			G5	SNR			N/A	Handful of records from Central/Southern MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Lophosis labeculata</i>	<i>Eois labeculata</i>	Stained lophosis moth			GU	SNR			N/A	First found in Western MD in 2018.
Inverts	Inverts (Moths)	<input checked="" type="checkbox"/>	<i>Lytrosis sinuosa</i>		Sinuuous lytrosis moth			G4	S1S3			N/A	Not seen in last 10 years; only records in Eastern MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Macaria pinistrobata</i>	<i>Semiothisa pinistrobata</i>	White pine angle moth			GNR	SNR			N/A	Scattered records in MD. Feeds on white pine.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Macrochilo santerivalis</i>		An erebid moth	An owlet moth		G3G4	SNR			N/A	Only in Eastern MD; rare, but some recent records.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Magusa divaricata</i>	<i>Stictoptera divaricata</i>	Orbed narrow-winged moth			GNR	SNR			N/A	Scattered records in MD.

Taxa Group	Taxa Subgroup	SGCN in 2015?	Scientific Name	Synonymous Scientific Names	Common Name	Alternate Common Names	Name changes since 2015	Global Rank	State Rank	Federal Status	State Status	NE Regional Status	Comments/Reasoning for SAPS
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Maliattha concinnimacula</i>	<i>Leptosia concinnimacula</i> , <i>Lithacodia concinnimacula</i>	Red-spotted glyph	Red-spotted lithacodia		G4	SNR			N/A	First found in Western MD in 2023.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Martania basaliata</i>	<i>Larentia basaliata</i> , <i>Perizoma basaliata</i>	Square-patched carpet moth			G5	SNR			N/A	New record from Western MD in 2025.
Inverts	Inverts (Moths)	<input checked="" type="checkbox"/>	<i>Meropleon ambifusca</i>	<i>Meropleon ambifuscum</i> , <i>Oligia ambifusca</i>	Newman's brocade			G4G5	SU			N/A	Was a data deficient SGCN in previous SWAP. Scattered recent records.
Inverts	Inverts (Moths)	<input checked="" type="checkbox"/>	<i>Meropleon cosmion</i>		An owlet moth			G4	SNR			N/A	Was a data deficient SGCN in previous SWAP. A few recent records in Eastern MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Metalectra tantillus</i>	<i>Homopyralis tantillus</i>	Black fungus moth			G4	SNR			N/A	Suspected to be a southern species moving north.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Metallata absumens</i>	<i>Thermesia absumens</i>	Variable metallata moth			GNR	SNR			N/A	One confirmed record in Central/Southern MD, one unconfirmed record in Western MD. Seems to be more of a Coastal Plain species.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Metanema determinata</i>		Dark metanema moth			G5	SNR			N/A	Rediscovered in Western MD in 2022.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Metarranthis amyrisaria</i>	<i>Ellopiya amyrisaria</i>	Balsam metarranthis moth	A geometrid moth		G4	SNR			N/A	Rare in MD, but some recent records.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Metarranthis refractaria</i>	<i>Endropia refractaria</i>	Refracted metarranthis moth			G4G5	SNR			N/A	Rare in MD, but some recent records.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Metaxaglaea australis</i>		Southern swallow moth			GNR	SNR			N/A	Rediscovered in Central/Southern MD in 2020. Coastal Plain species.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Mocis latipes</i>	<i>Remigia latipes</i>	Small mocis moth			G5	SNR			N/A	Both current and historic records, but uncommon overall.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Morrisonia triangula</i>		Triangle-barred woodgrain moth			G3G4	SNR			N/A	G3G4 species discovered in 2014 in Eastern MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Mythimna oxygala</i>	<i>Aletia oxygala</i> , <i>Heliophila oxygala</i>	Lesser wainscot moth			G5	SNR			N/A	Only found in Western MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Neoligia crytora</i>	<i>Oligia crytora</i> , <i>Procus crytora</i>	A noctuid moth			GNR	SNR			N/A	Scattered records in MD, but uncommon
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Neoligia exhausta</i>	<i>Hadena exhausta</i> , <i>Oligia exhausta</i>	Exhausted brocade moth			GNR	SNR			N/A	Only found in Western MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Notodonta scitipennis</i>	<i>Notodonta scitipennis</i> <i>scitipennis</i>	Finned-willow prominent moth	Base-streaked prominent moth		G5	SNR			N/A	New record from Western MD in 2025.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Oligia chlorostigma</i>		A noctuid moth	A brocade moth		G4	SNR			N/A	3 records known from Central/Southern MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Orgyia detrita</i>		Fir tussock moth			G3G4	SNR			N/A	Few recent records in Coastal Plain.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Orthosia garmani</i>	<i>Graphiphora garmani</i>	Garman's quaker moth			GNR	SNR			N/A	Scattered records in MD, but uncommon
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Orthosia revicta</i>	<i>Taeniocampa revicta</i>	Subdued quaker moth	Rusty white-sided caterpillar		G5	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Oxycilla malaca</i>	<i>Erastria malaca</i>	Bent-lined tan			G4?	SNR			N/A	One record in Central/Southern MD and one in Western MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Ozarba aeria</i>	<i>Eustrotia aeria</i>	Aerial brown moth			G4	SNR			N/A	Rare in MD, but some recent records.

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Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Pachysphinx modesta</i>	<i>Pachysphinx modestus</i> , <i>Smerinthus modesta</i>	Big poplar sphinx	Modest sphinx		G5	SNR			N/A	Uncommon, but widespread throughout MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Pagara simplex</i>		Mouse-colored lichen moth			G5	SNR			N/A	Seems to be barren specialist on dunes or serpentine barrens.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Paonias astylus</i>	<i>Sphinx astylus</i>	Huckleberry sphinx			G5	SNR			N/A	Recent Coastal Plain records, but uncommon overall.
Inverts	Inverts (Moths)	<input checked="" type="checkbox"/>	<i>Papaipema appassionata</i>	<i>Gortyna appassionata</i>	Pitcher plant borer moth			G3G4	SNR			RAPS	Was a data deficient SGCN in previous SWAP. Old records from Central/Southern MD, but nothing since.
Inverts	Inverts (Moths)	<input checked="" type="checkbox"/>	<i>Papaipema araliae</i>		Aralia shoot borer moth			G3G4	SNR			N/A	Was a data deficient SGCN in previous SWAP. Only historic record(s), but this species could also be difficult to find/ID.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Papaipema birdi</i>		Water-hemlock borer moth			G4G5	SNR			N/A	Only 3 records since 2000.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Papaipema impecuniosa</i>	<i>Gortyna impecuniosa</i>	Aster borer moth			G5	SNR			N/A	Scattered records in MD. Seems to like wetlands.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Papaipema insulidens</i>	<i>Hydroecia insulidens</i> , <i>Papaipema birdi</i>	Umbellifer borer moth	Ragwort stem borer moth		GU	SNR			N/A	Scattered recent records.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Papaipema lysimachiae</i>		Loosestrife borer moth			G4G5	SNR			N/A	Scattered recent records.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Papaipema marginidens</i>	<i>Gortyna marginidens</i>	Brick-red borer moth	A borer moth		G4	S4			N/A	Scattered recent records.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Papaipema nelita</i>	<i>Hydroecia nelita</i>	Coneflower borer moth			G5	SNR			N/A	Recent record in Western MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Papaipema nepheleptena</i>	<i>Gortyna nepheleptena</i>	Turtle head borer moth			G4G5	SNR			N/A	Only historic records in Western MD, but have we really looked?
Inverts	Inverts (Moths)	<input checked="" type="checkbox"/>	<i>Papaipema polynniae</i>		Cup plant borer moth	Polynnina borer moth	Polynnina borer moth in 2015 SWAP.	G4?	SH			N/A	Only historic record(s) in MD, but this species could be difficult to find/ID.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Papaipema pterisii</i>		Bracken borer moth			G5	SNR			N/A	Recent records in Western MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Papaipema rigida</i>	<i>Gortyna rigida</i>	Rigid sunflower borer moth			G4G5	SNR			N/A	Recent Western MD record.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Papaipema rutila</i>	<i>Gortyna rutila</i>	Mayapple borer moth			G4	SNR			N/A	Scattered historic records, but have we really looked?
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Papaipema speciosissima</i>	<i>Gortyna speciosissima</i>	Osmunda borer moth			G3G4	SNR			N/A	Scattered recent records.
Inverts	Inverts (Moths)	<input checked="" type="checkbox"/>	<i>Papaipema stenocelis</i>	<i>Hydroecia stenocelis</i>	Chain fern borer moth			G3G4	SNR			RAPS	Was a data deficient SGCN in previous SWAP. Only historic records in MD, but recent record in NJ.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Papaipema unimoda</i>	<i>Hydroecia unimoda</i> , <i>Papaipema frigida</i>	Meadow rue borer moth			G5	SNR			N/A	Only historic records in Western MD, but have we really looked?
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Parahypenodes quadralis</i>		Masked parahypenodes moth			G4	SNR			N/A	Scattered recent records.
Inverts	Inverts (Moths)	<input checked="" type="checkbox"/>	<i>Parapamea buffaloensis</i>	<i>Ochria buffaloensis</i>	Buffalo moth			G4	SNR			N/A	Was a data deficient SGCN in previous SWAP. Uncommon on Coastal Plain.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Peridea bordeloni</i>		Bordelon's peridea moth			GNR	SNR			N/A	Scattered records in Coastal Plain and Piedmont, but uncommon.

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Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Petrophora subaequaria</i>	<i>Lozogramma subaequaria</i>	Northern petrophora moth			G5	SNR			N/A	Rediscovered in Western MD in 2025. Fern feeder.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Pheosia rimosa</i>		Black-rimmed prominent moth			G5	SNR			N/A	Scattered recent records.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Pheosidea elegans</i>	<i>Lophopteryx elegans, Odontosia elegans, Odontosia grisea</i>	Elegant prominent moth			G5	SNR			N/A	Scattered Western MD records.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Phoberia ingenua</i>	<i>Poaphila ingenua</i>	Uncommon oak moth			G3G4	SNR			RAPS	Records from Central/Southern MD a decade ago.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Phragmatobia assimilans</i>		Large ruby tiger moth			G5	SNR			N/A	Decades old records in Eastern MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Phragmatobia fuliginosa</i>	<i>Phalaena fuliginosa</i>	Ruby tiger moth			G5	SNR			N/A	Recent records in MD's northern and western counties.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Platypolia mactata</i>	<i>Oligia mactata</i>	Adorable brocade moth			G5	SNR			N/A	Recent records in Western MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Plusia contexta</i>		Connected looper moth			G5	SNR			N/A	Rediscovered in Western MD in 2022.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Polia imbrifera</i>	<i>Aplecta imbrifera</i>	Cloudy arches moth			G5	SNR			N/A	Rediscovered in Western MD in 2025.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Polia nimbose</i>	<i>Aplecta nimbose</i>	Stormy arches moth			G5	SNR			N/A	Handful of records from Western MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Ponometia semiflava</i>	<i>Tarachidia semiflava, Xanthoptera semiflava</i>	Half-yellow moth			G4	SNR			N/A	One 2013 record from Eastern MD. A typically southern species that may be moving north.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Properigea costa</i>	<i>Namangana costa</i>	Barrens moth			G4	SNR			N/A	Historic records in MD, but recent find just over PA border in Western MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Psaphida electilis</i>	<i>Dicopis electilis, Eutolype electilis</i>	Chosen swallow moth			G5	SNR			N/A	Uncommonly found in Western MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Psaphida thaxterianus</i>	<i>Dicopis thaxterianus, Psaphida thaxteriana</i>	Thaxter's swallow moth			G4	SNR			N/A	Two recent records in Western MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Pseudeva purpurigera</i>	<i>Deva purpurigera</i>	Straight-lined looper moth			G5	SNR			N/A	Rediscovered in Western MD in 2023. Meadow rue feeder?
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Pyreferra pettiti</i>	<i>Scopelosoma pettiti</i>	Pettit's swallow moth			G5	SNR			N/A	Rediscovered in Western MD in 2022. Hop-hornbeam specialist.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Pyrrhia exprimens</i>	<i>Heliothis exprimens</i>	Purple-lined swallow moth			G5	SNR			N/A	Rare in MD, but some recent records.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Rifargia subrotata</i>	<i>Heterocampa subrotata</i>	Small prominent moth	Small heterocampa		G4G5	SNR			N/A	Scattered records in Coastal Plain and Piedmont, but uncommon.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Schinia florida</i>	<i>Rhodophora florida</i>	Primros moth	Evening primrose moth		G5	SNR			N/A	Scattered records in MD. Primrose specialist.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Schinia nundina</i>	<i>Phalaena nundina</i>	Goldenrod flower moth			G5	SNR			N/A	Goldenrod specialist in Eastern MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Schinia obscurata</i>		Erigeron flower moth			G4	SNR			N/A	Rediscovered in Central/Southern MD in 2023.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Schinia thoreaui</i>	<i>Anthoecia thoreaui</i>	Thoreau's flower moth			G5	SNR			N/A	Scattered records in MD. Ragweed feeder.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Scopula cacuminaria</i>	<i>Acidalia cacuminaria</i>	Frosted tan wave moth			G4	SNR			N/A	Uncommon; only found in Coastal Plain.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Scopula junctaria</i>	<i>Acidalia junctaria</i>	Simple wave moth			G5	SNR			N/A	Scattered records in MD.

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Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Selenia alciphearia</i>		Brown-tipped thorn	Northern selenia moth		G5	SNR			N/A	2025 state record in Western MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Sicya macularia</i>	<i>Geometra macularia</i>	Sharp-lined yellow moth			G5	SNR			N/A	Only handful of Western MD records.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Sideridis congermana</i>	<i>Hadena congermana</i>	German cousin moth			GNR	SNR			N/A	Historic records in Western MD, but recent find over PA border.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Smerinthus jamaicensis</i>	<i>Sphinx jamaicensis</i>	Twin-spotted sphinx			G5	SNR			N/A	Uncommon, but widespread throughout MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Spaelotis clandestina</i>	<i>Noctua clandestina</i>	Clandestine dart moth			G5	SNR			N/A	Rediscovered in Western MD in 2025.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Sphingicampa bisecta</i>	<i>Syssphinx bisecta</i> , <i>Anisota bisecta</i>	Bisected honey locust moth			G5	SNR			N/A	Record in Central MD in 2017 as species range moves north.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Sphinx gordius</i>		Apple sphinx	Gordian sphinx		G4G5	SNR			N/A	One recent record in Western MD. Seems to like heath peatland.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Sphinx kalmiae</i>		Laurel sphinx	Fawn sphinx		G5	SNR			N/A	Want to answer question: to what extent does it use non-ash species?
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Spiramater lutra</i>	<i>Hadena lutra</i> , <i>Lacanobia lutra</i>	Otter Spiramater Moth			G5	SNR			N/A	Three records since 2000 in Western MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Stamnodes gibbicostata</i>	<i>Cidaria gibbicostata</i>	Shiny gray carpet moth			G4	SNR			N/A	Pre-2000 records, but one recent record from Western MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Sutyna privata</i>	<i>Anytus privatus</i> , <i>Polia privata</i>	Private sawfly moth	A noctuid moth		G5	SNR			N/A	Rediscovered in Western MD in 2025.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Sympistis perscripta</i>	<i>Lepidolys perscripta</i>	Scribbled sawfly moth			G4	SNR			N/A	Historic species that was rediscovered in MD in 2023.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Tacparia deterrenta</i>	<i>Tephрина deterrenta</i>	Pale alder moth			G5	SNR			N/A	Rediscovered in Western MD in 2018.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Tarache delecta</i>	<i>Acontia delecta</i>	Delightful bird-dropping moth			GU	SNR			N/A	Found in Eastern MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Tolyte laricis</i>	<i>Planosa laricis</i>	Larch tolyte moth	Larch moth		G5	SNR			N/A	Three records since 2000. Feeds on eastern hemlock and perhaps other pines.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Tripudia flavofasciata</i>		Orange-banded tripudia moth	An owlet moth		GNR	SNR			N/A	Two 2023 records from Central MD. Host seems to be American water-willow or <i>Ruellia</i> .
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Tripudia rectangularis</i>		Rectangular Tripudia	A noctuid moth		GNR	SNR			N/A	Scattered records in MD. Specialist on wild petunia.
Inverts	Inverts (Moths)	<input checked="" type="checkbox"/>	<i>Undulambia striatalis</i>	<i>Ambia striatalis</i>	A crambid snout moth			GNR	SNR			N/A	Was a data deficient SGCN in previous SWAP. Only historic records in MD, but recent record on DE border.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Virbia ferruginosa</i>	<i>Crocota ferruginosa</i> , <i>Holomelina ferruginosa</i>	Rusty holomelina moth			G5	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Xanthorhoe iduata</i>	<i>Melanippe iduata</i>	A geometrid moth			G4	SNR			N/A	Rediscovered in Western MD in 2022.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Xanthorhoe packardata</i>		A geometrid moth			G4	SNR			N/A	Rediscovered in Western MD in 2023.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Xestia badicollis</i>	<i>Ammoconia badicollis</i>	Northern variable dart moth			G5	SNR			N/A	Only found in Western MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Xestia normanianus</i>	<i>Agrotis normanianus</i> , <i>Amathes normaniana</i> , <i>Xestia normaniana</i>	Norman's dart moth			G5	SNR			N/A	A handful of records in Western MD. Seems to have been more common in the past.

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Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Xylena curvimacula</i>	<i>Calocampa curvimacula</i>	Dot-and-dash swordgrass moth			G5	SNR			N/A	Discovered in Western MD in 2025. Southernmost part of range.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Xylomoia chagnoni</i>		A noctuid moth			GNR	SNR			N/A	Uncommon, but still found in bogs of Western MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Xylotype capax</i>	<i>Xylina capax</i>	Barrens xylotype	Broad sawfly moth		G4	SU			N/A	Recently rediscovered in MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Zale buchholzi</i>		Buchholz's zale moth			G4G5	SNR			N/A	Scattered records in Coastal Plain. Pine specialist.
Inverts	Inverts (Moths)	<input checked="" type="checkbox"/>	<i>Zale curema</i>	<i>Phaeocyma curema</i>	Black-eyed zale moth	A noctuid moth	A noctuid moth in 2015 SWAP.	G4	S1?			N/A	Mostly historic records with one recent record from Eastern MD.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Zale metata</i>	<i>Phaeocyma metata</i>	A zale moth			G5	SNR			N/A	Scattered recent records.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Zale obliqua</i>	<i>Homoptera obliqua</i>	Oblique zale moth	A noctuid moth		G5	S4S5			N/A	Recent records on Coastal Plain.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Zale squamularis</i>	<i>Phalaena squamularis</i>	Gray-banded zale moth	A noctuid moth		G4	SU			N/A	Recent records in Central/Southern MD.
Inverts	Inverts (Moths)	<input checked="" type="checkbox"/>	<i>Zale submediana</i>		Gray spring zale	A noctuid moth	A noctuid moth in 2015 SWAP.	G4	S1S3			N/A	Many recent records, but could be confused with <i>Z. metatoides</i> .
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Zanclognatha dentata</i>		An erebid moth	An owlet moth		G3G4	SNR			N/A	Scattered recent records.
Inverts	Inverts (Moths)	<input type="checkbox"/>	<i>Zanclognatha theralis</i>	<i>Herminia theralis</i>	An owlet moth			G4	SNR			N/A	Uncommon on Coastal Plain of MD.
Inverts	Inverts (Moths)	<input checked="" type="checkbox"/>	<i>Zimmermannia bosquella</i>	<i>Ectoedemia castaneae</i> , <i>Ectoedemia heinrichi</i> , <i>Ectoedemia helenella</i>	American chestnut nepticulid moth	A pygmy leafmining moth		GNR	SH			N/A	Possibly rediscovered in Eastern MD in 2024, but still needs confirmation.
Inverts	Inverts (Odonates)	<input type="checkbox"/>	<i>Argia sedula</i>		Blue-ringed dancer			G5	S3			N/A	Widespread species. Not a ton of records.
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Boyeria grafiانا</i>		Ocellated darner			G5	S1			RAPS	Western MD Species. No specific threats. Higher ranked in other states; likely needs different rank in MD as well.
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Calopteryx aequabilis</i>		River jewelwing			G5	SNA			N/A	Was a data deficient SGCN in previous SWAP. Only detected as larvae in Western MD. No recent records.
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Celithemis bertha</i>		Red-veined pennant			G5	S1			N/A	Known south of VA. Recent sightings in Southern MD. Large range expansion.
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Celithemis martha</i>		Martha's pennant			G4	S1			RAPS	Was widespread in the 90s, then drastically declined. No records since 2000 in MD, but recent record from DE.
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Dorocordulia lepida</i>		Petite emerald			G5	SH			N/A	Historical records only in MD, though it was recently found in DE.
Inverts	Inverts (Odonates)	<input type="checkbox"/>	<i>Dorocordulia libera</i>		Racket-tailed emerald			G5	SNR			N/A	Records from one wetland in Western MD. A more northern species that has only been found in MD since 2020.
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Enallagma carunculatum</i>		Tule bluet			G5	S1			N/A	One record from Western MD. At southern edge of range.
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Enallagma daeckii</i>		Attenuated bluet			G4	S3			N/A	Good number of records without clear understanding of population extent. May be more common.

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Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Epitheca costalis</i>		Slender baskettail	Stripe-winged baskettail	Stripe-winged baskettail in 2015 SWAP	G5	S1			N/A	MD's flight periods are late in comparison to the rest of <i>Epitheca costalis</i> ; possible this is actually a different species, or that the late flight period has something to do with being at the northernmost edge of range. Few recent records; last one from 2016 in Central MD.
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Epitheca spinosa</i>		Robust baskettail			G4	S1S2			N/A	May need to be S2. Most sightings come from state lands in Central MD. Early flight season, so may be missed by surveys.
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Gomphaeschna antilope</i>		Taper-tailed darner			G4	S2			N/A	Hard to distinguish from more common harlequin darner. Seems fairly widespread in Coastal Plain. Should this be S3?
Inverts	Inverts (Odonates)	<input type="checkbox"/>	<i>Gomphurus dilatatus</i>		Blackwater clubtail			G5	SNR			N/A	Cast skins found in Central/Southern MD. Primarily a more southern species
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Hetaerina titia</i>		Smoky rubyspot			G5	SH			N/A	Rediscovered in 2019 in Central MD. Seen again along Potomac in 2022 in Central/Western MD.
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Ischnura prognata</i>		Furtive forktail			G4	S1			N/A	A good number of records scattered across Coastal Plain since discovery in 2007. MD is northern limit of range. Likely overlooked. More surveys needed. Likely needs higher rank.
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Lanthus parvulus</i>		Northern pygmy clubtail			G4G5	S2			RAPS	No recent records. Could be confused with <i>L. vernalis</i> . Should be S1 and investigated for extirpation.
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Lestes congener</i>		Spotted spreadwing			G5	S3			N/A	Uncommon but widespread across MD. Difficult to ID.
Inverts	Inverts (Odonates)	<input type="checkbox"/>	<i>Lestes disjunctus</i>		Northern spreadwing			G5	S5			N/A	Has taxonomic problems (<i>L. australis</i> and <i>L. disjunctus</i> were presumed same species until recently). A lot of the records are misleading. Difficult to ID except for mature males. Seems abundant until you get off the <u>Appalachian plateau</u> .
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Lestes eurinus</i>		Amber-winged spreadwing			G5	S3			N/A	Good number of records without clear understanding of population extent. May be more common.
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Lestes forcipatus</i>		Sweetflag spreadwing			G5	S3			N/A	Uncommon but widespread across MD. Difficult to ID.
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Leucorrhinia intacta</i>		Dot-tailed whiteface			G5	S3			N/A	Southern most edge of range. Fairly common in Western MD.
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Libellula auripennis</i>		Golden-winged skimmer			G5	S3			N/A	Fairly widespread across all of MD, though sparse.
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Libellula flavida</i>		Yellow-sided skimmer			G5	S2S3			N/A	Northernmost edge of range. Widespread across Coastal Plain.
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Macromia alleghaniensis</i>		Allegheny river cruiser			G4	S2			N/A	Hard to distinguish from <i>Macromia illinoensis illinoensis</i> . Must be in hand. One record from 2024 in Western MD. All other records much older.
Inverts	Inverts (Odonates)	<input type="checkbox"/>	<i>Nehalennia irene</i>		Sedge sprite			G5	S3			N/A	A more northern species. Fairly common in Western MD.

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Inverts	Inverts (Odonates)	<input type="checkbox"/>	<i>Neurocordulia obsoleta</i>		Umber shadowdragon			G5	S3			N/A	Relatively common. Likely that more records would be found if it flew earlier in the day.
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Neurocordulia yamaskanensis</i>		Stygian shadowdragon			G5	S3			N/A	Species has spread significantly in MD over the past 20 years, but still fairly uncommon sighting because it is a dusk flier.
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Phanogomphus spicatus</i>	<i>Gomphus spicatus</i>	Dusky clubtail		Gomphus spicatus in 2015 SWAP.	G5	SNR			N/A	Records in Western MD. At very southern edge of range.
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Somatochlora walshii</i>		Brush-tipped emerald			G5	S1			N/A	Southernmost edge of range. Found in the 2000s in Western MD, but no records since.
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Stenogomphurus rogersi</i>	<i>Gomphus rogersi</i>	Sable clubtail			G4	S2		I	RSGCN	Easily overlooked. Relatively widespread, even in more degraded areas.
Inverts	Inverts (Odonates)	<input type="checkbox"/>	<i>Sympetrum internum</i>		Cherry-faced meadowhawk			G5	SNR			N/A	Difficult to ID. Has been hybridizing. Need to sort out records.
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Sympetrum obtrusum</i>		White-faced meadowhawk			G5	S3			N/A	More northern species. ID is difficult. Hybridizes with other meadowhawks. Common in Western MD, although range seems to have retracted, as there are fewer records from further east than in the past.
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Tachopteryx thoreyi</i>		Gray petaltail			G4	S3			RAPS	Many records across MD, especially in Coastal Plain. Breeds in seeps, which have less protection.
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Telebasis byersi</i>		Duckweed firetail			G5	S1			N/A	Only recent record was somewhere in Southern MD. All other records are from the 2000s in Eastern MD. Likely overlooked.
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Zoraena bilineata</i>	<i>Cordulegaster bilineata</i>	Brown spiketail		Cordulegaster bilineata in 2015 SWAP.	G5	S3			N/A	A southern species with many records in MD. Widespread. S4 in VA.
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Zoraena diastatops</i>	<i>Cordulegaster diastatops</i>	Delta-spotted spiketail		Cordulegaster diastatops in 2015 SWAP.	G5	S3S4			N/A	A more northern species. Fairly common in Western MD.
Inverts	Inverts (Odonates)	<input checked="" type="checkbox"/>	<i>Zoraena erronea</i>	<i>Cordulegaster erronea</i>	Tiger spiketail		Cordulegaster erronea in 2015 SWAP.	G4	S3			RSGCN	Relatively widespread, even in degraded areas.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Andrena aliciae</i>		Yellow-faced miner bee			GNR	SNR			N/A	Few records scattered across MD, but we know it gathers from yellow composites like Helianthus and Verbesina.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Andrena alleghaniensis</i>		Appalachian miner bee			G5	SNR			N/A	Scattered records throughout MD.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Andrena andrenoides</i>		Colourful willow miner bee			GNR	SNR			N/A	Two records in/around MD: one historic from Washington, D.C. and one more recent in Southern MD.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Andrena asteris</i>		Aster miner bee			GNR	SNR			N/A	Uncommon but scattered MD records. Late fall composite specialist; have we just not sampled much in late fall?
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Andrena asteroides</i>		An andrenid bee			GNR	SNR			N/A	Uncommon but scattered MD records. Late fall Symphyotrichum specialist; have we just not sampled much in late fall?
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Andrena atlantica</i>		An andrenid bee			GNR	SNR			N/A	Scattered records throughout MD.

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Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Andrena ceanothi</i>		Ceanothus miner bee			G5	SNR			N/A	Scattered records throughout MD. Not clear what it feeds on.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Andrena erythrogaster</i>		Red-tailed mining bee	Red-bellied miner bee		GNR	SNR			N/A	One record from Central/Southern MD in 2006.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Andrena hirticincta</i>		Hairy-belted miner bee			GNR	SNR			N/A	Uncommon but scattered MD records. Late fall composite specialist; have we just not sampled much in late fall?
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Andrena integra</i>		Bare dogwood miner bee	Intact miner bee		GNR	SNR			N/A	At southern edge of range in MD.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Andrena krigiana</i>		Dwarf-dandelion miner bee	An andrenid bee		GNR	SNR			N/A	Only a couple of MD records, but insufficient surveying on its host plant.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Andrena macoupinensis</i>		Macoupin County miner bee			GNR	SNR			N/A	Scattered MD records as recent as 2019.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Andrena melanochroa</i>		Rose miner bee			GNR	SNR			N/A	A couple records from this century in MD.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Andrena milwaukeeensis</i>		Milwaukee miner bee			G5	SNR			N/A	Three records from Western MD, although there are a good number of records nearby in PA and WV.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Andrena miranda</i>		Singular miner bee			G5	SNR			N/A	Southern edge of range. One record from Western MD in 2021.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Andrena neonana</i>		An andrenid bee			GNR	SNR			N/A	Very rare species with little information. A couple recent records from Central/Southern MD.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Andrena nida</i>		An andrenid bee	A mining bee		GNR	SNR			N/A	Uncommon species; only a couple records in MD.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Andrena nigrae</i>		Black miner bee			GNR	SNR			N/A	Only a couple records in MD. How uncommon is it?
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Andrena nivalis</i>		Snowy mining bee	Snow miner bee		G5	SNR			N/A	Southern edge of range. A couple of MD records.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Andrena nubecula</i>		Cloudy-winged miner bee			GNR	SNR			N/A	Handful of recent MD records.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Andrena obscuripennis</i>		An andrenid bee			GNR	SNR			N/A	Two recent records from Southern and Central MD. Habitat requirements unknown.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Andrena placata</i>		Peaceful miner bee			GNR	SNR			N/A	Handful of recent MD records.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Andrena platyparia</i>		Plated miner bee			GNR	SNR			N/A	Handful of MD records.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Andrena polemonii</i>		Jacob's ladder miner			GNR	SNR			N/A	MD records from the 90s. Records in DE from the 2010s. If we're not looking for this species, we're not going to find it -- but it likely is still in the state. Found where Jacob's ladder is found.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Andrena rehni</i>		Rehn's miner bee			GNR	SNR			Proposed RAPS	2019 rediscovery in Central/Southern MD. Work needed to assess rarity.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Andrena rudbeckiae</i>		An andrenid bee			GNR	SNR			N/A	Scattered records in MD. Seems like there should be more given the prevalence of Rudbeckia.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Andrena sigmundi</i>		Sigmund's miner bee			GNR	SNR			N/A	2015 record from Central/Southern MD. A handful of records to the north in PA. Wetland Salix specialist. MD is at the southern range edge of this species
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Andrena thaspii</i>		Parsnip miner bee			G5	SNR			N/A	Historic records from Western MD. Recent records just over border in PA.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Andrena uvulariae</i>		An andrenid bee	A mining bee		GNR	SNR			N/A	One recent record from Central/Southern MD.

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Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Anthophora bomboides</i>	<i>Anthophora neomexicana</i>	Bumblebee-like digger bee			G5	SNR			N/A	Handful of records in MD; unclear why rare. Seems to like rural areas more than urban gardens.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Anthophora ursina</i>		Bear-like digger bee			G4G5	SNR			N/A	A couple recent records in the region. One 2025 record in Central MD; unknown why rare.
Inverts	Inverts (Bees)	<input checked="" type="checkbox"/>	<i>Bombus auricomus</i>		Black and gold bumble bee	Black-and-gold bumble bee		G5	SU			N/A	100+ records in MD. Strongly associated with urban/suburban habitats. Found throughout the state/region, but fewer records than other common bumblebees. Are there threats associated with urban areas it occupies?
Inverts	Inverts (Bees)	<input checked="" type="checkbox"/>	<i>Bombus citrinus</i>		Lemon cuckoo bumble bee			G4	SU			RAPS	Around 100 records in MD. Found throughout the region. A nest parasite, strongly associated with <i>Bombus impatiens</i> , but also invades <i>B. bimaculatus</i> and <i>B. vagans</i> nests. Range in PA has severely contracted (95% loss) -- very dramatic and fast decline. Could this be because of pathogens?
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Bombus fervidus</i>	<i>Bombus californicus</i> , <i>Bombus fervida</i> , <i>Thoracobombus fervidus</i>	Yellow bumble bee	Golden northern bumble bee		G3G4	SNR			RAPS	This species and the closely related <i>B. pensylvanicus</i> have seen some recent declines in their populations. Those declines appear to be stabilized and have perhaps reversed.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Bombus flavidus</i>	<i>Bombus fernaldae</i> , <i>Psithyrus fernaldae</i>	Flavid cuckoo bumble bee	Yellow cuckoo bumble bee		G5?	SNR			N/A	One recent record from Western MD. More are to be expected; many recent specimens have been found in nearby WV and PA.
Inverts	Inverts (Bees)	<input checked="" type="checkbox"/>	<i>Bombus pensylvanicus</i>		American bumble bee			G3G4	S2S3			RAPS	Hundreds of records in MD. Originally found throughout the state, but now mostly absent from the western sections of the state. Still regular throughout all Coastal Plain regions with scattered observations elsewhere, including Western MD. Decline seems to have stabilized.
Inverts	Inverts (Bees)	<input checked="" type="checkbox"/>	<i>Bombus sandersoni</i>		Sanderson's bumble bee			G5	S3			N/A	20+ records in MD. Primarily found in Western MD in the mountains. Some specimens identified as <i>Bombus vagans</i> in the past were likely <i>B. sandersoni</i> but misidentified as <i>B. vagans</i> . Newer information indicates that some <i>B. sandersoni</i> specimens lack the extensive white hairs on T4-5 (previously used by USGS in identification).
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Coelioxys alternatus</i>	<i>Coelioxys alternata</i>	Alternate cuckoo leafcutter bee			GNR	SNR			N/A	Scattered records throughout MD.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Coelioxys germanus</i>	<i>Coelioxys germana</i>	A leafcutter bee			GNR	SNR			N/A	2014 record in Eastern MD.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Coelioxys hunteri</i>		A leafcutter bee			GNR	SNR			N/A	Scattered records throughout MD.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Coelioxys modestus</i>	<i>Coelioxys modesta</i>	Northeastern cuckoo leafcutter bee			GNR	SNR			N/A	Scattered records throughout MD.

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Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Coelioxys moesta</i>	<i>Coelioxys moestus</i>	Sad cuckoo leafcutter bee			GNR	SNR			N/A	One record from Western MD. Handful of records just over PA border.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Coelioxys porterae</i>		Porter's cuckoo leafcutter bee			GNR	SNR			N/A	Scattered records throughout MD.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Colletes brevicornis</i>		Short-horned plasterer bee			GNR	SNR			N/A	Suspected of being a specialist on at least some members of the Campanulaceae family (Triodanis, Campanula), some of which are quite common. So why is this bee species so uncommon?
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Colletes ciliatus</i>		A cellophane bee			GNR	SNR			RAPS	Recent records of <i>C. ciliatus</i> come from Southern MD where it was captured on wetland dodder, which tend to be undersurveyed.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Colletes compactus</i>		Compact plasterer bee			G5	SNR			N/A	Relatively uncommon. Scattered records throughout MD.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Colletes productus</i>	<i>Colletes producta</i>	A cellophane bee			GNR	SNR			N/A	Currently this species has been found only in one location in Central/Southern MD; however, there has not been much collection on the plant it was found on.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Colletes simulans</i>		Spine-shouldered cellophane bee	Deceptive plasterer bee, A cellophane bee		G5	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Colletes solidaginis</i>		Goldenrod plasterer bee			GNR	SNR			N/A	One record in MD from 2020.
Inverts	Inverts (Bees)	<input checked="" type="checkbox"/>	<i>Epeoloides pilosulus</i>	<i>Epeoloides pilosula</i>	Macropis cuckoo bee			G3	SH			RSGCN	Only historic records in MD. However, PA found record 0.5 miles north of MD in shale barren 2022.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Epeolus andriyi</i>		Andrew's cuckoo nomad bee			GNR	SNR			N/A	Only two specimens known globally occur in Southern MD in 2018 <i>Epeolus</i> revision. Nest parasite of <i>Colletes</i> likely. What led to this revision? Could this be more common?
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Epeolus autumnalis</i>		Orange cuckoo nomad bee			GNR	SNR			N/A	Two recent records in Central/Southern MD.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Epeolus lectoides</i>		Collector cuckoo nomad bee			GNR	SNR			N/A	Not much info. Handful of records in MD all come from Coastal Plain.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Eucera atriventris</i>		Black-bellied long-horned bee			GNR	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Eucera dubitata</i>		A long-horned bee			GNR	SNR			N/A	Little information available. Seems to like tubular flowers. All records in MD are from Eastern MD, but other records are in the mountains.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Holcopasites heliopsis</i>		False sunflower cuckoo nomad bee			GNR	SNR			N/A	Only one record in MD from 2012. Most other records are from the Great Plains. Are we sure this was identified correctly?
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Hoplitis simplex</i>		A leafcutter bee			GNR	SNR			N/A	Scattered in the Coastal Plain.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Hylaeus floridanus</i>		A yellow-masked bee			GNR	SNR			N/A	One record from Western MD in 2013.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Hylaeus georgicus</i>		A yellow-masked bee			GNR	SNR			N/A	Eight records in MD. Most come from a series of males found at the same location in Central/Southern MD; other is from a single specimen in Eastern MD.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Hylaeus saniculae</i>		Sanicle yellow-faced bee			GNR	SNR			Proposed RAPS	One 2025 record from Central MD. Unclear habitat requirements.

Taxa Group	Taxa Subgroup	SGCN in 2015?	Scientific Name	Synonymous Scientific Names	Common Name	Alternate Common Names	Name changes since 2015	Global Rank	State Rank	Federal Status	State Status	NE Regional Status	Comments/Reasoning for SAPS
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Hylaeus sparsus</i>		Carrot yellow-faced bee			GNR	SNR			N/A	Scattered records in MD. Little information.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Lasioglossum acuminatum</i>		Pointed sweat bee			G5	SNR			N/A	Southern edge of range. Only really found in Western MD, though there is one 2003 record from Central MD.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Lasioglossum albipenne</i>		White-winged sweat bee			G5	SNR			N/A	Most records are from the drier ridge and valley mountain regions, but there are a couple Coastal Plain records in DE as well.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Lasioglossum anomalum</i>		Anomalous sweat bee			G5	SNR			N/A	One very old record from MD (1917); more recent records come from Central/Southern and Western MD.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Lasioglossum ascheri</i>		A sweat bee			GNR	SNR			N/A	Was synonymized with <i>L. curculum</i> in 2021. Super rare nest parasite. Haven't seen one in a while, but could easily still be in MD.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Lasioglossum atwoodi</i>		Atwood's sweat bee			G5	SNR			N/A	Newly described species with one record from Central/Southern MD.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Lasioglossum cinctipes</i>		Band-footed sweat bee			G5	SNR			N/A	Scattered records, a good number of which are from the same place in Central/Southern MD. Unclear pattern otherwise.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Lasioglossum creberrimum</i>		A sweat bee			GNR	SNR			N/A	Many records in Eastern MD, but only in a specific area. Is this species associated with salt marshes?
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Lasioglossum fattigi</i>		Fattig's sweat bee			G5	SNR			N/A	Legit record and species. A few records from Western MD. Generalist, so unsure as to why it's rarely found.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Lasioglossum forbesii</i>		Forbes's sweat bee	A sweat bee		G5	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Lasioglossum foveolatum</i>		Foveolate sweat bee			GNR	SNR			N/A	One found at a specific location in Central/Southern MD; small set found at another location in Southern MD. Both locations were large transmission lines running through woodlands.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Lasioglossum halophitum</i>		A sweat bee			GNR	SNR			N/A	Very regular along the coastline of MD (>500 records). However, since it is a saltmarsh specialist, possibly at risk.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Lasioglossum heterognathus</i>	<i>Dialictus heterognathus</i> , <i>Lasioglossum heterognathum</i>	Wide-mouthed sweat bee			G5	SNR			N/A	Likely regular species in the mountains. Records in Western MD.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Lasioglossum inconditum</i>		Misbehaved sweat bee			G5	SNR			N/A	Only a few records in MD; Western MD is southern edge of range.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Lasioglossum katherineae</i>		A sweat bee			GNR	SNR			N/A	Same reasoning as <i>Lasioglossum fattigi</i> . <i>Katherinae</i> was only described in 2011, so there's not a lot of historical data. Very similar morphologically to <i>L. fattigi</i> .
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Lasioglossum macoupinense</i>		Macoupin County sweat bee			G5	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Lasioglossum michiganense</i>		Michigan sweat bee			GNR	SNR			N/A	Globally rare. Only known records of this species in this region of the US are from Washington, D.C. -- not MD.

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Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Lasioglossum nigroviride</i>		Shiny black-bellied sweat bee			G5	SNR			N/A	Scattered individual records west of the Chesapeake Bay.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Lasioglossum oenotherae</i>		Evening primrose sweat bee			GNR	SNR			N/A	So far has been found in suburban disturbed areas. Could more dusk and dawn surveys yield more records?
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Lasioglossum pectinatum</i>		A sweat bee			GNR	SNR			RAPS	Only a handful of records across the country, two of which are in Western MD. Why is this bee not more common considering the prevalence of its host plant?
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Lasioglossum semicaeruleum</i>	<i>Dialictus semicaeruleum</i>	Half-blue sweat bee			GNR	SNR			N/A	Three specimens have been collected throughout MD. Species is very out of normal range (i.e., the western U.S.).
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Lasioglossum taylorae</i>		Taylor's sweat bee			GNR	SNR			N/A	This recently described species is uncommon everywhere, but seems more prevalent in the mountains (Western MD).
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Lasioglossum timothyi</i>		Timothy's sweat bee			G5	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Lasioglossum viridatum</i>		Eastern green sweat bee			G5	SNR			N/A	There is likely widespread confusion with other <i>Lasioglossum</i> species prior to the Gibbs revisions (2010, 2011); earlier specimens are simply labeled as <i>Lasioglossum viridatum_group</i> and not included in the reported numbers. Later identified specimens appear almost entirely to be from Western MD.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Megachile addenda</i>		Cranberry leafcutter bee			G5	SNR			N/A	Floral use tends towards the pea family (Fabaceae), not cranberry. Scattered records throughout MD.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Megachile georgica</i>		A leafcutter bee			G4	SNR			N/A	MD is northern part of range. Found mostly in Central MD.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Megachile inermis</i>		Unarmed leafcutter bee			G5	SNR			N/A	MD records restricted to Western MD, but has quite a wide continental range.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Megachile latimanus</i>		Broad-handed leafcutter bee			G5	SNR			N/A	Recent records all come from Western MD, but past records as recent as the 1960s indicate that the species was regular at one time in the Washington, D.C. region. One of the few species for which we have clear evidence of a recent range retraction.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Megachile montivaga</i>	<i>Megachile helianthi</i>	Hills leafcutter bee			G5	SNR			N/A	Scattered records throughout MD. Not too rare.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Megachile mucida</i>		A leafcutter bee			G4	SNR			N/A	Existing records indicate that this may be a species associated with more barren, open landscapes.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Megachile petulans</i>		Petulant leaf-cutter bee			G5	SNR			N/A	Prior to the Bee Lab's activity in the region, this species was unrecorded. Seems to be scattered throughout MD.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Megachile pseudobrevis</i>	<i>Megachile brevis pseudobrevis</i>	A leafcutter bee			G4	SNR			N/A	This species is very similar to <i>M. brevis</i> and consequently often overlooked. The two MD records for this state are from Southern and Eastern MD. MD is the northern boundary for this species.

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Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Megachile relativa</i>		Relative leafcutter bee			G5	SNR			N/A	A northern species; populations run south in the Appalachians through Western MD.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Melecta pacifica</i>		Pacific cuckoo bee			GNR	SNR			N/A	Only record in MD of this highly recognizable species collected in a single location in 2015.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Melissodes communis</i>		Common long-horned bee			G5	SNR			N/A	One recent record from Southern MD.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Melitta americana</i>		Cranberry oil bee			GNR	SNR			N/A	2024 record from Eastern MD, historical record from Western MD. What are they feeding on in Eastern MD?
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Melitta eickworti</i>		Deerberry melitta			GNR	SNR			N/A	One 2020 record in Western MD.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Melitta melittoides</i>		A melittid bee			GNR	SNR			RAPS	A decent number of MD records; likelihood that this species could be found on any of its host plant populations throughout the state. The current distribution may represent more of a lack of collecting activity than anything else.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Nomada annulata</i>		A cuckoo nomad bee			GNR	SNR			N/A	Handful of records in MD.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Nomada bethunei</i>		Bethune's cuckoo nomad bee			GNR	SNR			N/A	Handful of records in MD. Host unknown.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Nomada erigeronis</i>		A cuckoo bee			GNR	SU			N/A	Represented only by a fairly recent MD record from 2015.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Nomada graenicheri</i>		Graenicher's cuckoo nomad bee			GNR	SNR			N/A	Three recent records west of the Chesapeake Bay in the Coastal Plain.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Nomada obliterated</i>		Obliterated cuckoo nomad bee			GNR	SNR			N/A	Two records in MD. Scattered records, no clear pattern.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Nomada placida</i>		Placid cuckoo nomad bee			GNR	SNR			N/A	Two recent records in the region.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Nomada texana</i>	<i>Nomada heiligbrodtii</i>	A cuckoo bee			GNR	SNR			N/A	Handful of specimens. Until recently, there was a great deal of confusion between <i>N. tiftonensis</i> and <i>N. texana</i> ; the two species were recently disentangled, and identifications laid out morphologically and molecularly (Droege et al. 2010).
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Nomada tiftonensis</i>		A cuckoo bee			GNR	SNR			N/A	Handful of specimens. Until recently, there was a great deal of confusion between <i>N. tiftonensis</i> and <i>N. texana</i> ; the two species were recently disentangled, and identifications laid out morphologically and molecularly (Droege et al. 2010).
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Nomada vegana</i>	<i>Nomada modesta</i>	A cuckoo bee			GNR	SNR			N/A	2017 record from Central/Southern MD and 2006 record from Eastern MD. Seems to be associated with sandy areas.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Osmia inspergens</i>		Shiny-faced mason bee			G5	SNR			N/A	Unknown floral associations; possible barren habitat specialist.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Osmia virga</i>		Twig mason bee			G4	SNR			N/A	A relatively uncommon species, but not super rare. Feeds on ericaceous shrubs like blueberries.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Panurginus atramontensis</i>		A miner bee			GNR	SNR			N/A	Recent record in Western MD.

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Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Perdita pallidipennis</i>	<i>Perdita bequaerti</i>	Bequaert's miner bee			GNR	SNR			N/A	One record from Southern MD.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Protandrena andrenoides</i>		Small black miner bee			GNR	SNR			N/A	Handful of scattered records in MD.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Protandrena compositarum</i>	<i>Pseudopanurgus compositarum</i>	A mining bee			GNR	SNR			N/A	Tends to be found on fall Bidens.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Protandrena labrosiformis</i>	<i>Pseudopanurgus labrosiformis</i>	A mining bee			GNR	SNR			N/A	One MD record from 2012. Very little known about this species.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Protandrena rudbeckiae</i>	<i>Pseudopanurgus rudbeckiae</i>	Rudbeckia miner bee			GNR	SNR			N/A	Only a couple of recent MD records. May not only feed on Rudbeckia -- why is this rare?
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Protandrena rugosa</i>	<i>Pseudopanurgus rugosus</i>	Rugose spurred-miner bee			GNR	SNR			N/A	MD is northern edge of range. Only one specimen found in Southern MD.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Protandrena solidaginis</i>	<i>Pseudopanurgus solidaginis</i>	A mining bee			GNR	SNR			N/A	Handful of scattered records throughout MD.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Sphecodes antennariae</i>		A sweat bee			GNR	SNR			N/A	Scattered MD records of this nest parasite.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Sphecodes banksii</i>		A sweat bee			GNR	SNR			N/A	Very rare nest parasite with only 2 records in MD, both from northern part of state.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Sphecodes confertus</i>		Bi-lobed cuckoo sweat bee			GNR	SNR			N/A	Scattered records in Coastal Plain from about 15 years ago.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Sphecodes davisii</i>		Davis's cuckoo sweat bee			GNR	SNR			N/A	One record in Southern MD from 2004.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Sphecodes dichrous</i>		Scalloped cuckoo sweat bee			GNR	SNR			N/A	Only a few records in MD.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Sphecodes fattigi</i>		A sweat bee			GNR	SNR			N/A	Only a few records in MD.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Sphecodes heraclei</i>		Cyclops cuckoo sweat bee			GNR	SNR			N/A	Only a few records in MD. Unknown host.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Sphecodes illinoensis</i>		Illinois cuckoo sweat bee			GNR	SNR			N/A	Have questions about its habitat, distribution, and host bee species. Range is mostly to the north of MD, but all of the bee species we would expect to be its host have primarily southern distributions.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Sphecodes johnsonii</i>		Johnson's cuckoo sweat bee			GNR	SNR			N/A	MD records only at a specific site in Southern MD, but unsure if it is actually a habitat specialist. Unknown host.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Sphecodes mandibularis</i>		Red-toothed cuckoo sweat bee			GNR	SNR			N/A	Only a few records in MD. Unknown host.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Sphecodes pimpinellae</i>		Eastern cuckoo sweat bee			GNR	SNR			N/A	Only a few records in MD. Unknown host.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Sphecodes townesi</i>		Townes's cuckoo sweat bee			GNR	SNR			N/A	Only a few records in MD. Unknown host.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Stelis louisae</i>		Louisiana cuckoo carder bee			GNR	SNR			N/A	A nest parasite of resin-using leaf-cutting Bees (Megachile subgenus Chelostomoides) such as <i>M. campanulae</i> .
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Stelis nitida</i>		Healthy cuckoo carder bee			GNR	SNR			N/A	A single record from Central MD in 2022. Little natural history of this nest parasite is known. It is suspected of being a nest parasite of <i>Osmia bucephala</i> , whose range it nicely matches. Records are largely northern with specimens to the south of MD only found in the Appalachians.

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Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Stelis permaculata</i>		Sixteen-spotted cuckoo carder bee			GNR	SNR			N/A	One record in Central MD; however, could occur throughout the state based on the occurrence of its host(s).
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Triepeolus concavus</i>		Concave cuckoo nomad bee			GNR	SNR			N/A	A <i>Svastra obliqua</i> nest parasite. Occupies the Coastal Plain in MD.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Triepeolus cressonii</i>		Eucera cuckoo nomad bee			GNR	SNR			N/A	Scattered records across MD. May be <i>Melissodes</i> nest parasite.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Triepeolus distinctus</i>		A cuckoo bee			GNR	SU			N/A	Kleptoparasite species represented by an unknown number of individuals (possibly just one) collected in Southern MD in 2016.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Triepeolus donatus</i>		A cuckoo bee			GNR	SNR			N/A	More natural history for this species is needed, particularly host species. May actually be <i>Melissodes desponsus</i> . One record in Washington, D.C. in 2004.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Triepeolus eliseae</i>		A cuckoo bee			GNR	SNR			N/A	Newly described species found at two sites in MD.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Triepeolus obliteratus</i>		Erased cuckoo nomad bee			GNR	SNR			N/A	One record from Southern MD in 2007.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Triepeolus pectoralis</i>		White-breasted cuckoo nomad bee			GNR	SNR			N/A	Only 1 recent record from Eastern MD.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Triepeolus quadrifasciatus</i>		A cuckoo bee			GNR	SNR			N/A	Only 1 recent collection in Central/Southern MD in 2017.
Inverts	Inverts (Bees)	<input type="checkbox"/>	<i>Triepeolus rhododontus</i>		Red-lipped cuckoo nomad bee			GNR	SU			N/A	A globally uncommon species. Only has a single oddly-placed MD record from 2019.
Inverts	Inverts (Tiger Beetles)	<input checked="" type="checkbox"/>	<i>Apterodela unipunctata</i>	<i>Cylindera unipunctata</i> , <i>Cicindela unipunctata</i>	One-spotted tiger beetle		<i>Cicindela unipunctata</i> in 2015 SWAP.	G4	S3			N/A	Likely relatively common in MD, but not often found. Could be better surveyed through pitfall trapping. Apparently reported to fly in GA, but not CT, so clearly need to answer some questions.
Inverts	Inverts (Tiger Beetles)	<input type="checkbox"/>	<i>Cicindela formosa</i>		Big sand tiger beetle			G5	SU			N/A	On MD's rare / threatened / endangered species list. Has not been found in recent years; most recent record from Western MD. May or may not be extirpated from the state.
Inverts	Inverts (Tiger Beetles)	<input checked="" type="checkbox"/>	<i>Cicindela scutellaris</i>		Festive tiger beetle			G5	S3			N/A	Only this (color) morph is found in MD. A good number of records in Coastal Plain. Work needed to understand habitat requirements.
Inverts	Inverts (Tiger Beetles)	<input type="checkbox"/>	<i>Cicindelidia trifasciata</i>	<i>Cicindela trifasciata</i>	S-banded tiger beetle			G5	SNR			N/A	Southern species that has a large dispersal range and has been found in Southern MD. There is a chance it will become more established in MD, but for now, it is considered a vagrant.
Inverts	Inverts (Tiger Beetles)	<input type="checkbox"/>	<i>Tetracha carolina</i>	<i>Megacephala carolina</i>	Pan-American big-headed tiger beetle			G5	SNR			N/A	Recently recorded in Eastern MD. This is the sister species of another beetle (<i>Virginica</i>) that has been found in MD for some time. A southern species moving north. Would like to continue surveying efforts.
Inverts	Inverts (Fireflies)	<input type="checkbox"/>	<i>Lucidota punctata</i>	<i>Lychnuris punctata</i>	Spotted firefly	Tiny Lucy		G5?	SNR			N/A	Confirmed presence in both PA and WV. Scattered records in MD. Main needs related to research and surveying.

Taxa Group	Taxa Subgroup	SGCN in 2015?	Scientific Name	Synonymous Scientific Names	Common Name	Alternate Common Names	Name changes since 2015	Global Rank	State Rank	Federal Status	State Status	NE Regional Status	Comments/Reasoning for SAPS
Inverts	Inverts (Fireflies)	<input type="checkbox"/>	<i>Phausis inaccensa</i>		Shadow ghost			G5	SNR			N/A	Ranked S1? in WV. Found very close to MD, just over WV border. Not often found in surveys.
Inverts	Inverts (Fireflies)	<input type="checkbox"/>	<i>Phengodes laticollis</i>		Railroad-worm			GNR	SNR			N/A	Somewhat uncommon species in WV found close to the MD border. Main concerns have to do with survey needs.
Inverts	Inverts (Fireflies)	<input type="checkbox"/>	<i>Phengodes plumosa</i>		Plumose glowworm beetle			GNR	SNR			N/A	General lack of understanding/data regarding this species. Main concerns have to do with survey needs.
Inverts	Inverts (Fireflies)	<input type="checkbox"/>	<i>Photinus carolinus</i>		Synchronous firefly	Smokies synchronous firefly		G4	SNR			Proposed RAPS	Believe this species is present in Western MD, but not yet 100% certain. Relatively common species in WV.
Inverts	Inverts (Fireflies)	<input type="checkbox"/>	<i>Photinus consanguineus</i>	<i>Photinus consanguinea</i> , <i>Photinus vittigera</i> , <i>Photinus zonatus</i>	Consanguineous firefly			G5?	SNR			N/A	Close to certain this species is being found in WV near the MD border, but not 100% sure about sightings in MD itself. Need to resolve taxonomy.
Inverts	Inverts (Fireflies)	<input type="checkbox"/>	<i>Photinus consimilis</i>		Similar firefly	Cattail flash-train firefly		GU	SNR			Proposed RAPS	Ranked S2 in WV. In MD, main needs related to research and surveying.
Inverts	Inverts (Fireflies)	<input type="checkbox"/>	<i>Photinus jamesi</i>	<i>Photinus greeni</i> , <i>Ellychnia greeni</i>	Green's firefly	A firefly sp.		G4	SNR			N/A	Need to resolve taxonomy. Also, scientific name may be outdated.
Inverts	Inverts (Fireflies)	<input type="checkbox"/>	<i>Photinus macdermotti</i>		Mr. Mac			G4G5	SNR			N/A	Need to resolve taxonomy.
Inverts	Inverts (Fireflies)	<input type="checkbox"/>	<i>Photinus obscurellus</i>	<i>Photinus obscurella</i>	Obscure firefly	Murky flash-train		G4G5	SNR			N/A	Have a handful of Maryland Biodiversity Project records in Western MD. Has also been found in WV just over the state border.
Inverts	Inverts (Fireflies)	<input type="checkbox"/>	<i>Photuris appalachianensis</i>		Appalachian dot-dash firefly			?	?			N/A	In MD, only known from one site in Garrett County. May have also been recently found in WV; unsure.
Inverts	Inverts (Fireflies)	<input type="checkbox"/>	<i>Photuris cinctipennis</i>		Belted firefly			G1G2	SNR			RSGCN	Hard to differentiate from <i>Photuris hebes</i> . Almost seems like there's a continuum of difference between the two; might be either one or three separate species. Not 100% sure these records are actually <i>Photuris cinctipennis</i> . Need to do genetic tests.
Inverts	Inverts (Fireflies)	<input type="checkbox"/>	<i>Photuris pennsylvanica</i>	<i>Lampyris pennsylvanica</i> , <i>Photuris pennsylvanicus</i>	Dot-dash firefly	Pennsylvania firefly		G3?	SNR			RSGCN	Have some records in Central MD, but very little data overall.
Inverts	Inverts (Fireflies)	<input type="checkbox"/>	<i>Pollaclasis bifaria</i>		Bifid-horned firefly	Branched Polly		GU	SNR			N/A	Probably been encountered less than 100 times total. Only been seen in MD a couple of times. Non-flashing diurnal species.
Inverts	Inverts (Fireflies)	<input type="checkbox"/>	<i>Pyractomena dispersa</i>		Long-range firefly beetle	Marsh flicker		GU	SNR			N/A	Confirmed presence in WV. Scattered records in MD. Main needs related to research and surveying.
Inverts	Inverts (Fireflies)	<input type="checkbox"/>	<i>Pyractomena lucifera</i>		Marsh imp firefly			GU	SNR			N/A	Suspected presence in this region, but multiple surveys in nearby WV have turned up nothing over the years. Have two Maryland Biodiversity Project records in Eastern MD.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Acroneuria arenosa</i>		Eastern stone			G4?	SNR			N/A	Have scattered records in MD from before 2000. Most recent record (2020) is from Western MD.

Taxa Group	Taxa Subgroup	SGCN in 2015?	Scientific Name	Synonymous Scientific Names	Common Name	Alternate Common Names	Name changes since 2015	Global Rank	State Rank	Federal Status	State Status	NE Regional Status	Comments/Reasoning for SAPS
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Adicropheps hitchcocki</i>		A brachycentrid caddisfly			G3G4	SNR			Proposed RSGCN	Rarely reported from MD. Ranked S2 in VA.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Allocapnia aurora</i>		Aurora snowfly			G5	SNR			N/A	Have a few scattered records of this species in MD. Appears to usually have more of a southeastern range. Ranked S4 in PA.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Allocapnia frumi</i>		Monongahela snowfly			G2G3	SNR			RSGCN	Have records in Western MD, some in already protected areas. Listed as SGCN in an adjacent state, but not in MD. Ranked S2 in WV.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Allocapnia harperi</i>		Stonyfork snowfly			G4	SNR			RSGCN	Have records in Western MD. Listed as SGCN in an adjacent state, but not in MD. Ranked S3 in PA.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Allocapnia illinoensis</i>		Illinois snowfly			G3	SNR			RSGCN	Have records in Western MD from the 90s. Listed as SGCN in an adjacent state, but not in MD. Ranked S2 in VA and S3 in PA. Considered extirpated or critically imperiled in the Midwest.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Allocapnia pechumani</i>		Saint Lawrence snowfly	St. Lawrence snowfly		G3	SNR			N/A	Have a single record of this species in Western MD. Generally appears to be a more northerly species. Ranked S3 in PA.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Allocapnia simmonsii</i>		Spatulate snowfly			G3	SNR			RSGCN	Have one record of this species from Western MD. Listed as SGCN in an adjacent state, but not in MD. Ranked S1 in VA and S2 in VA.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Allocapnia virginiana</i>		Virginiana snowfly			G5	SNR			N/A	A few records in Southern MD. This appears to be the species' northern edge of its range.
Inverts	Inverts (Aquatic Orders)	<input checked="" type="checkbox"/>	<i>Alloperla aracoma</i>		Aracoma sallfly			G3	SNR			RSGCN	Was a data deficient SGCN in previous SWAP. A few records for this species in Western MD. Ranked S1 in WV and S3 in PA.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Alloperla atlantica</i>		Atlantic sallfly			G4?	SNR			N/A	Have 2020 records of this species from Western MD.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Alloperla petasata</i>		Woodlands sallfly			G4?	SNR			N/A	Have 2020 records of this species from Western MD.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Anisocentropus pyraloides</i>		Spatulate long-horned caddisfly	A caddisfly		G5	SNR			N/A	Found in MD's Coastal Plain occasionally, southeastern to NJ. Ranked S1 in DE but probably more stable further south. 2006 collection in VA.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Anthopotamus verticis</i>	<i>Potamanthus walkeri</i>	Walker's tusked sprawler			G4G5	SU			RAPS	Recent records in Central MD and just over the border in VA.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Apatania incerta</i>	<i>Apatania blacki</i> , <i>Apatania praevolans</i> , <i>Apatania rossi</i>	Doubtful mountain caddisfly			G4	SNR			N/A	Found infrequently in Western MD, although more common in recent years.

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Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Attaneuria ruralis</i>		Giant stone			G4	SNR			N/A	Have historic records of this species in Central MD; more recent records are in Western MD. Listed as SGCN in an adjacent state, but not in MD. Ranked SH in PA. Wide range, but appears extirpated in the Midwest and vulnerable elsewhere.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Attenella attenuata</i>		Tapered spiny crawler mayfly			G4	SNR			N/A	2022 record from northern Central MD. Southernmost record.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Bolotoperla rossi</i>		Smoky willowfly			G4G5	SNR			N/A	Have two records of this species in Western MD. Listed as SGCN in an adjacent state, but not in MD. Ranked S4 in PA and S2 in TN and NC.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Brachycentrus incanus</i>		Hoary humpless caddisfly	A caddisfly		G3G5	SNR			Proposed RSGCN	One old record from Washington, D.C. Also a proposed regional species of greatest conservation need.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Ceraclea neffi</i>		A longhorned caddisfly			G5	SNR			N/A	No official MD records, but collected occasionally. Also found in WV and ranked S2 in VA.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Ceraclea punctata</i>		Dotted long-horned caddisfly	A ceraclean caddisfly		G4G5	SNR			Proposed RAPS	Recorded in MD. Ranked S2 in VA.
Inverts	Inverts (Aquatic Orders)	<input checked="" type="checkbox"/>	<i>Ceraclea spongillovorax</i>		A longhorned caddisfly			G3G4	SNR			N/A	Was a data deficient SGCN in previous SWAP. Several records from the Potomac River in the 80s, occasionally recorded since then. NatureServe (2005) notes that this species is found from Illinois and Indiana south along the Mississippi Basin, though it has not been recorded in any states surrounding MD. Unsure of the status of this particular species.
Inverts	Inverts (Aquatic Orders)	<input checked="" type="checkbox"/>	<i>Ceraclea uvalo</i>		Spatulate long-horned caddisfly			G3	SNR			RSGCN	Was a data deficient SGCN in previous SWAP. Have one record in MD and another record from VA just over the border.
Inverts	Inverts (Aquatic Orders)	<input checked="" type="checkbox"/>	<i>Cernotina pallida</i>		Pale trumpet-net caddisfly	A caddisfly	A caddisfly in 2015 SWAP.	G3G4	SNR			RAPS	Was a data deficient SGCN in previous SWAP. Recorded in MD. Ranked SH in VA. There are also some southern species of Cernotina in VA that are S1, but they seem too far out of range.
Inverts	Inverts (Aquatic Orders)	<input checked="" type="checkbox"/>	<i>Cheumatopsyche parentum</i>		A hydropschid caddisfly			G3	SNR			N/A	Was a data deficient SGCN in previous SWAP. Old records in MD and VA.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Culoptila plummerensis</i>		A saddlecase caddisfly			G3G4	SNR			N/A	Collected regularly in low numbers from certain sites in Western MD.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Cultus verticalis</i>		Spiny springfly			G4?	SNR			N/A	Have a single 1998 record from Western MD.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Dibusa angata</i>		Angulated microcaddisfly			G4G5	SNR			N/A	Rarely collected in Western MD. Dependent on Lemanea australis red algae for food and case materials.

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Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Ephemera blanda</i>	<i>Ephemera triplex</i>	West Virginia burrowing mayfly			G5	SNR			RAPS	Recent records from Central, mostly Western MD. No known PA records.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Ephemereella excrucians</i>	<i>Ephemereella argo</i> , <i>Ephemereella crenula</i> , <i>Ephemereella inermis</i> , <i>Ephemereella lacustris</i> , <i>Ephemereella ora</i> , <i>Ephemereella rama</i> , <i>Ephemereella rossi</i>	Lowlands spiny crawler mayfly	A mayfly		G5	SNR			N/A	Records from both Western and Central MD.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Ephemereella invaria</i>	<i>Ephemereella choctawhatchee</i> , <i>Ephemereella fratercula</i> , <i>Ephemereella inconstans</i> , <i>Ephemereella rotunda</i> , <i>Ephemereella simila</i>	Sulphur spiny crawler mayfly	A mayfly		G4G5	SNR			N/A	18 records from Central MD. Habitat is not well known, but it's associated with small to medium streams. Also found in PA.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Ephoron leukon</i>		Tracheated white burrowing mayfly			G5	SNR			N/A	In Potomac, Susquehanna, maybe other large rivers. Concerns about noticeable declining White fly hatch from fly-fishermen, which have been relayed to DNR fisheries.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Eurylophella bicolor</i>		Nova Scotia spiny crawler mayfly	Bicolor spiny crawler mayfly		G4G5	SNR			RAPS	Records from Western MD, including one in 2021.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Hansonoperla appalachia</i>		Appalachian stone	Hanson's Appalachian stone		G3	SNR			RSGCN	Have records from a single site in Western MD in the 90s. Listed as SGCN in an adjacent state, but not in MD. Ranked S2 in PA and WV.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Heteroplectron americanum</i>		American comb-lipped caddisfly			G4	SNR			Proposed RSGCN	Occasionally encountered in MBSS samples, only put it on this list because it is S2 in VA. Probably isn't as threatened in MD.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Homoplectra doringa</i>		A hydroptychid caddisfly			G4	SNR			N/A	Records in surrounding states; ranked S3 in VA. We get Homoplectra larvae rarely; unsure which species
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Homoplectra monticola</i>	<i>Aphropsyche monticola</i>	A hydroptychid caddisfly			G2G3	SNR			Proposed RSGCN	Records in surrounding states; ranked S2 in VA. We get Homoplectra larvae rarely; unsure which species
Inverts	Inverts (Aquatic Orders)	<input checked="" type="checkbox"/>	<i>Hydropsyche brunneipennis</i>		A net-spinning caddisfly	A scalaris trichopteran		G3G4	S3			N/A	Found in the Potomac River(?) in the 80s, where/when it was described as a new species. Currently ranked as S3 in MD. Have not found any information on why it was given this rank.

Taxa Group	Taxa Subgroup	SGCN in 2015?	Scientific Name	Synonymous Scientific Names	Common Name	Alternate Common Names	Name changes since 2015	Global Rank	State Rank	Federal Status	State Status	NE Regional Status	Comments/Reasoning for SAPS
Inverts	Inverts (Aquatic Orders)	<input checked="" type="checkbox"/>	<i>Hydropsyche hoffmani</i>		A net-spinning caddisfly			G3G4	SNR			N/A	Was a data deficient SGCN in previous SWAP. Prefers the flat surfaces on the tops of boulders in deep, fast running water, which may lead to undersampling of its larval habitat. Has been recorded in VA, DE, MD, and WV, though it is never common.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Lepidostoma sommermanae</i>		Sommerman's bizarre caddisfly			G3G4	SNR			N/A	Recorded in MD. Ranked S1 in NY.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Leucotrichia pictipes</i>		A ring-horn microcaddisfly	Painted-foot microcaddisfly		G5	SNR			N/A	One record in MD in 2007 from the Patapsco River.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Leucrocuta juno</i>		Juno's flat-headed mayfly			G4?	SNR			Proposed RAPS	Habitat is medium streams to large rivers, mostly in PA. Scattered recent records in MD
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Leucrocuta thetis</i>		A flat-headed mayfly			G3G4	SNR			N/A	Recorded in Western MD in 2023. No known PA records.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Leucrocuta umbratica</i>		Shady flat-headed mayfly			G4?	SNR			Proposed RAPS	Recorded in Central MD in 2023.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Leucrocuta walshi</i>		Walsh's flat-headed mayfly			G4?	SNR			Proposed RAPS	Recorded in Western MD in 2019.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Litobrancha recurvata</i>		Brown drake mayfly			G4	SNR			N/A	Only records in our database are from a few sites in Western MD. Mainly a northeastern species, somewhat rare in Southeast.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Molanna uniophila</i>		Faithful hood caddisfly			G5?	SNR			N/A	Recorded in Central MD in the 1970s. Ranked S1 in VA and NY.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Neoleptophlebia assimilis</i>	<i>Paraleptophlebia assimilis</i>	Southeastern prong-gilled mayfly			G3	SNR			RAPS	Recorded in Western MD in 2008. No known PA records.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Neophylax mitchelli</i>		Mitchell's autumn mottled sedge	Mitchell's little caddisfly		G3G4	SNR			N/A	One 2006 record at Patuxent.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Neophylax stotus</i>		A thremmatid caddisfly	An uenoid caddisfly		G3G4	SNR			N/A	Recorded in MD. Ranked.S3 in VA, S1 in NY.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Neophylax virginica</i>		A thremmatid caddisfly	An uenoid caddisfly		GNR	SNR			N/A	Found in the Potomac. Very limited distribution in large rivers from MD to NC. Ranked S1 in NC.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Nixe inconspicua</i>	<i>Heptagenia inconspicua</i> , <i>Afghanurus inconspicua</i>	Inconspicuous flat-headed mayfly			G4G5	SNR			Proposed RAPS	Recent scattered records in MD.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Nixe rusticalis</i>	<i>Afghanurus rusticalis</i>	Rusty flat-headed mayfly			G4	SNR			RSGCN	Recorded in Central/Western MD in 2021.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Oligostomis pardalis</i>		Panther giant caddisfly			G4G5	SNR			N/A	Genus has been recorded by MBSS, and this species is the most likely to occur in MD. Ranked S1 in VA.

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Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Ostrocerca complexa</i>		Notched forestfly			G4?	SNR			N/A	Have records in Western MD. Listed as SGCN in an adjacent state, but not in MD. Ranked S1 in WV, S2 in VA, and S4 in PA.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Padunia jeanae</i>	<i>Matrioptila jeanae</i>	A caddisfly			G4	SNR			N/A	Southeastern species, S2 or S3 in parts of its range. Our MBSS records come from a sentinel site which may represent the northern limit of its range. It has been collected multiple times from this site.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Palaeagapetus celsus</i>		Lofty microcaddisfly			G4	SNR			N/A	Two records from MBSS collected in Western MD. Ranked S2 in NY and NC.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Perlesta teaysia</i>	<i>Perlesta napacola</i>	Teays stone			G4	SNR			N/A	Some scattered records in MD from the 90s. Most recent record (2020) is from Western MD.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Perlinella drymo</i>		Striped stone			G4G5	SNR			N/A	Have one record in Central MD from an unknown year. Listed as SGCN in an adjacent state, but not in MD. Ranked S3 in PA. Relatively widespread range.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Polycentropus carlsoni</i>		Carlson's polycentropus caddisfly			G2G3	SNR			N/A	Ranked G2. Have records from nearby county in VA, and there's another apparent record of a male from Central MD.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Potamyia flava</i>		Yellow net-spinning caddisfly	A caddisfly		G5	SNR			N/A	Large river caddisfly taken from Potomac River. SH in VA; thought to be in decline. Habitat is poorly sampled. Mostly collected in our samples from the Potomac in the 70s; last sample was 2001 during MBSS. Also have a 2021 iNaturalist record from Central MD.
Inverts	Inverts (Aquatic Orders)	<input checked="" type="checkbox"/>	<i>Protoptila georgiana</i>		A caddisfly			G3G4	SNR			N/A	Was a data deficient SGCN in previous SWAP. One record in MD from 2006; the Potomac River seems to be the northern edge of its range.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Pteronarcys comstocki</i>		Spiny salmonfly			G4?	SNR			N/A	One very recent confirmed record in Western MD. Had not previously been recorded in the state and is quite rare this far south in its range.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Shipsa rotunda</i>		Intrepid forestfly			G4	SNR			N/A	Spotty records throughout MD, some quite old. Known from the piedmont and upper Coastal Plain regions of MD.
Inverts	Inverts (Aquatic Orders)	<input type="checkbox"/>	<i>Soyedina kondratieffi</i>		Southeastern forestfly			G4	SNR			N/A	Disjunct distribution; in MD, only known from Western MD. Ranked S1 in NC.
Inverts	Inverts (Aquatic Orders)	<input checked="" type="checkbox"/>	<i>Utaperla gaspesiana</i>		Gaspé sallfly	Gaspé sallfly		G3	SNR			RSGCN	Was a data deficient SGCN in previous SWAP. Have records from a single site in Western MD in the 90s. Ranked S1 in WV and S2 in PA.
Inverts	Inverts (Cave & Groundwater)	<input checked="" type="checkbox"/>	<i>Acanthocyclops columbiensis</i>		A cyclopoid copepod	A copepod	A copepod in 2015 SWAP.	G1	SNR			N/A	Was a data deficient SGCN in previous SWAP. No records of this species in our database. This is a group where there are some rare species that may be in need of conservation, but we just do not know enough about them yet.

Taxa Group	Taxa Subgroup	SGCN in 2015?	Scientific Name	Synonymous Scientific Names	Common Name	Alternate Common Names	Name changes since 2015	Global Rank	State Rank	Federal Status	State Status	NE Regional Status	Comments/Reasoning for SAPS
Inverts	Inverts (Cave & Groundwater)	<input type="checkbox"/>	<i>Agyreta bronx</i>		A linyphiid spider			GNR	SNR			N/A	Only known from one cave in MD. More research needed.
Inverts	Inverts (Cave & Groundwater)	<input type="checkbox"/>	<i>Annapolis mossi</i>		Moss Annapolis money spider	A linyphiid spider		GNR	SNR			N/A	Known from 1940s collection in a Central/Southern MD wetland. Recent interest in trying to collect this again and find the locality where this was first collected.
Inverts	Inverts (Cave & Groundwater)	<input checked="" type="checkbox"/>	<i>Arrhopalites sp. 1</i>		Crabtree cave springtail			GNR	SU			N/A	Was a data deficient SGCN in previous SWAP. Only found in one cave. Last record was from 1980, but not sure if anyone has looked since then.
Inverts	Inverts (Cave & Groundwater)	<input type="checkbox"/>	<i>Attheyella spinipes</i>		A cyclopoid copepod			GNR	SU			N/A	On MD's rare / threatened / endangered species list. Need more information on population and species range. Found frequently in surrounding states. Have 1986 records from just over the border in Washington, D.C.
Inverts	Inverts (Cave & Groundwater)	<input type="checkbox"/>	<i>Conasellus sp. 1</i>	<i>Caecidotea sp. 1</i>	Poplar Creek isopod		Was not in 2015 SWAP, but referred to elsewhere as <i>Caecidotea sp. 1</i> .	G1	S1			N/A	On MD's rare / threatened / endangered species list. Found in Southern MD. Have not collected any male specimens, which has made describing the species difficult. Have also lost access to the property in the years since this record. May in fact be <i>Conasellus hobsoni</i> or <i>Conasellus nodulus</i> ; more work required.
Inverts	Inverts (Cave & Groundwater)	<input checked="" type="checkbox"/>	<i>Crangonyx stagnicolous</i>		An amphipod	A freshwater amphipod		G2	SNR			N/A	Was a data deficient SGCN in previous SWAP. Described from dissertation in 1997. Does not look like other records have been found since.
Inverts	Inverts (Cave & Groundwater)	<input type="checkbox"/>	<i>Dactylocythere scotos</i>		An entocytherid ostracod			GNR	S1			N/A	On MD's rare / threatened / endangered species list. Included on the 2005 SGCN list but was removed for the 2015 list. Does not seem to have been observed beyond its initial description.
Inverts	Inverts (Cave & Groundwater)	<input type="checkbox"/>	<i>Diacyclops palustris</i>		A cyclopoid copepod			GNR	SU			N/A	On MD's rare / threatened / endangered species list. Have a 1986 record from just over the border in Washington, D.C.
Inverts	Inverts (Cave & Groundwater)	<input checked="" type="checkbox"/>	<i>Donnaldsoncythere donnaldsonensis</i>		Donaldson's cave ostracod			G3	SNR			N/A	Was a data deficient SGCN in previous SWAP. Know little about this species; believe it lives on crayfish.
Inverts	Inverts (Cave & Groundwater)	<input type="checkbox"/>	<i>Oreonetides beattyi</i>		Beatty's sheetweb cave spider	A linyphiid spider		GNR	SNR			N/A	Described species with specimen from Western MD. Along with other cave spider species, needs additional review/understanding of current distribution.
Inverts	Inverts (Cave & Groundwater)	<input checked="" type="checkbox"/>	<i>Oreonetides sp. 1</i>		Snively's cave spider			GNR	SU			N/A	Was a data deficient SGCN in previous SWAP. Last observed in 1986. Specimen(s) should be reviewed for species determination; looks like male is still needed.
Inverts	Inverts (Cave & Groundwater)	<input checked="" type="checkbox"/>	<i>Phagocata dissimilis sp. nov.</i>		A planarian			GNR	SNR			N/A	Was a data deficient SGCN in previous SWAP. Found in 1999 in Central MD.

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Inverts	Inverts (Cave & Groundwater)	<input checked="" type="checkbox"/>	<i>Phagocata projecta</i> <i>sp. nov.</i>		A planarian			GNR	SNR			N/A	Was a data deficient SGCN in previous SWAP. Found in 1990 in Western MD.
Inverts	Inverts (Cave & Groundwater)	<input checked="" type="checkbox"/>	<i>Phagocata virilis</i>		A planarian			GNR	S1			N/A	Have three records scattered throughout MD (Western, Eastern, and Southern). Difficult to tell apart from more common species; has the potential to be more widespread than we think. Would be good to have more data on.
Inverts	Inverts (Cave & Groundwater)	<input checked="" type="checkbox"/>	<i>Porrhomma cavernicola</i>	<i>Porhomma cavernicola</i>	Appalachian cave spider	Cave-dwelling wide-eyed sheetweaver		G5	S2			N/A	Widespread throughout caves in this region. 6 records in MD throughout 3 counties. Relatively easy species to find if you're looking for them. Adds to the biodiversity of the cave climate; not a rare species itself, but an important part of a rare community.
Inverts	Inverts (Cave & Groundwater)	<input checked="" type="checkbox"/>	<i>Pseudanophthalmus</i> <i>sp. 15</i>		A cave beetle			G1	S1			N/A	Discovered in two localities in MD. Was identified as a new species when first records were found. Very difficult to survey, and original specimens were lost. Also the northernmost <i>Pseudanophthalmus</i> recorded.
Inverts	Inverts (Cave & Groundwater)	<input checked="" type="checkbox"/>	<i>Sphalloplana cava</i> <i>sp. nov.</i>		A planarian			GNR	SNR			N/A	Was a data deficient SGCN in previous SWAP. Found in 1990 in Western MD.
Inverts	Inverts (Cave & Groundwater)	<input checked="" type="checkbox"/>	<i>Sphalloplana</i> <i>sp. 1</i>		A planarian			GNR	S1S2			N/A	A handful of records from Western MD. Various properties where specimens have been found are threatened for various reasons; however, most records in MD are pre-2000.
Inverts	Inverts (Cave & Groundwater)	<input checked="" type="checkbox"/>	<i>Stygobromus allegheniensis</i>		Allegheny cave amphipod			G5	S2S3		I	N/A	Many records for this species. Might actually be a conglomerate of cryptic species, particularly given its large range. Would be great to do genetic sequencing.
Inverts	Inverts (Cave & Groundwater)	<input checked="" type="checkbox"/>	<i>Stygobromus</i> <i>sp. 14</i>		Roundtop amphipod			GNR	S1			N/A	Single confident spot in Western MD from 1985 records. Other mid-90s records in Western and Central MD may or may not be same species. Want to do more work to figure out which species are actually found where. Also needs to be described.
Inverts	Inverts (Cave & Groundwater)	<input checked="" type="checkbox"/>	<i>Stygobromus</i> <i>sp. 5</i>		Barrelville amphipod			GNR	S1			N/A	Data deficient species. Found in 1990 in Western MD.
Inverts	Inverts (Cave & Groundwater)	<input checked="" type="checkbox"/>	<i>Stygobromus</i> <i>sp. 6</i>		Devil's Hole cave amphipod			GNR	S1			N/A	1985 records from Western MD. Locations now on private land.
Inverts	Inverts (Cave & Groundwater)	<input checked="" type="checkbox"/>	<i>Stygobromus tenuis</i> <i>potomacus</i>		Potomac amphipod	Potomac groundwater amphipod, Potomac stygobromid		G4T4	S3			N/A	Likely a complex of a cryptic species. Lots of records all across MD and in Washington, D.C. in springs and seeps.

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Inverts	Inverts (Cave & Groundwater)	<input checked="" type="checkbox"/>	<i>Stygobromus tenuis tenuis</i>		Slender amphipod	Tenuis amphipod, Slender stygobromid, Piedmont groundwater amphipod	Tenuis amphipod in 2015 SWAP.	G4T4	SU			N/A	Was a data deficient SGCN in previous SWAP. Records from the mid-2000s. Records scattered around Coastal Plain seeps.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Adalia bipunctata</i>		Two-spotted ladybug	Two-spotted lady beetle		G5	SNR			N/A	Probably historic species. 2021 record in Baltimore, but may have just come in with the produce. Is it considered invasive?
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Coccinella novemnotata</i>		Nine-spotted ladybug	Nine-spotted lady beetle		G5	SNR			N/A	Is it considered invasive?
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Cotalpa lanigera</i>	<i>Cotalpa lanigerus</i>	Goldsmith beetle	Goldsmith shiny leaf chafer		G5	SNR			N/A	Few records, only found on Coastal Plain.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Curculio caryatrypes</i>		Greater chestnut weevil	Larger chestnut weevil		GNR	SNR			N/A	Declared extinct in 2017. However, there have since been multiple records in the mid-Atlantic from VA and DE. None yet in MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Curculio sayi</i>		Lesser chestnut weevil	Small chestnut weevil		GNR	SNR			N/A	May have been recently found in MD, but record still unconfirmed. Usually only see larvae, which is hard to ID. Has very much decreased since historic times.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Dicranopselaphus variegatus</i>	<i>Alabameubria starki</i>	Variegated false water penny beetle			G1G3	SNR			N/A	Apparently previously collected in MD, although cannot find any other MD records or information.
Inverts	Inverts (Other)	<input checked="" type="checkbox"/>	<i>Dryobius sexnotatus</i>		Six-banded longhorn beetle			GNR	S1		E	N/A	Day active longhorn beetle, which is pretty unusual. Difficult to catch; likely more common than we think based on sightings. Need to look further into pheromone traps as a method of catching/surveying species, as light traps do not work.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Dynastes tityus</i>		Eastern Hercules beetle			GNR	SNR			N/A	Many records in MD, but ash is a preferred host (adults feed on ash sap). Want to keep an eye on due to ash preference.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Hippodamia glacialis</i>		Glacial lady beetle			G5	SNR			N/A	Few records in MD. May be threatened by invasive ladybugs.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Hydrochara occulta</i>		A hydrophilid beetle	A water scavenger beetle		GNR	SU			N/A	On MD's rare / threatened / endangered species list. Given its ranking of SU and a general lack of info, put on SAPS rather than SGCN list.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Hydrocolus deflatus</i>		A predaceous diving beetle			GNR	S3			N/A	On MD's rare / threatened / endangered species list. Uncommonly collected in surveys, although other species of this genus are common.
Inverts	Inverts (Other)	<input checked="" type="checkbox"/>	<i>Hylesinus criddlei</i>		Northern ash bark beetle			GNR	SNR			N/A	Was a data deficient SGCN in previous SWAP. No MD records, but low chance of adequate surveys up until this point. Ash dependent species.
Inverts	Inverts (Other)	<input checked="" type="checkbox"/>	<i>Hylesinus fasciatus</i>		White-banded ash bark beetle			GNR	SNR			N/A	Was a data deficient SGCN in previous SWAP. No MD records, but low chance of adequate surveys up until this point. Ash dependent species.

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Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Laccophilus schwarzi</i>		Schwarz' diving beetle			GNR	SX			N/A	On MD's rare / threatened / endangered species list. Only MD record is from before 1917; has not been seen since. Likely difficult to find/identify.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Lordithon niger</i>		Black lordithon rove beetle			GU	SNR			N/A	Was found in a pitfall trap in 2023. Considered extirpated from much of the northeast.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Lucanus elaphus</i>		Giant stag beetle			G3G5	SU			N/A	On MD's rare / threatened / endangered species list. Have been recent (last ~2 years) findings in Southern MD. Was also recently found in Eastern MD for the first time in a while. Numbers seem to be increasing in MD; would like to do a better assessment of this species.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Lutrochus laticeps</i>		Wide-headed travertine beetle			GNR	SNR			N/A	Rare habitat specialist beetle historically recorded from MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Nephus gordonii</i>		A coccinellid beetle			GNR	SU			N/A	On MD's rare / threatened / endangered species list, but cannot find any MD-specific information or records.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Phelopsis obcordata</i>	<i>Phelopsis obcordatus</i>	Eastern ironclad beetle			G5	SNR			N/A	One record for MD from 1991. Likes old growth forests. Might show up more in samples from old growth forests, but it's hard to look for -- looks like a piece of bark.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Pherhimius fascicularis</i>	<i>Hemirhipus fascicularis</i>	A click beetle			GNR	SNR			N/A	Only a few records in MD. We are in the northernmost part of range.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Sperchopsis tessellata</i>	<i>Sperchopsis tessellatus</i>	Checkered water scavenger beetle			GNR	S2			N/A	Included in 2005 SWAP, but removed in 2015. Unclear what the habitat requirements are. Is this a vernal pool specialist or can it exist in streams? Also, cannot find information on what led to ranking.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Strigoderma arboricola</i>	<i>Strigoderma arboricola</i>	Sand shiny leaf chafer			GNR	SNR			N/A	Only found in sandy areas. Some have concerns that this is an emergent pest (though native). Need to learn more about this species.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Xyloryctes jamaicensis</i>		Rhinoceros beetle	Unicorn beetle		GNR	SNR			N/A	Many records in MD, but ash is a preferred host. Want to keep an eye on due to ash preference.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Aphaenogaster treatae</i>		Treat's collared ant	Treat funnel ant		GNR	SNR			N/A	Main needs related to research.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Camponotus caryae</i>		Walnut carpenter ant			GNR	SNR			N/A	Main needs related to research.
Inverts	Inverts (Other)	<input checked="" type="checkbox"/>	<i>Camponotus impressus</i>	<i>Camponotus impressa</i>	A formicine ant	A carpenter ant		GNR	SNR			N/A	Was a data deficient SGCN in previous SWAP. Main needs still related to research.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Camponotus snellingi</i>		Snelling's carpenter ant			GNR	SNR			N/A	Main needs related to research.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Dolichoderus pustulatus</i>		Bog long-necked ant			GNR	SNR			N/A	Main needs related to research.
Inverts	Inverts (Other)	<input checked="" type="checkbox"/>	<i>Dolichoderus taschenbergi</i>		Taschenberg's long-necked ant	A dolichoderine ant		G5	SNR			N/A	Was a data deficient SGCN in previous SWAP. Main needs still related to research.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Formica exsectoides</i>		Allegheny mound ant			GNR	SNR			N/A	Many records but only in a few actual sites. Could be at risk from vandalism.

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Inverts	Inverts (Other)	<input checked="" type="checkbox"/>	<i>Formica querquetulana</i>		Oak-grove ant	A wood ant		GNR	SNR			N/A	Was a data deficient SGCN in previous SWAP. Main needs still related to research.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Monomorium viride</i>	<i>Monomorium viridum</i>	The green monomorium			GNR	SNR			N/A	Main needs related to research.
Inverts	Inverts (Other)	<input checked="" type="checkbox"/>	<i>Myrmica pinetorum</i>		A myrmicine ant	Pine ant		GNR	SNR			N/A	Was a data deficient SGCN in previous SWAP. Main needs still related to research.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Nylanderia arenivaga</i>		An ant			GNR	SNR			N/A	Main needs related to research.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Nylanderia parvula</i>		Tiny crazy ant			GNR	SNR			N/A	Main needs related to research.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Pheidole davisi</i>		Pine barrens pheidole			GNR	SNR			N/A	Main needs related to research.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Strumigenys creightoni</i>		An ant			GNR	SNR			N/A	Main needs related to research.
Inverts	Inverts (Other)	<input checked="" type="checkbox"/>	<i>Temnothorax pergandei</i>		A temnothorax ant			GNR	SNR			N/A	Was a data deficient SGCN in previous SWAP. Main needs still related to research.
Inverts	Inverts (Other)	<input checked="" type="checkbox"/>	<i>Temnothorax texanus</i>		Texas temnothorax ant	Texas divided ant		GNR	SNR			N/A	Was a data deficient SGCN in previous SWAP. Main needs still related to research.
Inverts	Inverts (Other)	<input checked="" type="checkbox"/>	<i>Trachymyrmex septentrionalis</i>		A fungus-growing ant	Fungus gardening ant		GNR	SNR			N/A	Was a data deficient SGCN in previous SWAP. Main needs still related to research.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Ammophila fernaldi</i>		A thread-waisted wasp			GNR	SNR			N/A	Record close to DC border from 2019.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Ammophila nigricans</i>		A thread-waisted wasp			GNR	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Anacrabro ocellatus</i>		A square-headed wasp			GNR	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Ancistrocerus lutonidus</i>		a vespoid wasp			GNR	SNR			N/A	Southern MD record from 2020.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Ancistrocerus spinolae</i>		Spinola's mason wasp			GNR	SNR			N/A	Western MD record from 2021.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Ancistrocerus unifasciatus</i>		A vespoid wasp	A potter wasp		GNR	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Ancistrocerus waldenii</i>		Walden's potter wasp			G5	SNR			N/A	Central MD record from 2025.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Aphilanthops frigidus</i>		Eastern ant-queen kidnapper			GNR	SNR			N/A	Fairly conspicuous species, but only have one MD record from 2022.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Argogorytes nigrifrons</i>		A square-headed wasp			GNR	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Astata unicolor</i>		A square-headed wasp	A crabronid wasp		GNR	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Bembecinus nanus</i>		A square-headed wasp			GNR	SNR			N/A	Some records in Eastern MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Bembix americana</i>		American sand wasp	A crabronid wasp		GNR	SNR			N/A	Scattered records in Coastal Plain.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Bicyrtes ventralis</i>		A square-headed wasp			GNR	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Cerceris bicornuta</i>		A square-headed wasp			GNR	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Cerceris kennicottii</i>		A square-headed wasp			GNR	SNR			N/A	Records from Southern MD.

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Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Cerceris kennicottii</i>		A square-headed wasp			GNR	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Chlorion aerarium</i>		Steel-blue cricket hunter			GNR	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Clitemnestra bipunctata</i>		A square-headed wasp	A sand wasp		GNR	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Crossocerus impressifrons</i>		A square-headed wasp			GNR	SNR			N/A	Records from Southern MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Didineis texana</i>		A square-headed wasp			GNR	SNR			N/A	Eastern MD record from 2014.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Dolichovespula arctica</i>		Parasitic yellowjacket			G5	SNR			N/A	Record(s) in Western MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Ectemnius continuus</i>		A square-headed wasp			GNR	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Ectemnius dives</i>		A square-headed wasp			GNR	SNR			N/A	Central MD record from 2007.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Ectemnius lapidarius</i>		A square-headed wasp			GNR	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Ectemnius maculosus</i>		A square-headed wasp			GNR	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Ectemnius scaber</i>		A square-headed wasp			GNR	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Ectemnius stirpicola</i>		A square-headed wasp			GNR	SNR			N/A	Central MD record from 2020
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Epinysson mellipes</i>		A square-headed wasp			GNR	SNR			N/A	Central MD records.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Epinysson tuberculatus</i>		A square-headed wasp			GNR	SNR			N/A	Central MD record from 2009.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Eumenes crucifera</i>		Cross potter wasp			G5	SNR			N/A	Records from both Western and Eastern MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Euodynerus crypticus</i>		Cryptic mason wasp			GNR	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Hoplisoides nebulosus</i>		A square-headed wasp	A sand wasp		GNR	SNR			N/A	Central MD record from 2009
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Hoplisoides semipunctatus</i>		A square-headed wasp			GNR	SNR			N/A	Central/Southern MD record from 2025.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Isodontia apicalis</i>		A thread-waisted wasp	A grass-carrying wasp		GNR	SNR			N/A	2013 and 2016 records from Central/Southern MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Isodontia auripes</i>		A thread-waisted wasp	A grass-carrying wasp		GNR	SNR			N/A	Scattered records in Coastal Plain.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Isodontia mexicana</i>		A thread-waisted wasp	A grass-carrying wasp		GNR	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Isodontia philadelphica</i>		A thread-waisted wasp	A grass-carrying wasp		GNR	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Larra analis</i>		A square-headed wasp	A mole cricket hunter wasp		GNR	SNR			N/A	Records from Eastern MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Lyroda subita</i>		A square-headed wasp			GNR	SNR			N/A	Scattered records in Coastal Plain.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Microbembex monodonta</i>		A square-headed wasp	A sand wasp		GNR	SNR			N/A	Scattered records in Coastal Plain.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Nysson aequalis</i>		A square-headed wasp			GNR	SNR			N/A	Eastern MD record from 2023.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Nysson plagiatus</i>		A square-headed wasp			GNR	SNR			N/A	Scattered records across three counties.

Taxa Group	Taxa Subgroup	SGCN in 2015?	Scientific Name	Synonymous Scientific Names	Common Name	Alternate Common Names	Name changes since 2015	Global Rank	State Rank	Federal Status	State Status	NE Regional Status	Comments/Reasoning for SAPS
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Oxybelus emarginatus</i>		A square-headed wasp			GNR	SNR			N/A	Scattered records in Coastal Plain.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Palmodes dimidiatus</i>		A thread-waisted wasp	A square-headed wasp		GNR	SNR			N/A	Katydid killer. Records from Southern and Central MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Parancistrocerus pedestris</i>		Walking mason wasp			GNR	SNR			N/A	Records from both Central and Southern MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Parancistrocerus pensylvanicus</i>		Pennsylvania mason wasp			GNR	SNR			N/A	Western MD record from 2024.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Parancistrocerus vagus</i>		Wandering mason wasp			GNR	SNR			N/A	Eastern MD record from 2024.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Parazumia symmorpha</i>		Tapered mason wasp			GNR	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Philanthus sanbornii</i>		A square-headed wasp	A bee-killer wasp		GNR	SNR			N/A	Central/Southern MD record from 2024
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Philanthus ventilabris</i>		A square-headed wasp	A bee-killer wasp		GNR	SNR			N/A	Records from Eastern MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Podium luctuosum</i>		A thread-waisted wasp			GNR	SNR			N/A	Records in three counties in Central MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Prionyx parkeri</i>		A thread-waisted wasp			GNR	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Psammaletes mexicanus</i>		A square-headed wasp			GNR	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Psen erythropoda</i>		A square-headed wasp			GNR	SNR			N/A	Central MD record from 2007.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Sapyga centrata</i>		A vespid wasp			GNR	SNR			N/A	Scattered records in Coastal Plain.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Saygorytes phaleratus</i>		A square-headed wasp			GNR	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Stenodynerus blepharus</i>		Eyelid mason wasp			GNR	SNR			N/A	Central MD record from 2022.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Stenodynerus lineatifrons</i>		A vespid wasp			GNR	SNR			N/A	Central/Southern MD record from 2021.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Stictia carolina</i>		A square-headed wasp			GNR	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Symmorphus canadensis</i>		Canadian potter wasp			G5	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Tachytes distinctus</i>		A square-headed wasp			GNR	SNR			N/A	Some records in Southern MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Tachytes distinctus</i>		A square-headed wasp			GNR	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Trypoxylon collinum</i>		A square-headed wasp			GNR	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Trypoxylon lactitarse</i>		A square-headed wasp			GNR	SNR			N/A	Western MD record from 2023.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Vespula consobrina</i>		Blackjacket			G5	SNR			N/A	At the southern end of its range. Found in Western MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Vespula vidua</i>		Widow yellowjacket			GNR	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Zethus spinipes</i>		A vespid wasp	A potter wasp, A mason wasp		GNR	SNR			N/A	Scattered records in MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Anasimyia chrysostoma</i>	<i>Anasimyia chrysostomus</i> , <i>Lejops chrysostomus</i>	Lump-legged swamp fly			G5	SNR			N/A	2016 record from Western MD.

Taxa Group	Taxa Subgroup	SGCN in 2015?	Scientific Name	Synonymous Scientific Names	Common Name	Alternate Common Names	Name changes since 2015	Global Rank	State Rank	Federal Status	State Status	NE Regional Status	Comments/Reasoning for SAPS
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Anasimyia distincta</i>	<i>Anasimyia distinctus, Lejops distinctus</i>	Short-spurred swamp fly			G2G3	SNR			N/A	2021 record from Eastern MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Anasimyia griseescens</i>		Long-spurred swamp fly			GU	SNR			N/A	2021 record from Eastern MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Blera badia</i>	<i>Xylota badia</i>	Common wood fly			G5	SNR			N/A	Records in Central MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Blera umbratilis</i>	<i>Criorhina umbratilis</i>	Hairy wood fly			G4G5	SNR			N/A	One 2011 record from Central MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Brachyopa vacua</i>		Yellow-spotted sapeater			G5	SNR			N/A	Records from Central MD from the past decade.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Brachypalpus oarus</i>	<i>Xylota oarus</i>	Eastern catkin fly			G5	SNR			N/A	Scattered records throughout MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Chalcosyrphus chalybeus</i>		Violet leafwalker			G5	SNR			N/A	Scattered records throughout MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Chalcosyrphus libo</i>		Long-haired leafwalker			G5	SNR			N/A	Scattered records throughout MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Chalcosyrphus metallicus</i>		Yellow-legged leafwalker			G4G5	SNR			N/A	Scattered records throughout MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Chalcosyrphus metallifer</i>	<i>Xylota metallifera</i>	Orange-horned leafwalker			G4G5	SNR			N/A	2020 record from Central MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Chalcosyrphus nemorum</i>		Dusky-banded leafwalker			G5	SNR			N/A	Scattered records throughout MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Chalcosyrphus piger</i>		Short-haired leafwalker			G5	SNR			N/A	Multiple records from Central/Southern MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Chalcosyrphus plesia</i>	<i>Chalcosyrphus plesius</i>	Black-hipped leafwalker			G4G5	SNR			N/A	2019 record from Western MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Cheilosia pallipes</i>		Yellow-shouldered blacklet			GU	SNR			N/A	2023 record from Western MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Cheilosia prima</i>		Swarthy blacklet			G5	SNR			N/A	2022 record from Eastern MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Copestylum vittatum</i>		Striped bromeliad fly			G5	SNR			N/A	Scattered records throughout MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Criorhina nigriventris</i>		Bare-cheeked bumblefly			G5	SNR			N/A	2015 record from Central MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Criorhina verbosa</i>	<i>Milesia verbosa</i>	Hairy-cheeked bumblefly			G5	SNR			N/A	Multiple Western MD records from the past five years.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Criorhina villosa</i>	<i>Merapioidus villosus</i>	Winter bumblefly			G3G4	SNR			N/A	Rare early flying species. One 2021 record from Southern MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Didea fuscipes</i>		Undivided lucent			G5	SNR			N/A	Records in Central MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Dioprosopa clavata</i>	<i>Pseudodoros clavatus</i>	Four-speckled hover fly	Fourspot		G5	SNR			N/A	Records scattered throughout Coastal Plain.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Epistrophe grossulariae</i>	<i>Syrphus grossulariae</i>	Black-horned smoothtail			G5	SNR			N/A	Scattered records throughout MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Epistrophe xanthostoma</i>	<i>Syrphus xanthostomus</i>	Emarginate smoothtail			G5	SNR			N/A	2024 record from Central MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Eristalinus aeneus</i>		Common lagoon fly			GNR	SNR			N/A	Scattered records throughout MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Eristalis flavipes</i>		Orange-legged drone fly			G5	SNR			N/A	Scattered records throughout MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Eristalis interrupta</i>	<i>Conops interruptus</i>	Orange-spined drone fly			G5	SNR			N/A	2018 record from Central MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Eristalis saxorum</i>		Blue-polished drone fly			G5	SNR			N/A	Scattered records throughout MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Eristalis stipator</i>		Yellow-shouldered drone fly			G5	SNR			N/A	Recent records from the Coastal Plain of MD.

Taxa Group	Taxa Subgroup	SGCN in 2015?	Scientific Name	Synonymous Scientific Names	Common Name	Alternate Common Names	Name changes since 2015	Global Rank	State Rank	Federal Status	State Status	NE Regional Status	Comments/Reasoning for SAPS
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Eupeodes latifasciatus</i>	<i>Syrphus latifasciatus</i>	Broad-banded aphideater	Variable aphideater		G5	SNR			N/A	Multiple 2025 records from Central MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Eupeodes perplexus</i>		Bare-winged aphideater			G5?	SNR			N/A	Scattered records throughout MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Eurimyia stipata</i>	<i>Lejops stipatus</i>	Long-nosed swamp fly			G5	SNR			N/A	2021 record from Central MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Ferdinandea buccata</i>	<i>Chrysochlamys buccata</i>	Common copperback			G5	SNR			N/A	Records in Western MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Hypocritanus fascipennis</i>	<i>Ocyptamus fascipennis</i>	Eastern band-winged hover fly			G5	SNR			N/A	2016 records from Central MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Lejops lineatus</i>	<i>Eurimyia lineatus</i> , <i>Eurimyia lineata</i>	Striped hover fly	Striped swamp fly		G5	SNR			N/A	Scattered records throughout MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Lejota aerea</i>	<i>Myiolepta aerea</i>	Golden trunk-sitter			G5?	SNR			N/A	Records from both Central and Southern MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Mallota bautias</i>	<i>Merodon bautias</i>	Bare-eyed mimic fly			G5	SNR			N/A	Records scattered throughout Coastal Plain.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Meliscaeva cinctella</i>	<i>Scaeva cinctella</i>	Banded thintail	American thintail		G5	SNR			N/A	2025 record from Western MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Microdon abstrusus</i>		Hidden ant fly			G1G3	S1S3			N/A	Not seen since the 1970s, but lives in ant nests, so could just be hard to find.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Microdon aurulentus</i>		Golden-haired ant fly			G4?	SNR			N/A	Records from both Central and Southern MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Microdon craigheadii</i>		Large metallic ant fly			G4G5	SNR			N/A	Records from Central MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Microdon globosus</i>		Globular ant fly			G5	SNR			N/A	Records from both Western and Eastern MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Myolepta strigilata</i>		Scaled pegleg			G5	SNR			N/A	2017 record from Central MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Myolepta varipes</i>		Orange-banded spineleg	Orange-banded pegleg		G4G5	SNR			N/A	2007 record from Central MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Orthonevra pictipennis</i>		Dusky-veined mucksucker			GU	SNR			N/A	Records from Central MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Palpada agrorum</i>		Double-banded plushback			G5	SNR			N/A	Scattered records throughout MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Palpada albifrons</i>		White-faced plushback			G5	SNR			N/A	Records scattered throughout Coastal Plain.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Parhelophilus divisus</i>	<i>Helophilus divisus</i>	Yellow-legged bog fly			G5?	SNR			N/A	Records from the Coastal Plain of MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Parhelophilus flavifacies</i>	<i>Helophilus flavifacies</i>	Black-legged bog fly			G5	SNR			N/A	Records from the Coastal Plain of MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Parhelophilus integer</i>	<i>Helophilus integer</i>	Shiny bog fly	Shining bog fly		G5	SNR			N/A	Scattered records throughout MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Parhelophilus laetus</i>	<i>Helophilus laetus</i>	Common bog fly			G5	SNR			N/A	Scattered records throughout MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Pelecinobaccha costata</i>	<i>Ocyptamus costatus</i>	Cobalt hover fly	A flower fly		G5	SNR			N/A	Records from the Coastal Plain of MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Pipiza puella</i>		Sumac gall pithead			GU	SNR			N/A	2024 record from Western MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Platycheirus obscurus</i>		Eastern forest sedgesitter			G5	SNR			N/A	Records in Central MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Platycheirus quadratus</i>		Meadow sedgesitter			G4G5	SNR			N/A	2018 record from Central/Southern MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Sericomyia chrysotoxoides</i>		Oblique-banded pond fly			G5	SNR			N/A	Scattered records throughout MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Somula decora</i>		Spotted wood fly			G5	SNR			N/A	Scattered records throughout MD.

Taxa Group	Taxa Subgroup	SGCN in 2015?	Scientific Name	Synonymous Scientific Names	Common Name	Alternate Common Names	Name changes since 2015	Global Rank	State Rank	Federal Status	State Status	NE Regional Status	Comments/Reasoning for SAPS
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Somula mississippiensis</i>		Banded wood fly			G3G5	SNR			N/A	2024 record from Central MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Sphiximorpha willistoni</i>	<i>Ceriana willistoni</i>	Williston's wasp fly			G5	SNR			N/A	Records from Central MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Spilomyia fusca</i>		Bald-faced hornet fly			G5	SNR			N/A	Records in Western MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Spilomyia texana</i>		Texas hornet fly			GNR	SNR			N/A	2021 record from Central/Southern MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Syrphus ribesii</i>		Common flower fly			G5	SNR			N/A	Records from both Central and Southern MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Syrphus torvus</i>		Hairy-eyed flower fly			G5	SNR			N/A	Scattered records throughout MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Temnostoma alternans</i>		Wasp-like falsehorn			G5	SNR			N/A	2022 record from Western MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Temnostoma balyras</i>	<i>Syrphus balyras</i>	Yellow-haired falsehorn			G5	SNR			N/A	Records from both Central/Southern and Western MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Temnostoma daochus</i>		Yellow-spotted falsehorn			G5	SNR			N/A	Uncommon. Flies early in the year, mostly April through May.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Temnostoma excentrica</i>		Black-spotted falsehorn			G5	SNR			N/A	2019 record from Central/Southern MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Temnostoma trifasciatum</i>	<i>Temnostoma trifasciata</i>	Three-lined falsehorn			G5?	SNR			N/A	Multiple records from Central MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Teuchoenemis bacuntius</i>	<i>Milesia bacuntius</i>	Orange spur fly			G5	SNR			N/A	Uncommon. Flies mostly in April and May in MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Teuchoenemis lituratus</i>	<i>Pterallastes lituratus</i>	Black spur fly			G5	SNR			N/A	Scattered records throughout MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Toxomerus jussiaeae</i>		Orange-backed calligrapher			G5?	SNR			N/A	Only 2 records from the Coastal Plain of MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Tropidia quadrata</i>		Common thickleg fly			G5	SNR			N/A	Records in both Central and Western MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Volucella evecta</i>		Eastern swiftwing			G4G5	SNR			N/A	Records in Central MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Xylota bicolor</i>		Eastern orange-tailed leafwalker			G5	SNR			N/A	Scattered records throughout MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Dipalta banksi</i>		Huron shore bee fly			GNR	SNR			N/A	One 2014 record from Central MD. Xeric species. Parasitoid of antlions?
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Dipalta serpentina</i>		Serpentine bee fly			GNR	SNR			N/A	Records from both Western and Eastern MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Chlorotettix leersius</i> <i>n. sp.</i>		A leaf hopper			GNR	SNR			N/A	Recorded in Central MD.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Ramphocorixa acuminata</i>		Acuminate water boatman			G4	SNR			N/A	Recorded in MD. Ranked S1 in VA.
Inverts	Inverts (Other)	<input type="checkbox"/>	<i>Torrenticola trimaculata</i>		A water mite	A mite		GNR	SNR			N/A	Recently discovered in MD. Seems rare based on preliminary survey data. Additional survey planned for the near future.

Appendix 3c. Species removed since 2015

Taxa Group	Taxa Subgroup	Scientific Name	Synonymous Scientific Names	Common Name	Alternate Common Names	Name changes since 2015	Global Rank	State Rank	Federal Status	State Status	NE Regional Status	Comments/Reasoning for removal
Mammals	Mammals (Terrestrial)	<i>Erethizon dorsatum</i>		North American porcupine			G5	S3S4			N/A	Populations we were concerned about before in Western and Central MD are now considered more secure.
Mammals	Mammals (Bats)	<i>Eptesicus fuscus</i>		Big brown bat			G5	S4S5			N/A	Removed because MD population is stable; numbers in hibernacula surveys have grown post-WNS. Also fairly ubiquitous during acoustic surveys in Western MD.
Mammals	Mammals (Marine)	<i>Ziphius cavirostris</i>		Cuvier's beaked whale			G4	SNR			N/A	No recorded strandings in MD in program history. NOAA map of "Beaked Whales" indicates it mostly occurs far offshore, seemingly beyond the continental shelf.
Mammals	Mammals (Marine)	<i>Mesoplodon europaeus</i>		Gervais beaked whale			G4	SNR			N/A	No recorded strandings in MD in the past 10 years; not enough data to support evidence of habitat utilization and/or resource use in MD. NOAA map of "Beaked Whales" indicates it mostly occurs far offshore, seemingly beyond the continental shelf.
Mammals	Mammals (Marine)	<i>Mesoplodon mirus</i>		True's beaked whale			G3G4	SNR			N/A	No recorded strandings in MD in the past 10 years; not enough data to support evidence of habitat utilization and/or resource use in MD. NOAA map of "Beaked Whales" indicates it mostly occurs far offshore, seemingly beyond the continental shelf.
Birds	Birds	<i>Mergus merganser</i>		Common merganser			G5	S2B			N/A	Was a relatively new breeding species in MD during 2015 SWAP revision process, but is now fairly common in Western MD and along the Potomac River. Need to revisit state rank; S2B is no longer appropriate.
Birds	Birds	<i>Melanerpes erythrocephalus</i>		Red-headed woodpecker			G5	S4			N/A	Has increased in population since last SWAP. No longer of great concern.
Birds	Birds	<i>Sphyrapicus varius</i>		Yellow-bellied sapsucker			G5	S1B			N/A	Has had a large increase in population since 2015. Need to revisit state rank; S1B is no longer appropriate.
Herps	Herps (Snakes and Lizards)	<i>Lampropeltis triangulum elapsoides X triangulum</i>		Coastal plain milksnake			GNR	SNR			N/A	Taxon is contentious; replaced this subspecies with the more general eastern milksnake for the new version of the SWAP.
Herps	Herps (Snakes and Lizards)	<i>Pituophis melanoleucus</i>		Northern pinesnake			G4	SH			RSGCN	Not believed to be present in MD in recent history.
Fish	Fish (Freshwater)	<i>Etheostoma sellare</i>		Maryland darter			GH	SH	LE	E	RSGCN	Has not been recorded since the 1980s; believed to be extinct.
Fish	Fish (Bay/Ocean)	<i>Ameiurus catus</i>	<i>Ictalurus catus</i>	White catfish			G5	S4			N/A	Was a data deficient SGCN in previous SWAP. Unranked in MD in 2015, now ranked S4. Considered abundant in MD and not a concern at this point in time. Note to revisit in ~5 years.
Fish	Fish (Bay/Ocean)	<i>Dipturus laevis</i>	<i>Raja laevis</i>	Barndoor skate			G4G5	SNR			RSGCN	No records in MD. Has been found more in the lower bay (VA), but very close to MD coast. Not of concern in MD at this point in time. Likely included it back in 2015 because it's of regional concern.

Taxa Group	Taxa Subgroup	Scientific Name	Synonymous Scientific Names	Common Name	Alternate Common Names	Name changes since 2015	Global Rank	State Rank	Federal Status	State Status	NE Regional Status	Comments/Reasoning for removal
Fish	Fish (Bay/Ocean)	<i>Amblyraja radiata</i>	<i>Thorny skate</i>	Thorny skate			GNR	SNR			RSGCN	No records in MD. More of a northern species; may be within range, but not certain. Not of concern in MD at this point in time. Likely included it back in 2015 because it's of regional concern.
Fish	Fish (Bay/Ocean)	<i>Malacoraja senta</i>	<i>Smooth skate</i>	Smooth skate			GNR	SNR			RSGCN	No records in MD. More of a northern species; may be within range, but not certain. Not of concern in MD at this point in time. Likely included it back in 2015 because it's of regional concern.
Inverts	Inverts (Snails)	<i>Mediappendix hubrichti</i>	<i>Catinella hubrichti</i>	Snowhill ambersnail		Catinella hubrichti in the 2015 SWAP.	G3	SNR			N/A	Was a data deficient SGCN in previous SWAP. However, there does not seem to be any records of this species in the state.
Inverts	Inverts (Snails)	<i>Oxyloma subeffusum</i>		Chesapeake ambersnail			G3	SNR			RAPS	Was a data deficient SGCN in previous SWAP. However, there does not seem to be any records of this species in the state.
Inverts	Inverts (Snails)	<i>Paravitrea pontis</i>		Natural bridge supercoil			G3	SNR			RSGCN	Was a data deficient SGCN in previous SWAP. However, no records of this species in MD since 1970.
Inverts	Inverts (Butterflies)	<i>Poanes massasoit chermocki</i>		Chermock's mulberry wing			G4T1	S1			RSGCN	Almost certainly extirpated after many searches.
Inverts	Inverts (Butterflies)	<i>Erynnis martialis</i>		Mottled duskywing			G3	S1			RSGCN	Extirpated.
Inverts	Inverts (Butterflies)	<i>Callophrys hesseli</i>	<i>Mitoura hesseli</i>	Hessel's hairstreak			G3	SH			RSGCN	Extirpated; or, more likely, was never in the MD in the first place.
Inverts	Inverts (Butterflies)	<i>Pyrgus centaureae wyandot</i>		Appalachian grizzled skipper	Southern grizzled skipper		G1G2Q	S1			RSGCN	After rapid response surveys and a ton of other work, extirpated.
Inverts	Inverts (Butterflies)	<i>Satyrium caryaevorus</i>	<i>Satyrium caryaevorum</i>	Hickory hairstreak			G4	S1			N/A	No confirmed MD records.
Inverts	Inverts (Butterflies)	<i>Nymphalis l-album</i>	<i>Nymphalis vaualbum</i>	Compton tortoiseshell			G5	SU			N/A	Vagrant species.
Inverts	Inverts (Moths)	<i>Melanapamea mixta</i>		Coastal plain apamea moth	A noctuid moth	A noctuid moth in 2015 SWAP.	GU	S1			RAPS	A couple records from the 80s, but has not been found anywhere near here recently. Not certain why this is ranked S1 in MD.
Inverts	Inverts (Moths)	<i>Apodrepanulatrix liberaria</i>	<i>Apicia liberaria</i>	New Jersey tea inchworm	A geometrid moth	A geometrid moth in 2015 SWAP.	G3	SU			RSGCN	Only historic; no recent in-state or nearby records.
Inverts	Inverts (Moths)	<i>Catocala pretiosa pretiosa</i>		Precious underwing moth			G4T2	SH			RSGCN	Only historical records in MD, and those are suspect (unsure if it was actually this subspecies).
Inverts	Inverts (Moths)	<i>Zimmermannia phleophaga</i>	<i>Ectoedemia phleophaga</i>	Phleophagan chestnut nepticulid moth		Ectoedemia phleophaga in 2015 SWAP.	GH	SH			N/A	Can't find any records of this species after the name change.
Inverts	Inverts (Moths)	<i>Euchlaena milnei</i>		Milne's looper moth			G2G4	SNR			RSGCN	Not clear there was ever a sighting in MD. If so, very historic.
Inverts	Inverts (Moths)	<i>Hadena ectypa</i>	<i>Mamestra ectypa</i>	Starry champion moth	A noctuid moth	A noctuid moth in 2015 SWAP.	G3G4	SU			RSGCN	Only historic records in MD.
Inverts	Inverts (Moths)	<i>Hemipachnobia subporphyrea</i>	<i>Mythimna subporphyrea</i>	Venus flytrap cutworm			G1	SU			N/A	Possibly Hemipachnobia monochromatea -- there are no venus flytraps in MD.
Inverts	Inverts (Moths)	<i>Psectraglaea carnosa</i>	<i>Glaea carnosa</i>	Pink sallow moth			G3	SNR			RAPS	Only historic; no recent in-state or nearby records.

Taxa Group	Taxa Subgroup	Scientific Name	Synonymous Scientific Names	Common Name	Alternate Common Names	Name changes since 2015	Global Rank	State Rank	Federal Status	State Status	NE Regional Status	Comments/Reasoning for removal
Inverts	Inverts (Moths)	<i>Ptichodis bistrigata</i>		Southern ptichodis moth			G3	SNR			N/A	Only historic; no recent in-state or nearby records.
Inverts	Inverts (Moths)	<i>Pyrrhia aurantiago</i>	<i>Rhodoecia aurantiago</i> , <i>Xanthia aurantiago</i>	Aureolaria seed borer moth			G3G4	SNR			RAPS	Only historic; no recent in-state or nearby records.
Inverts	Inverts (Moths)	<i>Schizura apicalis</i>	<i>Coelodasys apicalis</i>	Plain schizura moth			G3G4	SNR			RAPS	Only historic; no recent in-state or nearby records.
Inverts	Inverts (Moths)	<i>Chloropteryx tepperaria</i>	<i>Nemoria tepperaria</i>	Angle winged emerald moth			G4	SNR			N/A	Fairly common; no longer appropriate for inclusion in SWAP.
Inverts	Inverts (Moths)	<i>Grammia doris</i>	<i>Apantesis doris</i>	Doris' tiger moth			G4?	SNR			N/A	Only historic; no recent in-state or nearby records.
Inverts	Inverts (Moths)	<i>Macrochilo louisiana</i>	<i>Xylormisa louisiana</i>	Louisiana owlet moth			G4	SNR			N/A	Fairly common; no longer appropriate for inclusion in SWAP.
Inverts	Inverts (Moths)	<i>Papaipema appassionate</i>	<i>Gortyna appassionate</i>	Pitcher plant borer moth			G3G4	SNR			N/A	No recent records.
Inverts	Inverts (Moths)	<i>Pachypolia atricornis</i>		Three-horned moth	Hunter lake moth		G3G4	SNR			N/A	No recent records.
Inverts	Inverts (Odonates)	<i>Celithemis verna</i>		Double-ringed pennant			G5	S2			N/A	Fairly common even in degraded areas. Should be S4.
Inverts	Inverts (Odonates)	<i>Zoraena obliqua</i>	<i>Cordulegaster obliqua</i>	Arrowhead spiketail		Cordulegaster obliqua in 2015 SWAP.	G4	S2			RAPS	Due to taxonomic changes, has been wrapped into banded spiketail (<i>Zoraena obliqua fasciata</i>) .
Inverts	Inverts (Odonates)	<i>Erpetogomphus designatus</i>		Eastern ringtail			G5	S2			N/A	Fairly common along lower Potomac. S4 in VA, not ranked in PA. MD is Northern edge of range. May be moving north due to climate change.
Inverts	Inverts (Odonates)	<i>Anax longipes</i>		Comet darner			G5	S3			N/A	Widespread species. Should be S4.
Inverts	Inverts (Odonates)	<i>Celithemis fasciata</i>		Banded pennant			G5	S3			N/A	Widespread species. Should be S4.
Inverts	Inverts (Odonates)	<i>Ladona julia</i>		Chalk-fronted skimmer			G5	S3			N/A	Widespread species. Should be S4.
Inverts	Inverts (Odonates)	<i>Libellula axilena</i>		Bar-winged skimmer			G5	S3			N/A	Widespread species. Should be S4.
Inverts	Inverts (Odonates)	<i>Progomphus obscurus</i>		Common sanddragon			G5	S3			N/A	Widespread species. Should be S4.
Inverts	Inverts (Odonates)	<i>Brachymesia gravida</i>		Four-spotted pennant			G5	S3S4			N/A	Fairly common on Coastal Plain and in Eastern MD. Seems to do alright even in degraded areas.
Inverts	Inverts (Odonates)	<i>Gomphaeschna furcillata</i>		Harlequin darner			G5	S3S4			N/A	Widespread species. Should be S4.
Inverts	Inverts (Odonates)	<i>Somatochlora linearis</i>		Mocha emerald			G5	S3S4			N/A	Widespread species. Should be S4.
Inverts	Inverts (Odonates)	<i>Celithemis ornata</i>		Faded pennant			G5	SH			N/A	Last record from 1996 at in Central/Southern MD. Likely extirpated.
Inverts	Inverts (Odonates)	<i>Epiheca semiaquea</i>		Mantled baskettail			G5	SH			N/A	Last record from the 50s. Extirpated.
Inverts	Inverts (Odonates)	<i>Hylogomphus parvidens</i>	<i>Gomphus parvidens</i>	Piedmont clubtail			G4	SH		X	N/A	Last record from 1915. Extirpated.
Inverts	Inverts (Odonates)	<i>Gomphurus ventricosus</i>	<i>Gomphus ventricosus</i>	Skillet clubtail			G3	SH		X	RSGCN	Not seen in over a century.
Inverts	Inverts (Odonates)	<i>Stylurus amnicola</i>		Riverine clubtail			G4	SH		X	RAPS	Not seen since the 50s.

Taxa Group	Taxa Subgroup	Scientific Name	Synonymous Scientific Names	Common Name	Alternate Common Names	Name changes since 2015	Global Rank	State Rank	Federal Status	State Status	NE Regional Status	Comments/Reasoning for removal
Inverts	Inverts (Bees)	<i>Lasioglossum marinum</i>		Marine metallic-sweat bee	A hairy-tongue bee	A hairy-tongue bee in 2015 SWAP.	GNR	SU			N/A	Was a data deficient SGCN in previous SWAP. Secure even though a sand specialist. Common even in heavily developed beach areas.
Inverts	Inverts (Bees)	<i>Macropis patellata</i>		Patellar oil-collecting bee	An oil-collecting bee	An oil-collecting bee in 2015 SWAP.	GNR	SH			RSGCN	A number of old records from Washington D.C. area (several collectors, all from the 1910s) from the National Collection (NMNH). No recent records. Globally, records are also primarily old and even more sparsely distributed than <i>M. ciliata</i> , occurring at scattered locations throughout the Mid-Atlantic, New England, and Great Lakes regions.
Inverts	Inverts (Bees)	<i>Bombus variabilis</i>	<i>Psithyrus variabilis</i> , <i>Bombus intrudens</i>	Variable cuckoo bumble bee			G1G2	SH			RAPS	Only two specimens known, collected in the 70s and 80s. No recent records in any neighboring states. Well-known decline range-wide progressing since the 1990s paralleling less severe declines in its primary host <i>B. pennsylvanicus</i> . This species has never been common; its likelihood of reappearance in MD appears low at the moment.
Inverts	Inverts (Bees)	<i>Bombus bohemicus</i>	<i>Bombus ashtoni</i> , <i>Psithyrus ashtoni</i> , <i>Psithyrus bohemicus</i>	Gypsy cuckoo bumble bee	Ashton's cuckoo bumble bee		G3G5	SH			RSGCN	This species is extirpated from most of the country, including MD. Very little chance of its rediscovery.
Inverts	Inverts (Aquatic Orders)	<i>Siphloplecton costalense</i>		Speith's great speckled olive mayfly			G2G4	SNR			RAPS	Only record from MD that we can find is from 1969 in Southern MD.
Inverts	Inverts (Cave & Groundwater)	<i>Caecidotea nordeni</i>		Norden's groundwater isopod			GH	SH		X	N/A	Endangered extirpated. Was found once in a limestone stream in Western MD, among another much more common species. Site has been sampled dozens of times since with no more records collected. Has also never been found anywhere else; other record is a fluke.
Inverts	Inverts (Other)	<i>Continaria canadensis</i>		Ash midrib gall midge			GNR	SNR			N/A	Was a data deficient SGCN in previous SWAP. Have no records of this species in MD.
Inverts	Inverts (Other)	<i>Tropidosteptes amoenus</i>		Ash plant bug			GNR	SNR			N/A	Was a data deficient SGCN in previous SWAP. Have no records of this species in MD.
Inverts	Inverts (Other)	<i>Leptothorax canadensis</i>		Mossy thin ant	A myrmicine ant	Removed from synonymy with <i>Leptothorax muscorum</i> in 2018.	G5	SNR			N/A	Genus <i>Leptothorax</i> are a difficult species complex whose taxonomy remains unresolved. Still, cannot find any evidence of existence or records in MD.
Inverts	Inverts (Other)	<i>Tomostethus multictinctus</i>		Brownheaded ash sawfly			GNR	SNR			N/A	Was a data deficient SGCN in previous SWAP. Have no records of this species in MD.

Appendix 4a. List of all Key Wildlife Habitats (KWHs)

KWH Name	*Code(s) (see Appendix 3a)	Habitat group	Habitat subgroup	Counties	Main Region(s)	Physiographic provinces	NE Regional Habitat Type Crosswalk	Major changes since 2015
High Elevation Ridge Forest	1	Upland	Forests	Allegheny, Garrett	Western	Appalachian Plateau	High Elevation Forests	
Hemlock-Northern Hardwood Forest	2	Upland	Forests	Allegheny, Baltimore, Caroline, Carroll, Cecil, Frederick, Garrett, Harford, Howard, Kent, Montgomery, Talbot, Washington	Central, Western	Appalachian Plateau, Ridge & Valley, Blue Ridge, Piedmont	Forests & Woodlands	
Cove Forest	3	Upland	Forests	Allegheny, Frederick, Garrett, Washington	Western	Appalachian Plateau, Ridge & Valley, Blue Ridge	Forests & Woodlands	
Montane-Piedmont Oak-Pine Forest	4	Upland	Forests	Allegheny, Baltimore, Carroll, Cecil, Frederick, Garrett, Harford, Howard, Montgomery, Washington	Western, Central	Appalachian Plateau, Ridge & Valley, Blue Ridge, Piedmont	Forests & Woodlands	
Oak-Hickory Forest	5	Upland	Forests	Allegheny, Baltimore, Carroll, Cecil, Frederick, Garrett, Harford, Howard, Montgomery, Washington	Western, Central	Appalachian Plateau, Ridge & Valley, Blue Ridge, Piedmont	Forests & Woodlands	
Managed Montane Conifer Forest	53	Upland (Artificial)	Forests	Allegheny, Garrett	Western	Appalachian Plateau	Agriculture: Plantations/Orchards	Was in the 'Other' habitat group in 2015
Mesic Mixed Hardwood Forest	6, 7	Upland	Forests	Anne Arundel, Baltimore, Calvert, Caroline, Carroll, Cecil, Charles, Dorchester, Frederick, Harford, Howard, Kent, Montgomery, Prince George's, Somerset, Queen Anne's, St. Mary's, Talbot, Wicomico, Worcester	Eastern, Central, Southern	Ridge & Valley, Blue Ridge, Piedmont, Upper Coastal Plain, Lower Coastal Plain	Forests & Woodlands	Combined 2 habitats from 2015 (Used to be Basic Mesic Forest & Mesic Mixed Hardwood Forest)
Coastal Plain Oak-Pine Forest	8, 9	Upland	Forests	Anne Arundel, Baltimore, Calvert, Caroline, Cecil, Charles, Dorchester, Harford, Kent, Prince George's, Queen Anne's, Somerset, St. Mary's, Talbot, Wicomico, Worcester	Eastern, Central, Southern	Upper Coastal Plain, Lower Coastal Plain	Forests & Woodlands	Combined 2 habitats from 2015 (Used to be Coastal Plain Oak-Pine Forest & Coastal Plain Pitch Pine Forest)
Maritime Forest and Shrubland	10	Upland	Forests	Dorchester, Somerset, Wicomico, Worcester	Eastern	Lower Coastal Plain	Forests & Woodlands; Shrublands	
Serpentine Barren	11	Upland	Glades/Barrens/Climbs	Baltimore, Cecil, Harford, Montgomery	Central	Piedmont	Glades, Barrens & Savannas	

KWH Name	*Code(s) (see Appendix 3a)	Habitat group	Habitat subgroup	Counties	Main Region(s)	Physiographic provinces	NE Regional Habitat Type Crosswalk	Major changes since 2015
Shale Barren	12	Upland	Glades/Barrens/Cliffs	Allegany, Washington	Western	Ridge & Valley	Glades, Barrens & Savannas	
Acidic Glade and Barren	13	Upland	Glades/Barrens/Cliffs	Allegany, Baltimore, Carroll, Cecil, Frederick, Garrett, Harford, Howard, Montgomery, Washington	Western, Central	Appalachian Plateau, Ridge & Valley, Blue Ridge, Piedmont	Glades, Barrens & Savannas	
Basic Glade and Barren	14	Upland	Glades/Barrens/Cliffs	Allegany, Baltimore, Carroll, Frederick, Garrett, Montgomery, Washington	Western, Central	Ridge & Valley, Blue Ridge, Piedmont	Glades, Barrens & Savannas	
Artificial Barren (Sand and Gravel Mines)	62	Upland (Artificial)	Glades/Barrens/Cliffs	Anne Arundel, Baltimore, Calvert, Caroline, Cecil, Charles, Dorchester, Harford, Kent, Prince George's, Queen Anne's, Somerset, St. Mary's, Talbot, Wicomico, Worcester	Southern	Lower Coastal Plain, Upper Coastal Plain	Developed Areas	NEW
Cliff and Rock Outcrop	15	Upland	Glades/Barrens/Cliffs	Allegany, Baltimore, Carroll, Cecil, Frederick, Garrett, Harford, Howard, Montgomery, Washington	Western, Central	Appalachian Plateau, Ridge & Valley, Blue Ridge, Piedmont	Cliffs & Talus	
Coastal Bluff	16	Upland	Glades/Barrens/Cliffs	Anne Arundel, Baltimore, Calvert, Cecil, Charles, Frederick, Harford, Kent, Montgomery, Prince George's, Queen Anne's, St. Mary's, Talbot	Eastern, Southern	Upper Coastal Plain, Lower Coastal Plain	Cliffs & Talus; Shorelines	
Coastal Beach	17	Upland	Coastal Beaches/Dunes	Anne Arundel, Baltimore, Calvert, Caroline, Cecil, Charles, Dorchester, Harford, Kent, Prince George's, Queen Anne's, Talbot, Somerset, St. Mary's, Wicomico, Worcester	Eastern, Southern	Upper Coastal Plain, Lower Coastal Plain	Beaches & Dunes	
Maritime Dune and Grassland	18	Upland	Coastal Beaches/Dunes	Worcester	Eastern	Lower Coastal Plain	Beaches & Dunes; Grasslands	
Montane-Piedmont Floodplain	19	Wetland	Floodplain	Allegany, Baltimore, Carroll, Cecil, Frederick, Garrett, Harford, Howard, Montgomery, Washington	Western, Central	Appalachian Plateau, Ridge & Valley, Blue Ridge, Piedmont	Riparian & Floodplains	
Coastal Plain Floodplain	20	Wetland	Floodplain	Anne Arundel, Baltimore, Calvert, Caroline, Cecil, Charles, Dorchester, Kent, Prince George's, Queen Anne's, St. Mary's, Somerset, Talbot, Wicomico, Worcester	Central, Eastern, Southern	Upper Coastal Plain, Lower Coastal Plain	Riparian & Floodplains	

KWH Name	*Code(s) (see Appendix 3a)	Habitat group	Habitat subgroup	Counties	Main Region(s)	Physiographic provinces	NE Regional Habitat Type Crosswalk	Major changes since 2015
Montane Acidic Fen	21	Wetland	Groundwater	Allegheny, Garrett	Western	Appalachian Plateau	Non-tidal Wetlands	Renamed from Montane Bog and Fen to Montane Acidic Fen
Montane-Piedmont Seepage Swamp	22, 23	Wetland	Groundwater	Allegheny, Baltimore, Carroll, Cecil, Frederick, Garrett, Harford, Howard, Montgomery, Washington	Western, Central	Appalachian Plateau, Ridge & Valley, Blue Ridge	Non-tidal Wetlands	Combined 2 habitats from 2015 (Used to be Montane-Piedmont Acidic Seepage Swamp & Montane-Piedmont Basic Seepage Swamp)
Piedmont Seepage Wetland	24	Wetland	Groundwater	Baltimore, Carroll, Cecil, Frederick, Harford, Howard, Montgomery	Central	Piedmont	Non-tidal Wetlands	
Piedmont Upland Depression Swamp	25	Wetland	Groundwater	Baltimore, Carroll, Cecil, Frederick, Harford, Howard, Montgomery	Central	Piedmont	Non-tidal Wetlands	
Coastal Plain Flatwood and Depression Swamp	26	Wetland	Groundwater	Anne Arundel, Baltimore, Calvert, Caroline, Cecil, Charles, Dorchester, Harford, Kent, Prince George's, Queen Anne's, Somerset, St. Mary's, Talbot, Wicomico, Worcester	Eastern, Southern, Central	Upper Coastal Plain, Lower Coastal Plain	Non-tidal Wetlands	
Coastal Plain Seepage Swamp	27	Wetland	Groundwater	Anne Arundel, Baltimore, Calvert, Caroline, Cecil, Charles, Dorchester, Harford, Kent, Prince George's, Queen Anne's, Somerset, St. Mary's, Talbot, Wicomico, Worcester	Eastern, Southern, Central	Upper Coastal Plain, Lower Coastal Plain	Non-tidal Wetlands	
Coastal Plain Seepage Acidic Fen	28	Wetland	Groundwater	Anne Arundel, Calvert, Caroline, Cecil, Charles, Dorchester, Prince George's, Somerset, Wicomico, Worcester	Eastern, Southern, Central	Upper Coastal Plain, Lower Coastal Plain	Non-tidal Wetlands	Renamed from Coastal Plain Seepage Bog and Fen to Coastal Plain Seepage Acidic Fen
Delmarva Bay	29	Wetland	Groundwater	Caroline, Dorchester, Kent, Queen Anne's, Somerset, Talbot, Wicomico, Worcester	Eastern	Lower Coastal Plain	Non-tidal Wetlands	
Maritime Swamp	30	Wetland	Groundwater	Dorchester, Somerset, Wicomico, Worcester	Eastern	Lower Coastal Plain	Non-tidal Wetlands	
Vernal Pool	31	Wetland	Groundwater	All	Central, Eastern, Western, Southern	All	Non-tidal Wetlands	

KWH Name	*Code(s) (see Appendix 3a)	Habitat group	Habitat subgroup	Counties	Main Region(s)	Physiographic provinces	NE Regional Habitat Type Crosswalk	Major changes since 2015
Spring	32	Wetland	Groundwater	Allegany, Anne Arundel, Baltimore, Carroll, Cecil, Charles, Frederick, Garrett, Howard, Montgomery, Prince George's, Washington	Western, Central, Southern	Appalachian Plateau, Ridge & Valley, Blue Ridge, Piedmont, Upper Coastal Plain	Non-tidal Wetlands	
Tidal Forest	33	Wetland	Tidal	Anne Arundel, Baltimore, Calvert, Caroline, Cecil, Charles, Dorchester, Harford, Kent, Prince George's, Queen Anne's, Somerset, St. Mary's, Talbot, Wicomico, Worcester	Eastern, Southern, Central	Upper Coastal Plain, Lower Coastal Plain	Tidal Wetlands & Flats	
Tidal Freshwater Marsh and Shrubland	34	Wetland	Tidal	Anne Arundel, Baltimore, Calvert, Caroline, Cecil, Charles, Dorchester, Harford, Kent, Prince George's, Queen Anne's, Somerset, St. Mary's, Talbot, Wicomico, Worcester	Eastern, Southern, Central	Upper Coastal Plain, Lower Coastal Plain	Tidal Wetlands & Flats	
Tidal Brackish Marsh and Shrubland	35	Wetland	Tidal	Anne Arundel, Baltimore, Calvert, Caroline, Dorchester, Kent, Prince George's, Queen Anne's, Somerset, St. Mary's, Talbot, Wicomico, Worcester	Eastern, Southern, Central	Upper Coastal Plain, Lower Coastal Plain	Tidal Wetlands & Flats	
Tidal Salt Marsh and Shrubland	36	Wetland	Tidal	Dorchester, Somerset, St. Mary's, Wicomico, Worcester	Eastern, Southern	Upper Coastal Plain, Lower Coastal Plain	Tidal Wetlands & Flats	
Intertidal Mudflat and Sand Flat	37	Wetland	Tidal	Anne Arundel, Baltimore, Calvert, Caroline, Cecil, Charles, Dorchester, Harford, Kent, Prince George's, Queen Anne's, Somerset, St. Mary's, Talbot, Wicomico, Worcester	Eastern, Southern, Central	Upper Coastal Plain, Lower Coastal Plain	Tidal Wetlands & Flats	
Artificial Impoundment and Artificial Wetland	57	Wetland (artificial)	Artificial	All	Central, Eastern, Western, Southern	All	Lakes & Ponds	Was in the 'Other' habitat group in 2015
Coldwater Stream	38	Aquatic	Streams/Rivers	Allegany, Anne Arundel, Baltimore, Carroll, Cecil, Frederick, Garrett, Harford, Howard, Montgomery, Prince George's, Washington	Western, Central	Appalachian Plateau, Ridge & Valley, Blue Ridge, Piedmont	Rivers & Streams	
Limestone Stream	39	Aquatic	Streams/Rivers	Frederick, Washington	Western	Ridge & Valley, Blue Ridge	Rivers & Streams	
Highland Stream	40	Aquatic	Streams/Rivers	Allegany, Frederick, Garrett, Washington	Western	Appalachian Plateau, Ridge & Valley, Blue Ridge	Rivers & Streams	

KWH Name	*Code(s) (see Appendix 3a)	Habitat group	Habitat subgroup	Counties	Main Region(s)	Physiographic provinces	NE Regional Habitat Type Crosswalk	Major changes since 2015
Piedmont Stream	41	Aquatic	Streams/Rivers	Anne Arundel, Baltimore, Carroll, Cecil, Frederick, Harford, Howard, Montgomery, Prince George's	Central	Piedmont	Rivers & Streams	
Coastal Plain Stream	42	Aquatic	Streams/Rivers	Anne Arundel, Baltimore, Calvert, Caroline, Cecil, Charles, Harford, Howard, Kent, Prince George's, Queen Anne's, St. Mary's, Talbot	Central, Eastern, Southern	Upper Coastal Plain, Lower Coastal Plain	Rivers & Streams	
Blackwater Stream	43	Aquatic	Streams/Rivers	Anne Arundel, Calvert, Caroline, Charles, Dorchester, Harford, Kent, Prince George's, Queen Anne's, Somerset, St. Mary's, Talbot, Wicomico, Worcester	Central, Eastern, Southern	Upper Coastal Plain, Lower Coastal Plain	Rivers & Streams	
Highland River	44	Aquatic	Streams/Rivers	Allegany, Frederick, Garrett, Washington	Western	Appalachian Plateau, Ridge & Valley, Blue Ridge	Rivers & Streams	
Piedmont River	45	Aquatic	Streams/Rivers	Baltimore, Carroll, Cecil, Frederick, Harford, Howard, Montgomery	Central	Piedmont	Rivers & Streams	
Coastal Plain River	46	Aquatic	Streams/Rivers	Anne Arundel, Baltimore, Calvert, Caroline, Cecil, Charles, Dorchester, Harford, Kent, Prince George's, Queen Anne's, Somerset, St. Mary's, Talbot, Wicomico, Worcester	Central, Eastern, Southern	Upper Coastal Plain, Lower Coastal Plain	Rivers & Streams	
Chesapeake Bay	64	Aquatic	Bay/Ocean	Anne Arundel, Baltimore, Baltimore City, Calvert, Caroline, Cecil, Charles, Dorchester, Harford, Kent, Queen Anne's, Prince George's, Somerset, St. Mary's, Talbot, Wicomico, Worcester	Central, Eastern, Southern	Upper Coastal Plain, Lower Coastal Plain	Estuaries	NEW: reworked marine/estuarine habitats for 2025
Coastal Bays	63	Aquatic	Bay/Ocean	Worcester	Eastern	Lower Coastal Plain	Estuaries	NEW: reworked marine/estuarine habitats for 2025
Atlantic Ocean	65	Aquatic	Bay/Ocean	Worcester	Eastern	Lower Coastal Plain	Marine Nearshore; Marine Offshore & Oceanic	NEW: reworked marine/estuarine habitats for 2025
Small Coastal Plain Island	60	Aquatic	Bay/Ocean	Anne Arundel, Baltimore, Calvert, Cecil, Charles, Dorchester, Kent, Prince George's, Queen Anne's, Somerset, St. Mary's, Talbot, and Wicomico, and Worcester	Central, Eastern, Southern	Upper Coastal Plain, Lower Coastal Plain	N/A	NEW: reworked marine/estuarine habitats for 2025

KWH Name	*Code(s) (see Appendix 3a)	Habitat group	Habitat subgroup	Counties	Main Region(s)	Physiographic provinces	NE Regional Habitat Type Crosswalk	Major changes since 2015
Cave and Karst	52	Subterranean	N/A	Allegany, Baltimore, Carroll, Frederick, Garrett, Howard, Washington	Central, Western	Appalachian Plateau, Ridge & Valley, Blue Ridge, Piedmont	Caves & Karst	
Artificial Structure: Mine and Tunnel	59	Subterranean (artificial)	N/A	Allegany, Frederick, Garrett, Washington	Western	Appalachian Plateau, Ridge & Valley, Blue Ridge, Piedmont	Mines & Tunnels	Was in the 'Other' habitat group in 2015
Managed Successional Forest	54	Other (artificial)	Working lands	All	Central, Eastern, Western, Southern	All	Agriculture: Plantations/ Orchards	
Managed Grassland	55	Other (artificial)	Working lands	All	Central, Eastern, Western, Southern	All	Grasslands	
Roadside and Utility Right-of-Way	56	Other (artificial)	Working lands	All	Central, Eastern, Western, Southern	All	Grasslands	
Artificial Structure: Buildings and Other Structures	58	Other (artificial)	(Sub)urban	All	Central, Eastern, Western, Southern	All	Developed Areas	
Urban and Suburban Environment	61	Other (artificial)	(Sub)urban	All	Central, Eastern, Western, Southern	All	Developed Areas	NEW

Appendix 6a. Species-level threats and actions (Mammals: Terrestrial)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable Species	Action Priority (Threat Impact x Action Urgency)
1.3.4	1 Development	1.3 Tourism & Recreation Areas	1.3.4 Recreational trails		Site recreational trails in a way that minimizes fragmentation of habitat.	Long-tailed shrew, southern water shrew, Allegheny woodrat	High
4.1.1	4 Transportation	4.1 Roads & Railroads	4.1.1 Roads	Roads as barriers to movement	Look into feasibility of small wildlife road crossings.	Allegheny woodrat, eastern spotted skunk, least weasel, bobcat, gray fox	High
5.3.1	5 Bio Resource Use	5.3 Logging & Wood Harvesting	5.3.1 Complete removal of the forest cover	Over-logging in a short amount of time	Mitigate effects of logging such as new road development, alteration of hydrological flow regime, etc. on shrews and their habitats. Potentially set limit on logging in such areas.	Long-tailed shrew, southern water shrew, Delmarva fox squirrel, southern rock vole, Allegheny woodrat, southern bog lemming	Low
5.3.2	5 Bio Resource Use	5.3 Logging & Wood Harvesting	5.3.2 Partial removal of the forest cover	Drying of habitat	Protect populations on public lands through streamside and watershed-scale habitat protection and restoration, and by providing habitat connectivity between drainages.	Southern water shrew, southern rock vole, southern bog lemming	Low
5.3.2	5 Bio Resource Use	5.3 Logging & Wood Harvesting	5.3.2 Partial removal of the forest cover	Drying of habitat	Protect populations on public lands through protection of forest canopy cover within and around rock outcrop habitat.	Long-tailed shrew	Low
3.1.4	2 Agriculture and Aquaculture	3.1 Oil & Gas Drilling	3.1.4 Onshore natural gas development	Groundwater extraction	Avoid and minimize impacts of hydrofracturing-related groundwater extraction on stream and wetland habitats that support this species.	Southern water shrew	Low

Appendix 6a. Species-level threats and actions (Mammals: Terrestrial)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable Species	Action Priority (Threat Impact x Action Urgency)
7.3.2	7 Natural System Modifications	7.3 Other Ecosystem Modifications	7.3.2 Vegetation succession		Continue to restore high elevation, red spruce-dominated forests.	Southern rock vole	High
8.2.8	8 Invasive and Problematic Species	8.2 Problematic Native Plants & Animals	8.2.8 Interspecific competition with a favored species		Use habitat protection and management practices that minimize the risk of encroachment by eastern cottontails.	Appalachian cottontail	High
8.4.2	8 Invasive and Problematic Species	8.4 Pathogens	8.4.2 Viral pathogens	Canine distemper	Study modes of transmission, intraguild interactions, and developing strains to determine risk to carnivores at the population level.	Eastern spotted skunk, gray fox	High
8.4.2	8 Invasive and Problematic Species	8.4 Pathogens	8.4.2 Viral pathogens	RHDV2	Continue monitoring of populations and communication with interstate working groups in order to track and contain Rabbit Hemorrhagic Disease Virus Type 2 (RHDV2).	Appalachian cottontail	High
8.4.4	8 Invasive and Problematic Species	8.4 Pathogens	8.4.4 Worm-induced disease	Raccoon roundworm	Identify raccoon roundworm-positive sites and treat raccoon roundworm through the use of anthelmintic baits.	Allegheny woodrat	High
8.5.1	8 Invasive and Problematic Species	8.5 Intrinsic Biological Limitations	8.5.1 Loss of Genetic Diversity		Reestablish populations where they have been extirpated; augment where populations have declined/become isolated.	Allegheny woodrat, eastern spotted skunk	High

Appendix 6a. Species-level threats and actions (Mammals: Terrestrial)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable Species	Action Priority (Threat Impact x Action Urgency)
9.3.3	9 Pollution	9.3 Agricultural & Forestry Effluents	9.3.3 Herbicides & pesticides		Identify the types of pesticide/herbicide use (e.g., mosquito control, spongy moth control, various forms of agricultural pest control) that are known to or could potentially impact mammalian insectivore populations and take measures to avoid or minimize those impacts.	Least shrew, long-tailed shrew, smoky shrew, southern pygmy shrew, southeastern shrew, southern water shrew	High
9.3.3	9 Pollution	9.3 Agricultural & Forestry Effluents	9.3.3 Herbicides & pesticides	Primary and secondary poisoning from rodenticides	Increase understanding of indirect impacts of rodenticides on carnivore populations.	Bobcat, gray fox	High
12.2	12 Other Options	12.2 Resource Needs	Management decision needs	Need for fish, wildlife and/or habitat planning	Monitor and maintain management practices for the Delmarva fox squirrel in the Chesapeake Forest Plan, updating as needed.	Delmarva fox squirrel	Medium
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of up-to-date existing information	Improve understanding of species distribution, status, and habitat requirements.	Least shrew, long-tailed shrew, smoky shrew, southern pygmy shrew, southeastern shrew, southern water shrew, Appalachian cottontail, Delmarva fox squirrel, southern rock vole, Allegheny woodrat, southern bog lemming, eastern spotted skunk, least weasel, American mink, gray fox	High
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of up-to-date existing information	Improve understanding of species home range, dispersal, and movement patterns.	Eastern spotted skunk, least weasel, bobcat, gray fox	High
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Determine home range, dispersal behavior/capabilities, extent of gene flow between populations, and habitat connectivity needs.	Long-tailed shrew, southern water shrew	High

Appendix 6a. Species-level threats and actions (Mammals: Terrestrial)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable Species	Action Priority (Threat Impact x Action Urgency)
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Determine reproductive ecology.	Long-tailed shrew, southern water shrew	High
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Determine cause of apparent population declines and what measures are needed to ensure recovery.	Allegheny woodrat, southern bog lemming	High
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Continue work to determine extent of gene flow between populations, dispersal behavior/capabilities, and habitat connectivity needs. (Work has not yet begun for rock voles.)	Appalachian cottontail, southern rock vole, Allegheny woodrat	High
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Determine whether water shrew populations have come back to previously acid rain-impacted or mine drainage-impacted streams.	Southern water shrew	High
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to develop new technique	Develop more effective survey and monitoring techniques, including live capture methods for insectivores.	Least shrew, long-tailed shrew, smoky shrew, southern pygmy shrew, southeastern shrew, southern water shrew, least weasel	High
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to develop new technique	Improve techniques for studying species, prioritizing no-kill and noninvasive methods.	Least shrew, long-tailed shrew, smoky shrew, southern pygmy shrew, southeastern shrew, southern water shrew, southern rock vole, Allegheny woodrat, southern bog lemming	High

Appendix 6a. Species-level threats and actions (Mammals: Terrestrial)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable Species	Action Priority (Threat Impact x Action Urgency)
12.5	12 Other Options	12.5 State Specific Issues		Need for increased legal protection	Ensure that Delmarva fox squirrels remain a prohibited species for hunting/trapping, as over-hunting was the main cause of its original decline.	Delmarva fox squirrel	Medium

Appendix 6a. Species-level threats and actions (Mammals: Bats)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable Species	Action Priority (Threat Impact x Action Urgency)
3.3.2	3 Energy Production	3.3 Renewable Energy	3.3.2 Wind farms		Monitor industrial wind development sites for mortality.	Silver-haired bat, eastern red bat, hoary bat, eastern small-footed bat, little brown bat, northern long-eared bat, Indiana bat, tricolored bat	Medium
3.3.2	3 Energy Production	3.3 Renewable Energy	3.3.2 Wind farms		Curtail turbine operation at low wind speeds at industrial wind development sites (onshore and offshore, as needed).	Silver-haired bat, eastern red bat, hoary bat, eastern small-footed bat, little brown bat, northern long-eared bat, Indiana bat, tricolored bat	High
3.3.2	3 Energy Production	3.3 Renewable Energy	3.3.2 Wind farms		Use mist net and acoustic surveys to determine migratory timing and year-round residency on the Delmarva peninsula.	Silver-haired bat, eastern red bat, hoary bat, little brown bat, northern long-eared bat, tricolored bat	High
4.1	4 Transportation	4.1 Roads & Railroads		Human-built disruptions at anthropogenic structures (roads and culverts)	Continue to promote Maryland Department of Natural Resources (MD DNR) Natural Heritage Program (NHP) and U.S. Fish and Wildlife Service (USFWS) as consultants for construction projects that may impact sensitive bat populations, including transportation infrastructure.	Silver-haired bat, eastern small-footed bat, little brown bat, northern long-eared bat, Indiana bat, tricolored bat	Low
5.3.2	5 Bio Resource Use	5.3 Logging & Wood Harvesting	5.3.2 Partial removal of the forest cover		Promote timber management practices on private lands that minimize impacts on bats.	Silver-haired bat, eastern red bat, hoary bat, eastern small-footed bat, little brown bat, northern long-eared bat, Indiana bat, tricolored bat	High

Appendix 6a. Species-level threats and actions (Mammals: Bats)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable Species	Action Priority (Threat Impact x Action Urgency)
6	6 Human Intrusions			Bat exclusion measures and behaviors	Promote the use of roosting boxes to stabilize maternity colonies that have been excluded through human intrusions.	Little brown bat, northern long-eared bat, Indiana bat, tricolored bat	Low
6.1.3	6 Human Intrusions	6.1 Recreational Activities	6.1.3 Recreational use of cliffs and rock faces		Prevent disturbance to summer roosting sites or hibernacula sites.	Silver-haired bat, eastern small-footed bat, little brown bat, northern long-eared bat, Indiana bat, tricolored bat	High
6.1.7	6 Human Intrusions	6.1 Recreational Activities	6.1.7 Caving		Protect hibernating bats from disturbance.	Silver-haired bat, eastern small-footed bat, little brown bat, northern long-eared bat, Indiana bat, tricolored bat	High
6.3	6 Human Intrusions	6.3 Work & Other Activities		Human-built disruptions at anthropogenic structures (mines, tunnels, and buildings)	Continue to promote MD DNR and USFWS as consultants for construction projects that may impact sensitive bat populations, including subterranean structures such as mines and tunnels.	Silver-haired bat, eastern small-footed bat, little brown bat, northern long-eared bat, Indiana bat, tricolored bat	High
6.3.3	6 Human Intrusions	6.3 Work & Other Activities	6.3.3 Vandalism	Vandalism to bat gates at hibernacula	Coordinate with Natural Resources Police (NRP) to monitor gates at bat hibernacula sites for vandalism; prosecute as needed.	Silver-haired bat, eastern small-footed bat, little brown bat, northern long-eared bat, Indiana bat, tricolored bat	Low
8.4.3	8 Invasive and Problematic Species	8.4 Pathogens	8.4.3 Fungal pathogens	White-nose syndrome (WNS)	Use acoustic and hibernacula surveys to monitor effect of WNS on populations.	Eastern small-footed bat, little brown bat, northern long-eared bat, Indiana bat, tricolored bat	High

Appendix 6a. Species-level threats and actions (Mammals: Bats)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable Species	Action Priority (Threat Impact x Action Urgency)
8.4.3	8 Invasive and Problematic Species	8.4 Pathogens	8.4.3 Fungal pathogens	White-nose syndrome (WNS)	Assist research related to WNS, including potential methods for abating its effects.	Eastern small-footed bat, little brown bat, northern long-eared bat, Indiana bat, tricolored bat	High
8.5.1	8 Invasive and Problematic Species	8.5 Intrinsic Biological Limitations	8.5.1 Loss of Genetic Diversity	White-nose syndrome (WNS)	Work with partners to monitor genetic health of populations and work to prevent additional loss by protecting WNS survivors.	Hoary bat, eastern small-footed bat, little brown bat, northern long-eared bat, Indiana bat, tricolored bat	High
9.3.3	9 Pollution	9.3 Agricultural & Forestry Effluents	9.3.3 Herbicides & pesticides		Take measures to avoid or minimize pesticide uses (e.g., mosquito control, spongy moth control, various forms of agricultural pest control) that are known to or could potentially impact bat populations, including through the promotion of organic farming practices and integrated pest management.	Silver-haired bat, eastern red bat, hoary bat, eastern small-footed bat, little brown bat, northern long-eared bat, Indiana bat, tricolored bat	High
9.6.1	9 Pollution	9.6 Excess Energy	9.6.1 Light pollution	Light pollution that leads to habitat loss	Work with (construction) project managers to minimize light disturbances in/near sensitive bat habitat areas.	Silver-haired bat, eastern red bat, hoary bat, eastern small-footed bat, little brown bat, northern long-eared bat, Indiana bat, tricolored bat	Low
9.6.3	9 Pollution	9.6 Excess Energy	9.6.3 Noise pollution	Noise pollution (especially transport and construction)	Work with (construction) project managers to minimize noise disturbances in/near sensitive bat habitat areas.	Silver-haired bat, eastern red bat, hoary bat, eastern small-footed bat, little brown bat, northern long-eared bat, Indiana bat, tricolored bat	High

Appendix 6a. Species-level threats and actions (Mammals: Bats)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable Species	Action Priority (Threat Impact x Action Urgency)
12.2	12 Other Options	12.2 Resource Needs	Management decision needs	Need for fish, wildlife, and/or habitat planning	Include bat conservation needs in public land management plans.	Silver-haired bat, eastern red bat, hoary bat, eastern small-footed bat, little brown bat, northern long-eared bat, Indiana bat, tricolored bat	High
12.2	12 Other Options	12.2 Resource Needs	Management decision needs	Need for fish, wildlife, and/or habitat planning	Finalize and promote the Maryland Bat Conservation Strategy, which contains best management practices (BMPs) for development for the purposes of human recreation, transportation, wind power, and other human intrusions.	Silver-haired bat, eastern red bat, hoary bat, eastern small-footed bat, little brown bat, northern long-eared bat, Indiana bat, tricolored bat	High
12.2	12 Other Options	12.2 Resource Needs	Management decision needs	Need to provide technical assistance	Protect maternity colonies by working with landowners and land managers.	Eastern small-footed bat, little brown bat, northern long-eared bat, Indiana bat, tricolored bat	High
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of up-to-date existing information	Cautiously monitor populations in hibernacula.	Eastern small-footed bat, little brown bat, northern long-eared bat, Indiana bat, tricolored bat	High
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of up-to-date existing information	Continue and increase efforts to monitor maternity colonies.	Eastern small-footed bat, little brown bat, northern long-eared bat, Indiana bat, tricolored bat	High
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of up-to-date existing information	Use acoustic surveys, mist net surveys, and other techniques to better determine status, distribution, and habitat requirements/associations in Maryland.	Silver-haired bat, eastern red bat, hoary bat, eastern small-footed bat, little brown bat, northern long-eared bat, Indiana bat, tricolored bat	High

Appendix 6a. Species-level threats and actions (Mammals: Bats)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable Species	Action Priority (Threat Impact x Action Urgency)
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Investigate WNS bat resistance in Maryland tunnels and extend knowledge to partners.	Eastern small-footed bat, little brown bat, northern long-eared bat, Indiana bat, tricolored bat	High
12.4	12 Other Options	12.4 Administrative Needs	Coordination/administration needs	Need for coordination for effective program/project management	Coordinate inventory, monitoring, and research across Maryland and surrounding states.	Silver-haired bat, eastern red bat, hoary bat, eastern small-footed bat, little brown bat, northern long-eared bat, Indiana bat, tricolored bat	High

Appendix 6a. Species-level threats and actions (Mammals: Marine)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable Species	Action Priority (Threat Impact x Action Urgency)
4.3.1	4 Transportation	4.3 Shipping Lanes	4.3.1 Shipping		Reduce disruption of movement corridors and ship strikes.	Blue whale, fin whale, humpback whale, North Atlantic right whale, sei whale, sperm whale, minke whale, West Indian manatee	Low
5.4	5 Bio Resource Use	5.4 Fishing & Harvesting Aquatic Resources		Unintentional effects: entanglement	Reduce entanglements in fishing nets.	Fin whale, humpback whale, North Atlantic right whale, sperm whale, minke whale, West Indian manatee, bottlenose dolphin, harbor porpoise	Medium
6.1.4	6 Human Intrusions	6.1 Recreational Activities	6.1.4 Recreational boating		Raise awareness of boaters to reduce conflicts.	Blue whale, fin whale, humpback whale, North Atlantic right whale, sei whale, sperm whale, minke whale, West Indian manatee, bottlenose dolphin, harbor porpoise	High
6.2.3	6 Human Intrusions	6.2 War, Civil Unrest & Military Exercises	6.2.3 Military exercises		Reduce impacts to marine species through military exercises.	Blue whale, fin whale, humpback whale, North Atlantic right whale, sei whale, sperm whale, minke whale, West Indian manatee, bottlenose dolphin, harbor porpoise	Low
6.3.1	6 Human Intrusions	6.3 Work & Other Activities	6.3.1 Research activities		Reduce impacts to marine species from geological and geophysical surveys.	Blue whale, fin whale, humpback whale, North Atlantic right whale, sei whale, sperm whale, minke whale, bottlenose dolphin, harbor porpoise	Low
8.4.2	8 Invasive and Problematic Species	8.4 Pathogens	8.4.2 Viral pathogens	Cetacean morbillivirus	Seek to better understand anthropogenic triggers for cetacean morbillivirus.	Bottlenose dolphin, harbor porpoise	Medium
9.6.3	9 Pollution	9.6 Excess Energy	9.6.3 Noise pollution		Reduce noise where possible, especially in migration corridors and other areas of known habitat use.	Blue whale, fin whale, humpback whale, North Atlantic right whale, sei whale, sperm whale, minke whale, bottlenose dolphin, harbor porpoise	Low
11.3	11 Climate Change	11.3 Changes in Temperature Regimes		Temperature extremes and phenology shifts related to predator-prey ecology	Seek to better understand impacts of climate change on movements and key food resources.	Blue whale, fin whale, West Indian manatee, bottlenose dolphin, harbor porpoise	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Seek to better understand impacts of recent species population declines to ecosystem.	Bottlenose dolphin	Medium

Appendix 6a. Species-level threats and actions (Birds)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable Species and Species Groups	Action Priority (Threat Impact x Action Urgency)
1 - 4				Habitat loss (from various causes)	Start a Maryland grasslands bird initiative (similar to Virginia's), which could include efforts such as paying farmers to delay haying a few weeks and asking mowers to raise their blade heights.	Working lands / grassland birds	High
1	1 Development			Use of materials that cause collision hazards	Encourage practices that minimize bird window strikes, including alternative lighting and use of glass in buildings.	Raptors and songbirds mostly, although all birds can be impacted	High
1.1.1	1 Development	1.1 Housing & Urban Areas	1.1.1 Dense housing & urban areas		Promote use of rooftop material for flat roofs that is suitable for nesting.	Common nighthawk and least tern	Low
1.1.2	1 Development	1.1 Housing & Urban Areas	1.1.2 Low-density housing areas	Coastal development	Encourage bird-friendly practices (such as the creation of nesting structures) by residents/landowners in coastal areas, especially the Critical Area.	Coastal birds	Low
1.2.1	1 Development	1.2 Commercial & Industrial Areas	1.2.1 Commercial & industrial areas	Data centers and other large-scale commercial development	Ensure adequate environmental review processes are in place and rare species data layers are up to date.	American barn owl, American kestrel, Henslow's sparrow, and other grassland-dependent birds	High
2.1	2 Agriculture and Aquaculture	2.1 Annual & Perennial Non-Timber Crops			Continue to work with farming community and agricultural agencies to provide breeding habitat for SGCN where appropriate via existing landowner incentive programs.	Working lands / grassland birds	Low
3.3.2	3 Energy Production	3.3 Renewable Energy	3.3.2 Wind farms		Monitor industrial wind development sites for mortality.	Golden eagle and migratory birds	Medium
3.3.2	3 Energy Production	3.3 Renewable Energy	3.3.2 Wind farms		Minimize and use appropriate lighting at industrial wind development sites to reduce mortality of migrating birds.	Golden eagle and migratory birds	Medium
3.3.2	3 Energy Production	3.3 Renewable Energy	3.3.2 Wind farms		Conduct research to determine how to minimize and mitigate impacts of industrial wind development on breeding bird SGCN.	Breeding landbirds	Medium
3.3.2	3 Energy Production	3.3 Renewable Energy	3.3.2 Wind farms		Determine potential impacts of offshore wind energy development on birds, and take measures to avoid and minimize these impacts.	Colonial and coastal birds	High
3.3.2	3 Energy Production	3.3 Renewable Energy	3.3.2 Wind farms		Continue to identify relative importance of Appalachian ridgetops as migratory corridors for golden eagles to assess risk from wind power developments.	Golden eagle	High

Appendix 6a. Species-level threats and actions (Birds)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable Species and Species Groups	Action Priority (Threat Impact x Action Urgency)
3.3.4	3 Energy Production	3.3 Renewable Energy	3.3.4 Solar farms		Increase development of solar farms in a sustainable way that emphasizes building on/over sites such as landfills, parking lots, etc. rather than undeveloped land (i.e., farms and fallow fields used by grassland birds).	American barn owl, American kestrel, Henslow's sparrow, and other grassland-dependent birds	High
4.2.1	4 Transportation	4.2 Utility & Service Lines	4.2.1 Power and service lines		Develop best management practices (BMPs) to maintain more bird-friendly habitats in powerline corridors.	Working lands / shrubland birds	Low
5.1.1	5 Bio Resource Use	5.1 Hunting & Collecting Terrestrial Animals	5.1.1 Hunting		Close hunting seasons on species of concern.	King rail and sora	Low
5.3	5 Bio Resource Use	5.3 Logging & Wood Harvesting			Whenever possible, encourage timber harvesting to occur outside the nesting season to minimize impacts on nesting birds.	Forest-dependent birds	Medium
5.3	5 Bio Resource Use	5.3 Logging & Wood Harvesting			On lower Eastern Shore public lands and private lands, where possible, work towards the restoration of large tracts of pine-dominated old growth forest so that red-cockaded woodpecker may someday be reintroduced to the state.	Red-cockaded woodpecker	Low
6.1	6 Human Intrusions	6.1 Recreational Activities		Use of beaches	Minimize or continue to minimize off-road vehicle use in sensitive habitats and at critical times of year (e.g., breeding season, seasonal migrations/movements).	Piping plover, least tern, and other ground-nesting birds	High
6.1.3	6 Human Intrusions	6.1 Recreational Activities	6.1.3 Recreational use of cliffs and rock faces		Work with climbing clubs to minimize degradation and disturbance of important peregrine falcon nesting grounds.	Peregrine falcon	High
7.1.2	7 Natural System Modifications	7.1 Fire & Fire Suppression	7.1.2 Suppression in the fire regime		Increase the amount of prescribed burns in targeted areas to promote better habitat for scrub birds like the yellow-breasted chat and eastern towhee.	Yellow-breasted chat, eastern towhee, and other scrubland birds	Medium
8.1.1	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.1 Terrestrial animals	Cats	Increase efforts to raise awareness of the issues around feral cats, which threaten ground-nesting bird populations in particular.	Landbirds, especially ground-nesting birds	High
8.2.5	8 Invasive and Problematic Species	8.2 Problematic Native Plants & Animals	8.2.5 Increased predation by mesopredators		Protect ground-nesting colonial waterbird colonies from predators.	Ground-nesting colonial waterbirds	High
8.4.2	8 Invasive and Problematic Species	8.4 Pathogens	8.4.2 Viral pathogens	West Nile virus (WNV)	Conduct research to determine if and how WNV may impact (or already be impacting) SGCN such as ruffed grouse.	Ruffed grouse and other susceptible SGCN	High

Appendix 6a. Species-level threats and actions (Birds)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable Species and Species Groups	Action Priority (Threat Impact x Action Urgency)
8.4.2	8 Invasive and Problematic Species	8.4 Pathogens	8.4.2 Viral pathogens	Highly pathogenic avian influenza (HPAI)	Conduct research to determine if and how HPAI may impact (or already be impacting) susceptible species. Include efforts to monitor spread of disease throughout populations.	Peregrine falcon, eagles, colonial nesting waterbirds, waterfowl	High
9.3.3	9 Pollution	9.3 Agricultural & Forestry Effluents	9.3.3 Herbicides & pesticides	Loss of invertebrate prey (moths/mosquitoes)	Better center or correlate invertebrate monitoring, study, and conservation efforts within the world of bird conservation; consider both in terms of a biomass and individual prey species.	Insectivorous birds (e.g., flycatchers, warblers)	High
9.6.1	9 Pollution	9.6 Excess Energy	9.6.1 Light pollution		Encourage practices that minimize use of lighting at night to reduce disruptions of nocturnal life patterns and collisions with tall, improperly lit structures.	Owls, songbirds, and seabirds (for offshore structures) mostly, although all birds can be impacted	High
11.1	11 Climate Change	11.1 Habitat Shifting & Alteration		Sea-level rise	Manage coastal islands by "building up" sand annually to restore nesting habitat for colonial waterbirds, which are being eroded away by extreme high tides and storm surges.	Colonial waterbirds	High
11.1.2	11 Climate Change	11.1 Habitat Shifting & Alteration	11.1.2 Phenological mismatch	Changes in timing of ecological processes causing issues for long-distance migrants	Continue researching the effects of phenological mismatches and the impact to the survival of species, as well as potential habitat management practices that may mitigate these effects.	Migratory birds	Medium
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of up-to-date existing information	Conduct population-level surveys of species that may not have declined in distribution but may have had declines in abundance.	SGCN indicator species (e.g., wood thrush, scarlet tanager)	High
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Increase inter-agency coordination to examine broader environmental conditions that may be behind waterbird declines, including potential declines in forage fish abundance and diversity.	Waterbirds	High
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Continue research into the importance of Maryland stopover habitat for migratory species of concern.	Migratory birds	High
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Determine if and/or how new/expanded range species (e.g., birds like common ravens) are impacting bird SGCN.	All birds	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Research to determine cause of decline in belted kingfisher populations, primarily on the Eastern Shore.	Belted kingfisher	Low

Appendix 6a. Species-level threats and actions (Birds)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable Species and Species Groups	Action Priority (Threat Impact x Action Urgency)
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Track overwintering species to determine if declining Maryland populations may be related to loss of overwintering habitat.	Northern harrier, short-eared owl, and other grassland birds	Medium
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to develop new technique	Improve spring/fall count methodology to increase data usefulness in identifying important migratory stopover areas.	Migratory birds	High
12.3	12 Other Options	12.3 Education & Outreach	Education needs	Need for improved knowledge of fish and wildlife and their habitats	Better educate private landowners on the impacts of invasive plants on native bird populations, especially in the understory. Emphasize the importance of allowing deer hunting on their lands to help address this issue.	Landbirds, primarily	High
12.3	12 Other Options	12.3 Education & Outreach	Education needs	Need for improved knowledge of fish and wildlife and their habitats	Increase public outreach and education regarding what habitats and management practices are beneficial for birds.	Landbirds, primarily	High
12.3	12 Other Options	12.3 Education & Outreach	Outreach needs		Continue to utilize apps such as Merlin to promote public interest in birds and bird-related conservation issues.	All birds	Low
12.3	12 Other Options	12.3 Education & Outreach	Outreach needs	Need to maintain and/or increase constituent base	Explore ways to get more adult volunteers involved in the Young Birders (YMOS) subgroup of the Maryland Ornithological Society (MOS).	All birds	High
12.4	12 Other Options	12.4 Administrative Needs	Coordination/administration needs	Need for coordination for effective program/project management	Approach soil and water conservation districts to discuss bird conservation cooperation.	Landbirds, primarily	Low
12.4	12 Other Options	12.4 Administrative Needs	Infrastructure needs	Need to maintain or improve information management systems	Continue to incorporate migratory stopover sites/corridors into BioNet.	Migratory birds	High
12.5	12 Other Options	12.5 State Specific Issues		Need for increased legal protection	Pass Maryland-specific law akin to the Migratory Bird Treaty Act (MBTA) to protect migratory birds from incidental take, especially since the federal law may be in jeopardy.	Migratory birds	Low

Appendix 6a. Species-level threats and actions (ALL Herps)

PART 1: THREATS					PART 2: ACTIONS	
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Action Priority (Threat Impact x Action Urgency)
1 - 4				Habitat loss (from various causes)	Protect known occupied habitat, or largest/best populations.	High
1 - 4				Habitat loss (from various causes)	Create new vernal pools and other wetland habitats for aquatic SGCN.	Low
1 - 4				Habitat fragmentation (from various causes)	Develop site conservation design to better connect core populations into functioning metapopulations, especially on state and non-governmental organization (NGO) lands.	Low
1 - 4				Habitat fragmentation (from various causes)	Minimize and reduce habitat fragmentation.	Low
3.1.4	3 Energy Production	3.1 Oil & Gas Drilling	3.1.4 Onshore natural gas development		Minimize direct and indirect impacts of energy development to SGCN.	Low
4.1.1	4 Transportation	4.1 Roads & Railroads	4.1.1 Roads		Identify potential high roadkill crossing areas statewide by conducting a geographic information system (GIS)-based "causeway" study similar to New York/Cornell effort (i.e., considering wetlands within 100 meters of both sides of road) followed by field verification. These would then be areas to focus mitigation efforts.	Low
4.1.1	4 Transportation	4.1 Roads & Railroads	4.1.1 Roads		Improve connectivity of habitat by addressing conservation of movement corridors between breeding areas, including improved road crossings, low-rise curbing, wildlife passage tunnels/culverts, wildlife crossing signage, and temporary closure of park roads (during seasonal migrations), especially on roads within or bisecting state and NGO lands.	Low
5.1	5 Bio Resource Use	5.1 Hunting & Collecting Terrestrial Animals		Collection of wild animals, especially turtles	Limit collection through education and regulation changes.	Medium

Appendix 6a. Species-level threats and actions (ALL Herps)

PART 1: THREATS					PART 2: ACTIONS	
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Action Priority (Threat Impact x Action Urgency)
5.3	5 Bio Resource Use	5.3 Logging & Wood Harvesting			Manage public and private conservation lands to benefit SGCN found in specific, limited microhabitats.	Low
5.3	5 Bio Resource Use	5.3 Logging & Wood Harvesting			Manage state lands for native forest communities where herpetofauna are found (i.e., limit extent of loblolly pine plantations).	Low
5.3	5 Bio Resource Use	5.3 Logging & Wood Harvesting			Consider time-of-year restrictions for timber harvests and identify no-cut zones as needed to minimize impacts on SGCN on state lands.	Low
6.1	6 Human Intrusions	6.1 Recreational Activities			Implement additional protection measures for populations on public lands (e.g., rerouting hiking trails, educational signs).	Low
6.1.1	6 Human Intrusions	6.1 Recreational Activities	6.1.1 Motor vehicles		Minimize or continue to minimize off-road vehicle use in sensitive habitats and at critical times of year (e.g., breeding season, seasonal migrations/movements).	Low
7	7 Natural System Modifications				Implement appropriate habitat management practices.	Low
7.2	7 Natural System Modifications	7.2 Dams & Water Management / Use			Restore known occupied habitat of aquatic species, especially in areas where populations are declining.	Low
7.3	7 Natural System Modifications	7.3 Other Ecosystem Modifications		Removal of coarse woody debris	Retain coarse woody debris in all natural areas.	Low
7.2.4	7 Natural System Modifications	7.2 Dams & Water Management / Use	7.2.4 Drainage in agricultural environments		Maintain or increase water quality and wetland hydrology through improved best management practices (BMPs), including improved sediment and erosion control.	Low
8.4.2	8 Invasive and Problematic Species	8.4 Pathogens	8.4.2 Viral pathogens	Ranavirus	Distribute Northeast Partners in Amphibian and Reptile Conservation (NE PARC) Disease Working Group educational materials regarding Ranavirus management to public properties; especially those known to have the disease present.	Low
8.4.2	8 Invasive and Problematic Species	8.4 Pathogens	8.4.2 Viral pathogens	Ranavirus	Promote NE PARC decontamination protocols; include these protocols in permit reviews for wetland activities.	Low

Appendix 6a. Species-level threats and actions (ALL Herps)

PART 1: THREATS					PART 2: ACTIONS	
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Action Priority (Threat Impact x Action Urgency)
9	9 Pollution				Determine impacts of environmental pollutants (such as per- and polyfluoroalkyl substances [PFAS]) on SGCN populations.	Low
12.2	12 Other Options	12.2 Resource Needs	Management decision needs	Need for fish, wildlife and/or habitat planning	Develop formal species conservation plans for SGCN as needed.	Low
12.2	12 Other Options	12.2 Resource Needs	Management decision needs	Need to provide technical assistance	Provide technical assistance to Natural Resources Police (NRP) to support enforcement actions of state and federal laws and regulations.	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of initial baseline inventory	Conduct targeted, intensive surveys to determine species distribution and status for those SGCN for which this information is lacking, inadequate, or out-of-date.	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of initial baseline inventory	Conduct eDNA surveys in subwatersheds to determine presence/absence of certain species, including eastern hellbender and rainbow snake.	High
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of up-to-date existing information	Develop protocols and conduct population monitoring (e.g., abundance, demographics, reproduction, etc.) for SGCN.	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of up-to-date existing information	Follow-up Maryland Amphibian and Reptile Atlas (MARA) project with detailed studies to investigate reasons for population decline, extirpation, and/or loss of former (county) range (for species where this is true).	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Assess feasibility of population augmentation or reintroduction.	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Determine impacts of emerging pathogens.	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Study impacts of sea-level rise and climate change on coastal SGCN.	Low

Appendix 6a. Species-level threats and actions (ALL Herps)

PART 1: THREATS					PART 2: ACTIONS	
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Action Priority (Threat Impact x Action Urgency)
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Assessing methodologies for pathogen surveillance (e.g., eDNA)	Low
12.3	12 Other Options	12.3 Education & Outreach	Education needs		Increase decontamination protocol education to address known and emerging diseases.	Low
12.4	12 Other Options	12.4 Administrative Needs	Coordination/administration needs	Need for coordination for effective program/project management	Continue working with other states on existing collaborative range-wide conservation projects and develop new projects.	Low
12.4	12 Other Options	12.4 Administrative Needs	Infrastructure needs	Need to maintain or improve information management systems	Begin to include uncommon (i.e., species ranked S3) herpetofauna in Natural Heritage Program (NHP) database and/or develop database for SGCN not currently tracked. Database would also be used for Environmental Review (ER) project screening.	Low
12.5	12 Other Options	12.5 State Specific Issues		Need for increased legal protection	Re-evaluate state legal status for many herpetofauna SGCN.	Low

Appendix 6a. Species-level threats and actions (Herps: Amphibians)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable Species	Action Priority (Threat Impact x Action Urgency)
3.2	3 Energy Production	3.2 Mining & Quarrying			Use Environmental Review (ER) process to ensure that mining actions won't be detrimental to populations of SGCN.	Eastern tiger salamander, green salamander, eastern hellbender, common mudpuppy, barking treefrog, carpenter frog	Low
3.2.1	3 Energy Production	3.2 Mining & Quarrying	3.2.1 Underground mines		Monitor and address acid mine drainage as issues arise. Work with Pennsylvania on acid mine drainage issues separating Maryland and Pennsylvania hellbender populations.	Eastern hellbender, common mudpuppy	High
3.3.1	3 Energy Production	3.3 Renewable Energy	3.3.1 Hydroelectric dams	Water releases from Deep Creek Dam	Study impact of water releases from Deep Creek on hellbenders in the Youghiogheny.	Eastern hellbender, common mudpuppy	Medium
7.2.1	7 Natural System Modifications	7.2 Dams & Water Management / Use	7.2.1 Water level management using dams		Maintain/improve aquatic hydrology by working with Deep Creek for proper water flow for species needs.	Eastern hellbender, common mudpuppy	Medium
7.2.3	7 Natural System Modifications	7.2 Dams & Water Management / Use	7.2.3 Water management using culverts		Maintain/improve aquatic hydrology by retrofitting culverts, etc. Maintain and enhance stream buffers through environmentally sensitive designs.	Eastern hellbender, seal salamander, spring salamander, common mudpuppy, mud salamander, red salamander, mountain dusky salamander, longtail salamander	Medium
7.3.2	7 Natural System Modifications	7.3 Other Ecosystem Modifications	7.3.2 Vegetation succession		Restore known occupied habitat, especially in areas where populations are declining, by removal of encroaching trees/saplings.	Eastern tiger salamander, barking treefrog, carpenter frog	High

Appendix 6a. Species-level threats and actions (Herps: Amphibians)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable Species	Action Priority (Threat Impact x Action Urgency)
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of initial baseline inventory	Conduct regular chorus surveys and/or acoustic monitoring to inform status and distribution.	Eastern narrow-mouthed toad, barking treefrog, carpenter frog, mountain chorus frog, upland chorus frog, eastern spadefoot	Medium
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Develop population augmentation protocols and begin implementation of head-starting, translocation, and repatriation as needed. Ensure that protocols are site- and species-specific.	Eastern tiger salamander, eastern hellbender, common mudpuppy, eastern narrow-mouthed toad, mountain chorus frog	High
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Determine reasons for apparent population decline/extirpation in the state (disease, contaminants, siltation, acidification).	Eastern hellbender, mountain chorus frog, upland chorus frog	Medium
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Study canopy use of Maryland populations to incorporate into habitat protection measures.	Green salamander	Low

Appendix 6a. Species-level threats and actions (Herps: Turtles)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable Species	Action Priority (Threat Impact x Action Urgency)
1 - 4				Habitat loss (from various causes)	Study, protect, and restore nesting and/or basking habitat.	Eastern spiny softshell, spotted turtle, bog turtle, wood turtle, northern map turtle, diamond-backed terrapin, eastern box turtle, striped mud turtle, eastern mud turtle, eastern musk turtle	High
5.1.4	5 Bio Resource Use	5.1 Hunting & Collecting Terrestrial Animals	5.1.4 Poaching/persecution of terrestrial animals		Develop repatriation protocols and begin implementation as needed for placement of turtles illegally collected and traded.	Spotted turtle, bog turtle, wood turtle, diamond-backed terrapin, eastern box turtle	High
5.4.1	5 Bio Resource Use	5.4 Fishing & Harvesting Aquatic Resources	5.4.1 Recreational or subsistence fishing		Promote the use and enforcement Turtle Reduction Devices (TRDs) on all recreational pots to avoid bycatch.	Diamond-backed terrapin	Low
5.4.2	5 Bio Resource Use	5.4 Fishing & Harvesting Aquatic Resources	5.4.2 Commercial fishing		Reduce mortality (as bycatch) in recreational and commercial crab pots, catfish traps, fyke nets, and other larger-scale fishing gear.	Diamond-backed terrapin	Low
7.2	7 Natural System Modifications	7.2 Dams & Water Management / Use			Continue to monitor changes in hydrology at most important known locations to inform future management of these areas.	Spotted turtle, bog turtle, wood turtle, northern map turtle	Low
7.3	7 Natural System Modifications	7.3 Other Ecosystem Modifications		Lack of natural disturbance patterns or ecosystem functions due to species loss	Continue to manage vegetation at most important known locations.	Spotted turtle, bog turtle, wood turtle, northern map turtle, diamond-backed terrapin, eastern box turtle	High
7.3	7 Natural System Modifications	7.3 Other Ecosystem Modifications		Imbalanced predator/prey dynamics	Control and/or exclude predators at known nesting sites and habitats.	Eastern spiny softshell, spotted turtle, bog turtle, wood turtle, northern map turtle, diamond-backed terrapin, eastern box turtle	High

Appendix 6a. Species-level threats and actions (Herps: Turtles)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable Species	Action Priority (Threat Impact x Action Urgency)
7.3.1	7 Natural System Modifications	7.3 Other Ecosystem Modifications	7.3.1 Shoreline alteration		Protect, maintain, and restore access to nesting beach habitat by limiting hardened or altered shorelines, such as riprap or bulkheads. Encourage living shoreline methods of shoreline protection.	Eastern spiny softshell, wood turtle, northern map turtle, diamond-backed terrapin	High
8.4	8 Invasive and Problematic Species	8.4 Pathogens			Monitor spread of individuals infected with Ranavirus, Herpesvirus, Mycoplasma, Adenovirus, Emydomyces; determine impact of emerging pathogens.	Eastern spiny softshell, spotted turtle, bog turtle, wood turtle, northern map turtle, diamond-backed terrapin, eastern box turtle, striped mud turtle, eastern mud turtle, eastern musk turtle	Medium
8.4	8 Invasive and Problematic Species	8.4 Pathogens		Disease surveillance and monitoring	Implement landscape-level surveys to determine abundance and severity of existing and emerging diseases.	Eastern spiny softshell, spotted turtle, bog turtle, wood turtle, northern map turtle, diamond-backed terrapin, eastern box turtle, striped mud turtle, eastern mud turtle, eastern musk turtle	Low
8.4.2	8 Invasive and Problematic Species	8.4 Pathogens	8.4.2 Viral pathogens	Ranavirus	Educate the public on and enforce the prohibition of native turtles in Turtle Derbies.	Spotted turtle, wood turtle, eastern box turtle	Low
11.1	11 Climate Change	11.1 Habitat Shifting & Alteration		Sea level rise	Monitor impacts of sea level rise on coastal turtle SGCN.	Spotted turtle, diamond-backed terrapin	Medium
11.4.1	11 Climate Change	11.4 Changes in Precipitation & Hydrological Regimes	11.4.1 Overabundant Rains	Increase in amount and severity of storms	Create nesting habitat through various methods including vegetation control, tree removal, and substrate enhancement.	Eastern spiny softshell, wood turtle, northern map turtle, diamond-backed terrapin	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of up-to-date existing information	Monitor changes in sex ratios of populations.	Spotted turtle, northern map turtle, diamond-backed terrapin, eastern box turtle, striped mud turtle, eastern mud turtle, eastern musk turtle	Low

Appendix 6a. Species-level threats and actions (Herps: Turtles)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable Species	Action Priority (Threat Impact x Action Urgency)
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Look into impacts of crayfish trapping on freshwater turtles.	Spotted turtle, striped mud turtle, eastern mud turtle, eastern musk turtle	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to develop new technique	Develop population augmentation protocols and begin implementation of head-starting and translocation as needed. Ensure that protocols are site- and species-specific.	Eastern spiny softshell, spotted turtle, bog turtle, wood turtle, northern map turtle, diamond-backed terrapin, eastern box turtle	Low

Appendix 6a. Species-level threats and actions (Herps: Snakes & Lizards)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable Species	Action Priority (Threat Impact x Action Urgency)
5.1	5 Bio Resource Use	5.1 Hunting & Collecting Terrestrial Animals			Ensure species are included on Natural Heritage Program (NHP)'s Vulnerable Species list and implement exemption to Public Information Act (PIA).	Scarletsnake, northern mole kingsnake, eastern milksnake, red cornsnake	Low
7.3.2	7 Natural System Modifications	7.3 Other Ecosystem Modifications	7.3.2 Vegetation succession		Prevent shading of specific hibernacula and gestation sites by canopy closure.	Timber rattlesnake, copperhead	Low
8.4.3	8 Invasive and Problematic Species	8.4 Pathogens	8.4.3 Fungal pathogens	Snake Fungal Disease (SFD)	Develop and implement surveillance protocols for SFD.	Timber rattlesnake, rainbow snake, plain-bellied watersnake, eastern kingsnake, copperhead, queensnake	Low
12.2	12 Other Options	12.2 Resource Needs	Management decision needs	Need for fish, wildlife and/or habitat planning	Implement conservation actions identified for Maryland populations in the Timber Rattlesnake Conservation Action Plan (TRCAP).	Timber rattlesnake	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of up-to-date existing information	Monitor population health (e.g., abundance, reproduction, etc.) at known locations.	Scarletsnake, timber rattlesnake, rainbow snake, northern mole kingsnake, eastern milksnake, plain-bellied watersnake, smooth greensnake, red cornsnake, eastern ribbonsnake, mountain earthsnake, eastern kingsnake	Medium
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Assess potential impacts of human disturbance including poaching, harm, and harassment.	Timber rattlesnake, eastern milksnake, red cornsnake, eastern kingsnake	Medium
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Conduct radio telemetry study to determine extent of area required for protection, microhabitats used, behavior, etc.	Timber rattlesnake, rainbow snake, northern mole kingsnake, eastern kingsnake	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Evaluate effects of shale barren habitat restoration projects on populations.	Six-lined racerunner, northern coal skink	Low

Appendix 6a. Species-level threats and actions (Herps: Snakes & Lizards)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable Species	Action Priority (Threat Impact x Action Urgency)
12.3	12 Other Options	12.3 Education & Outreach	Outreach needs	Need to develop and/or maintain a broad base of support for agency goals and objectives	Implement public outreach effort on snakes, including signage on venomous and Rare, Threatened, and Endangered (RTE) species in parks.	Timber rattlesnake, copperhead	Low

Appendix 6a. Species-level threats and actions (Herps: Sea Turtles)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable Species	Action Priority (Threat Impact x Action Urgency)
5.4.1	5 Bio Resource Use	5.4 Fishing & Harvesting Aquatic Resources	5.4.1 Recreational or subsistence fishing	Unintentional effects: bycatch	Partner with watermen to collect demographic data on sea turtles (both live and dead) captured in gear.	Loggerhead sea turtle, Kemp's ridley sea turtle, green sea turtle, leatherback sea turtle	Low
5.4.1	5 Bio Resource Use	5.4 Fishing & Harvesting Aquatic Resources	5.4.1 Recreational or subsistence fishing	Unintentional effects: bycatch	Implement effective regulations related to bycatch in fishing/crabbing gear.	Loggerhead sea turtle, Kemp's ridley sea turtle, leatherback sea turtle	Low
6.1	6 Human Intrusions	6.1 Recreational Activities		Beach disturbance by humans and their pets	Continue surveys for nests and protecting these nest locations from humans and predators.	Loggerhead sea turtle	High
6.1.4	6 Human Intrusions	6.1 Recreational Activities	6.1.4 Recreational boating	Unintentional effects: propeller strikes	Create a system to report propeller strikes.	Loggerhead sea turtle	Low
6.1.4	6 Human Intrusions	6.1 Recreational Activities	6.1.4 Recreational boating	Unintentional effects: propeller strikes	Implement effective methods to reduce mortality from boat strikes.	Loggerhead sea turtle, Kemp's ridley sea turtle, green sea turtle, leatherback sea turtle	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of initial baseline inventory	Continue efforts to gather and centrally compile sightings data to determine important areas for conservation.	Loggerhead sea turtle, Kemp's ridley sea turtle, green sea turtle, leatherback sea turtle	High
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Determine if nesting females are just laying late-term eggs or if they are unique individuals reacting to climate change.	Loggerhead sea turtle	Medium
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Continue system for reporting of dead sea turtles and getting them necropsied to determine cause of death.	Loggerhead sea turtle, Kemp's ridley sea turtle, green sea turtle, leatherback sea turtle	High

Appendix 6a. Species-level threats and actions (Fish: Freshwater)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable Species	Action Priority (Threat Impact x Action Urgency)
1 - 4				Habitat loss (from various causes)	Continue efforts to identify populations most threatened based on county and other development plans, particularly for state-listed species.	American brook lamprey, bridle shiner, comely shiner, ironcolor shiner, swamp darter, stripeback darter, Chesapeake logperch, glassy darter, mud sunfish, flier, blackbanded sunfish, banded sunfish, shield darter, stonecat, brook trout, longnose sucker, striped shiner, Allegheny pearl dace, mottled sculpin, checkered sculpin, johnny darter	Low
3	3 Energy Production			Natural resource extraction	Monitor population size and age structure in western Maryland to assess impacts from natural resource extraction; especially important for stonecat.	Stonecat, striped shiner, mottled sculpin, johnny darter	Medium
11.3	11 Climate Change	11.3 Changes in Temperature Regimes			Evaluate predicted habitat change and loss due to changes in thermal regime and precipitation patterns.	Stonecat, brook trout, longnose sucker, striped shiner, Allegheny pearl dace, mottled sculpin, checkered sculpin, johnny darter	Medium
12.2	12 Other Options	12.2 Resource Needs	Management decision needs	Need for fish, wildlife and/or habitat planning	Re-evaluate state conservation status (i.e., S-ranks) using all recent data available; especially important for brook trout.	American brook lamprey, bridle shiner, comely shiner, ironcolor shiner, swamp darter, stripeback darter, Chesapeake logperch, glassy darter, mud sunfish, flier, blackbanded sunfish, banded sunfish, shield darter, stonecat, brook trout, longnose sucker, striped shiner, Allegheny pearl dace, mottled sculpin, checkered sculpin, johnny darter	Low
12.2	12 Other Options	12.2 Resource Needs	Management decision needs	Need for fish, wildlife and/or habitat planning	Implement and promote conservation actions outlined in federal and state fisheries management/recovery plans.	Chesapeake logperch, blackbanded sunfish, brook trout	Low
12.2	12 Other Options	12.2 Resource Needs	Management decision needs	Need for fish, wildlife and/or habitat planning	Develop state fisheries management/recovery plans for species that do not yet have them.	Stripeback darter, stonecat	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of initial baseline inventory	Continue conducting targeted surveys to fill data gaps on distribution of the species. Use landscape, water chemistry, and habitat data (from Maryland and adjacent states when possible) to focus survey efforts.	American brook lamprey, bridle shiner, comely shiner, ironcolor shiner, swamp darter, stripeback darter, Chesapeake logperch, glassy darter, mud sunfish, flier, blackbanded sunfish, banded sunfish, shield darter, stonecat, brook trout, longnose sucker, striped shiner, Allegheny pearl dace, mottled sculpin, checkered sculpin, johnny darter	Low

Appendix 6a. Species-level threats and actions (Fish: Freshwater)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable Species	Action Priority (Threat Impact x Action Urgency)
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of up-to-date existing information	Conduct annual surveys to detect trends in population size, size structure, etc. in watersheds under threat of development, resource extraction, etc.	American brook lamprey, bridle shiner, comely shiner, ironcolor shiner, swamp darter, stripeback darter, Chesapeake logperch, glassy darter, mud sunfish, flier, blackbanded sunfish, banded sunfish, shield darter, stonecat, brook trout, longnose sucker, striped shiner, Allegheny pearl dace, mottled sculpin, checkered sculpin, johnny darter	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of up-to-date existing information	Continue periodic survey efforts on prevalence of microfishing.	American brook lamprey, bridle shiner, comely shiner, ironcolor shiner, swamp darter, stripeback darter, Chesapeake logperch, glassy darter, mud sunfish, flier, blackbanded sunfish, banded sunfish, shield darter, stonecat, brook trout, longnose sucker, striped shiner, Allegheny pearl dace, mottled sculpin, checkered sculpin, johnny darter	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Continue to identify at-risk populations using current data, then prioritize list of populations to be protected.	Brook trout	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Continue work to identify suitable habitats for reintroduction.	Chesapeake logperch, blackbanded sunfish, stonecat, brook trout, longnose sucker, striped shiner, johnny darter	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Evaluate need for and feasibility of propagation, population augmentation, translocation, and/or reintroduction (and, if needed, establish fish propagation program to meet these needs). Consider "experimental/non-essential" population status.	Bridle shiner, stripeback darter, Chesapeake logperch, blackbanded sunfish, stonecat, brook trout, longnose sucker, striped shiner, johnny darter	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Evaluate feasibility of re-introduction of species into historical locations. Consider "experimental/nonessential" population status reintroduction via translocation from Pennsylvania stock.	Bridle shiner, stonecat	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Assess metapopulation connectivity among seemingly disconnected populations of these species. Understand gene flow among populations to better determine those most vulnerable to isolation and extirpation.	Stripeback darter, Chesapeake logperch, blackbanded sunfish, brook trout, Allegheny pearl dace, checkered sculpin	Low

Appendix 6a. Species-level threats and actions (Fish: Freshwater)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable Species	Action Priority (Threat Impact x Action Urgency)
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Continue to acquire data from adjacent states to assess abiotic associations and refine/define protection guidelines for use in Environmental Review (ER).	American brook lamprey, bridle shiner, comely shiner, ironcolor shiner, swamp darter, stripeback darter, Chesapeake logperch, glassy darter, mud sunfish, flier, blackbanded sunfish, banded sunfish, shield darter, stonecat, brook trout, longnose sucker, striped shiner, Allegheny pearl dace, mottled sculpin, checkered sculpin, johnny darter	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Continue to monitor populations to understand intra- and inter-population genetic variation (as a result of genetic augmentation) of Maryland and Delaware populations.	Blackbanded sunfish	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Continue to seek funding to further develop DNA primers for targeted eDNA surveys.	American brook lamprey, bridle shiner, comely shiner, ironcolor shiner, swamp darter, stripeback darter, Chesapeake logperch, glassy darter, mud sunfish, flier, blackbanded sunfish, banded sunfish, shield darter, stonecat, brook trout, longnose sucker, striped shiner, Allegheny pearl dace, mottled sculpin, checkered sculpin, johnny darter	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Utilize recent sea-level rise models to identify populations most vulnerable to sea-level rise impacts.	Ironcolor shiner, swamp darter, stripeback darter, Chesapeake logperch, glassy darter, mud sunfish, flier, blackbanded sunfish, banded sunfish	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to develop new technique	Develop methods of volunteer recreational harvest sampling (e.g., logbooks and online surveys).	Brook trout	Low
12.3	12 Other Options	12.3 Education & Outreach	Education needs		Educate microfishers on safe handling practices and species to avoid.	American brook lamprey, bridle shiner, comely shiner, ironcolor shiner, swamp darter, stripeback darter, Chesapeake logperch, glassy darter, mud sunfish, flier, blackbanded sunfish, banded sunfish, shield darter, stonecat, brook trout, longnose sucker, striped shiner, Allegheny pearl dace, mottled sculpin, checkered sculpin, johnny darter	Low
12.4	12 Other Options	12.4 Administrative Needs	Coordination/administration needs	Need for coordination for effective program/project management	Continue to coordinate conservation actions with surrounding states in shared drainages where these species occur.	Chesapeake logperch, blackbanded sunfish, stonecat, brook trout, longnose sucker, striped shiner, Allegheny pearl dace, mottled sculpin, checkered sculpin, johnny darter	Low

Appendix 6a. Species-level threats and actions (Fish: Freshwater)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable Species	Action Priority (Threat Impact x Action Urgency)
12.4	12 Other Options	12.4 Administrative Needs	Coordination/administration needs	Need for coordination for effective program/project management	Coordinate with county stream assessment surveys to ensure distribution data, etc. for fish are included in statewide databases, plans, and initiatives.	American brook lamprey, bridle shiner, comely shiner, ironcolor shiner, swamp darter, stripeback darter, Chesapeake logperch, glassy darter, mud sunfish, flier, blackbanded sunfish, banded sunfish, shield darter, stonecat, brook trout, longnose sucker, striped shiner, Allegheny pearl dace, mottled sculpin, checkered sculpin, johnny darter	Low

Appendix 6a. Species-level threats and actions (Fish: Bay/Ocean)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable Species	Action Priority (Threat Impact x Action Urgency)
4.3.1	4 Transportation	4.3 Shipping Lanes	4.3.1 Shipping	Increased noise / disturbance from increased shipping traffic and larger ships	Research the effects of noise and other effects from ships on aquatic animals.	Whale shark	Low
5.4.2	5 Bio Resource Use	5.4 Fishing & Harvesting Aquatic Resources	5.4.2 Commercial fishing		Establish sustainable harvest levels, as appropriate, based on stock assessment findings.	Sandbar shark	High
5.4.2	5 Bio Resource Use	5.4 Fishing & Harvesting Aquatic Resources	5.4.2 Commercial fishing	Commercial fisheries bycatch	Develop, implement, and enforce fishing practices that reduce bycatch and/or increase post-release survival.	Hickory shad, American shad, blueback herring, alewife, dusky shark, sandbar shark, sand tiger shark, white shark, Atlantic angel shark	Low
5.4.3	5 Bio Resource Use	5.4 Fishing & Harvesting Aquatic Resources	5.4.3 Poaching/persecution of aquatic species	Deliberate and illegal harvesting or persecution, harassment, abuse or to cause deliberate harm	Develop and implement effective methods to monitor for illegal harvesting or persecution.	Hickory shad, American shad, horeshoe crab, blueback herring, alewife	Medium
6.1	6 Human Intrusions	6.1 Recreational Activities		Use of beaches	Identify spawning and nursery habitat and implement a spawning survey.	Horeshoe crab	High
8.1.3	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.3 Aquatic animals		Assess impacts from invasive aquatic animals (e.g., blue catfish).	Shortnose sturgeon, Atlantic sturgeon, hickory shad, American shad, horeshoe crab, blueback herring, alewife	High
8.1.3	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.3 Aquatic animals		Limit/prevent the spread of invasive fish.	Shortnose sturgeon, Atlantic sturgeon, hickory shad, American shad, horeshoe crab, blueback herring, alewife	High
11.2.1	11 Climate Change	11.2 Changes in Geochemical Regimes	11.2.1 Changes in pH of habitats	Ocean acidification	Mitigate impacts from climate change through management of fossil fuels and reductions of emissions.	Shortnose sturgeon, Atlantic sturgeon, hickory shad, American shad, horeshoe crab, blueback herring, alewife, dusky shark, sandbar shark, sand tiger shark, white shark, longfin mako, whale shark, Atlantic angel shark	Medium
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of initial baseline inventory	Document tributaries and other areas with spawning and nursery habitat and populations.	Shortnose sturgeon, Atlantic sturgeon, dusky shark, sandbar shark, sand tiger shark, Atlantic angel shark	Medium

Appendix 6a. Species-level threats and actions (Fish: Bay/Ocean)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable Species	Action Priority (Threat Impact x Action Urgency)
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of initial baseline inventory	Conduct targeted surveys to fill data gaps on distribution; use landscape, water chemistry, and habitat data (from Maryland and adjacent states when possible) to focus survey efforts.	Shortnose sturgeon, Atlantic sturgeon, hickory shad, American shad, horeshoe crab, blueback herring, alewife, dusky shark, sandbar shark, sand tiger shark, white shark, longfin mako, whale shark, Atlantic angel shark	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of up-to-date existing information	Compile all recent distribution records.	Shortnose sturgeon, hickory shad, horeshoe crab, dusky shark, sandbar shark, sand tiger shark, white shark, longfin mako, whale shark, Atlantic angel shark	High
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Evaluate efficacy of sampling gears and identify most appropriate sampling gear and study design to use for targeted status assessment surveys.	Shortnose sturgeon, Atlantic sturgeon	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Support research on the impacts of climate change, such as ocean acidification, on aquatic species.	Shortnose sturgeon, Atlantic sturgeon, hickory shad, American shad, horeshoe crab, blueback herring, alewife, dusky shark, sandbar shark, sand tiger shark, white shark, longfin mako, whale shark, Atlantic angel shark	Medium
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Design and conduct acoustic and other studies to determine extent of area required for protection, habitats used, etc.	Shortnose sturgeon, Atlantic sturgeon	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Identify populations most vulnerable to sea-level rise impacts, and identify which are not resilient.	Shortnose sturgeon, Atlantic sturgeon, hickory shad, American shad, horeshoe crab, blueback herring, alewife	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Research the various effects of offshore wind development (e.g., vibrations, noise, electromagnetic field disruptions, and placement related to occupancy) on aquatic animals.	Horeshoe crab, dusky shark, sandbar shark, sand tiger shark, white shark, longfin mako, whale shark, Atlantic angel shark	Medium
12.2	12 Other Options	12.2 Resource Needs	Management decision needs	Lack of current status assessment	Evaluate the species' current state rank/status using all recent data available.	Horeshoe crab, dusky shark, sandbar shark, sand tiger shark, white shark, longfin mako, whale shark, Atlantic angel shark	Low
12.2	12 Other Options	12.2 Resource Needs	Management decision needs	Need for fish, wildlife and/or habitat planning	Implement and promote conservation actions outlined in Federal and State fisheries management plans.	Shortnose sturgeon, Atlantic sturgeon, hickory shad, American shad, horeshoe crab, blueback herring, alewife, dusky shark, sandbar shark, sand tiger shark, white shark, longfin mako, whale shark, Atlantic angel shark	Low

Appendix 6a. Species-level threats and actions (Fish: Bay/Ocean)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable Species	Action Priority (Threat Impact x Action Urgency)
12.4	12 Other Options	12.4 Administrative Needs	Coordination/administration needs	Need for coordination for effective program/project management	Coordinate conservation actions with surrounding states in shared drainages where this species occurs.	Shortnose sturgeon, Atlantic sturgeon, hickory shad, American shad, horeshoe crab, blueback herring, alewife, dusky shark, sandbar shark, sand tiger shark, white shark, longfin mako, whale shark, Atlantic angel shark	High

Appendix 6a. Species-level threats and actions (Inverts: Crayfish)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable Species	Action Priority (Threat Impact x Action Urgency)
1 - 4				Habitat loss (from various causes)	Continue efforts to identify populations most threatened based on county and other development plans, particularly for state-listed species.	Acuminate crayfish	Low
8.1.3	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.3 Aquatic animals		Assess impacts from invasive crayfishes, including range restrictions, downward population trends, and hybridization.	Acuminate crayfish, Allegheny crayfish, rock crayfish	Low
8.1.3	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.3 Aquatic animals		Limit/prevent the spread of invasive crayfishes via anglers by banning or restricting their possession/use as bait.	Acuminate crayfish, Allegheny crayfish, rock crayfish	Medium
8.1.3	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.3 Aquatic animals		Address the pathways of invasive crayfishes including pet, bait, biological supply, and live seafood industries using education/outreach and other vector management techniques.	Acuminate crayfish, Allegheny crayfish, rock crayfish	Low
8.1.3	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.3 Aquatic animals	Hybridization	Use historical/museum data to assess genetically polluted population in the Northwest Branch, which has hybridized with an introduced species of southern crayfish.	Acuminate crayfish	Low
12.2	12 Other Options	12.2 Resource Needs	Management decision needs	Need for fish, wildlife and/or habitat planning	Reassess state rank and listing once species is properly described and global rank has changed.	Acuminate crayfish	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of initial baseline inventory	Continue conducting targeted surveys to fill data gaps on distribution of the species. Use landscape, water chemistry, and habitat data (from Maryland and adjacent states when possible) to focus survey efforts.	Acuminate crayfish	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of up-to-date existing information	Conduct regular surveys to detect trends in population size in watersheds under threat of development, resource extraction, etc.	Acuminate crayfish, Allegheny crayfish, rock crayfish	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of up-to-date existing information	Set up long-term monitoring sites in order to assess population trends.	Acuminate crayfish	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Continue to identify at-risk populations using current data, then prioritize list of populations to be protected.	Acuminate crayfish, Allegheny crayfish, rock crayfish	Low

Appendix 6a. Species-level threats and actions (Inverts: Crayfish)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable Species	Action Priority (Threat Impact x Action Urgency)
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Continue to acquire data from adjacent states to assess abiotic associations and refine/define protection guidelines for use in Environmental Review (ER).	Acuminate crayfish	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Complete genetic assessment to determine intra-population variation within Maryland populations and inter-population similarity to populations in Virginia, Pennsylvania, and North Carolina.	Acuminate crayfish	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Seek funding to develop mitochondrial and/or nuclear DNA primers for targeted eDNA surveys for historic watersheds.	Acuminate crayfish	Low
12.4	12 Other Options	12.4 Administrative Needs	Coordination/administration needs	Need for coordination for effective program/project management	Continue to coordinate conservation actions with surrounding states in shared drainages where these species occur.	Acuminate crayfish, Allegheny crayfish, rock crayfish	Low

Appendix 6a. Species-level threats and actions (Inverts: Freshwater Mussels)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Associated Species	Action Priority (Threat Impact x Action Urgency)
1.1.2	1 Development	1.1 Housing & Urban Areas	1.1.2 Low-density housing areas	Conversion of agricultural and forested lands to suburban areas	Encourage proactive protection of the highest quality mussel habitat through data sharing and outreach with county planning agencies. Seek long-term watershed scale protection of priority streams via local planning, easements and land acquisition.	Dwarf wedgemussel, triangle floater, brook floater, northern lance, yellow lance, green floater, creeper	High
2.1.1	2 Agriculture and Aquaculture	2.1 Annual & Perennial Non-Timber Crops	2.1.1 Annual cropping systems (field crops)	Nutrient and sediment laden run-off, and other impacts to stream hydrology, habitat quality, etc. from field crop agriculture	Restore ecological integrity of streams through best management practice (BMP) implementation, revegetation, and cooperative landowner agreements to reduce effects from agricultural practices (e.g., fertilizers, pesticides, and herbicides).	Dwarf wedgemussel, triangle floater, northern lance, creeper	High
3.2.1	3 Energy Production	3.2 Mining & Quarrying	3.2.1 Underground mines	Coal mine permitted to operate underneath and discharge mine water into the Casselman River circa 2010	Conduct population monitoring in Casselman River to assess potential impacts from permitted coal deep mine.	Creeper	High
3.2.3	3 Energy Production	3.2 Mining & Quarrying	3.2.3 Quarries & sand pits	Sand and gravel mining, particularly on the Eastern Shore and in southern Maryland	Evaluate potential impacts of sand mining and work with appropriate regulatory agencies to avoid impacts.	Dwarf wedgemussel, triangle floater, northern lance, creeper	Low
3.3.1	3 Energy Production	3.3 Renewable Energy	3.3.1 Hydroelectric dams	Hydroelectric dam operation alters habitat quantity and quality	Use existing regulatory mechanisms (e.g., Federal Energy Regulatory Commission [FERC] licensing, Section 401 Clean Water Act [CWA]) to ensure flow-regime is supportive of mussel life history and habitat requirements.	Alewife floater, yellow lampmussel, eastern lampmussel, tidewater mucket, eastern pondmussel	Low
4.1.3	4 Transportation	4.1 Roads & Railroads	4.1.3 Bridges	Bridge repair or construction projects (e.g., Wilson Bridge over Potomac River, railroad bridge over Susquehanna River) cause the temporary and permanent loss of mussel habitat	Advocate for mussel-friendly stream construction practices during transportation construction projects.	Alewife floater, yellow lampmussel, eastern lampmussel, tidewater mucket, creeper	Low
4.3.2	4 Transportation	4.3 Shipping Lanes	4.3.2 Dredging of shipping lands	Dredging of large, tidal rivers for navigational channels	Evaluate potential impacts of coastal river dredging and work with appropriate regulatory agencies to avoid impacts.	Alewife floater, yellow lampmussel, eastern lampmussel, tidewater mucket, eastern pondmussel	Low
5.3	5 Bio Resource Use	5.3 Logging and Wood Harvesting		Timber harvesting impacts to streams via increased runoff, sediment, bank erosion, increased stream water temperatures, altered stream hydrology.	Work with Maryland Forest Service (MFS) to develop timber harvest BMPs on private and public lands where state and federally listed mussel species may be impacted.	Dwarf wedgemussel, triangle floater, brook floater, yellow lance, green floater, creeper	Low

Appendix 6a. Species-level threats and actions (Inverts: Freshwater Mussels)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Associated Species	Action Priority (Threat Impact x Action Urgency)
7.2.1	7 Natural System Modifications	7.2 Dams & Water Management / Use	7.2.1 Water level management using dams	Dam removal may cause mussel displacement or stranding if dewatering is not managed	Advocate for mussel-friendly in stream construction practices during dam removal.	Alewife floater, yellow lampmussel, eastern lampmussel, tidewater mucket, eastern pondmussel	Low
7.2.2	7 Natural System Modifications	7.2 Dams & Water Management / Use	7.2.2 Beaver dam management	Beaver dams can further disrupt the dynamics of already fragmented populations	Advocate for improved beaver management, which can help create or degrade mussel habitat.	Dwarf wedgemussel	Low
7.2.3	7 Natural System Modifications	7.2 Dams & Water Management / Use	7.2.3 Water level management using culverts	Blockages prevent migratory host-fish from accessing habitat	Improve habitat connectivity in streams with migratory fish hosts via blockage removal, culvert retrofit, and transportation BMPs.	Alewife floater, eastern lampmussel, tidewater mucket, eastern pondmussel	Low
7.2.3	7 Natural System Modifications	7.2 Dams & Water Management / Use	7.2.3 Water management using culverts	Fragmentation of habitat due to undersized or failing culverts	Improve connectivity of suitable habitat within streams for mussels and host fishes by addressing poorly designed or failing culverts.	Dwarf wedgemussel, triangle floater, northern lance, creeper	High
7.2.4	7 Natural System Modifications	7.2 Dams & Water Management / Use	7.2.4 Drainage in agricultural environments	Drainage ditches in agricultural environments can impact mussel habitat quality	Evaluate potential impacts of agricultural drainages and work with appropriate regulatory agencies to mitigate impacts.	Dwarf wedgemussel, triangle floater, northern lance, creeper	Medium
7.3.1	7 Natural System Modifications	7.3 Other Ecosystem Modifications	7.3.1 Shoreline alteration	Specific in-channel stream restoration techniques can be detrimental to mussels and their habitat	Advocate for mussel-friendly aquatic habitat restoration practices.	Dwarf wedgemussel, triangle floater, brook floater, alewife floater, northern lance, yellow lance, yellow lampmussel, green floater, tidewater mucket, eastern pondmussel, creeper	Low
8.1.3	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.3 Aquatic animals	Non-native and invasive mollusks	To extent possible, prevent/minimize further introduction and spread of non-native mollusks.	Dwarf wedgemussel, triangle floater, brook floater, alewife floater, northern lance, yellow lance, yellow lampmussel, eastern lampmussel, green floater, tidewater mucket, eastern pondmussel, creeper	Medium
8.1.3	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.3 Aquatic animals	Non-native and invasive mussel predators	Determine risk of potential impacts from non-native predators.	Alewife floater, tidewater mucket, eastern pondmussel	High

Appendix 6a. Species-level threats and actions (Inverts: Freshwater Mussels)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Associated Species	Action Priority (Threat Impact x Action Urgency)
8.3.3	8 Invasive and Problematic Species	8.3 Introduced Genetic Material	8.3.3 Genetic material from aquaculture	Potential negative genetic effects of captive breeding efforts	Establish genetic management protocols in propagation; follow best scientific practices in conservation genetic management as it relates to propagation.	Dwarf wedgemussel, triangle floater, brook floater, alewife floater, northern lance, yellow lance, yellow lampmussel, eastern lampmussel, green floater, tidewater mucket, eastern pondmussel, creeper	Low
8.4	8 Invasive and Problematic Species	8.4 Pathogens		Novel mussel parasites & disease	Develop a histological atlas for a healthy freshwater mussel.	Dwarf wedgemussel, triangle floater, brook floater, alewife floater, northern lance, yellow lance, yellow lampmussel, eastern lampmussel, green floater, tidewater mucket, eastern pondmussel, creeper, paper pondshell	High
8.4.1	8 Invasive and Problematic Species	8.4 Pathogens	8.4.1 Bacterial pathogens	Fish and shellfish pathogens from mussel aquaculture	Establish and follow biosecurity and aquatic animal health protocols to minimize the risk of introduction or spread of a fish or shellfish pathogen.	Dwarf wedgemussel, triangle floater, brook floater, alewife floater, northern lance, yellow lance, yellow lampmussel, eastern lampmussel, green floater, tidewater mucket, eastern pondmussel, creeper	High
8.5.1	8 Invasive and Problematic Species	8.5 Intrinsic Biological Limitations	8.5.1 Loss of Genetic Diversity	Loss of genetic diversity due to multiple stressors that caused declines in abundance and distribution	Develop species-specific conservation genetics management plan(s) to ensure no loss of (and potentially bolster) genetic diversity.	Dwarf wedgemussel, brook floater, yellow lance, green floater	Low
8.5.2	8 Invasive and Problematic Species	8.5 Intrinsic Biological Limitations	8.5.2 Depends on another species that has declined		Based on known fish-host relationships, determine the extent to which fish host needs may be limiting mussel reproduction; propose conservation measures needed to re-establish the host-affiliate relationship.	Alewife floater, yellow lance, yellow lampmussel, eastern lampmussel, tidewater mucket, eastern pondmussel	Low
9.1.1	9 Pollution	9.1 Domestic & Urban waste water	9.1.1 Domestic wastewater	Biosolid spread to agricultural fields (Three Bridges Branch)	Work with appropriate regulatory agencies to understand the potential magnitude of the threat and propose the use of alternative or reduced practices.	Dwarf wedgemussel	Medium
9.2.2	9 Pollution	9.2 Industrial & Military Effluents	9.2.2 Acid mine drainage	Acid mine drainage in tributaries of the North Branch Potomac River affecting downstream water quality	Evaluate existing water quality data in the watershed to evaluate the extent and magnitude of acid mine drainage as a potentially limiting factor to mussel occupancy.	Triangle floater, brook floater, northern lance, green floater, creeper	Low

Appendix 6a. Species-level threats and actions (Inverts: Freshwater Mussels)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Associated Species	Action Priority (Threat Impact x Action Urgency)
9.3.1	9 Pollution	9.3 Agricultural & Forestry Effluents	9.3.1 Nutrient loads	Groundwater pumped irrigation transfers nitrate pollution to surface waters	Encourage buffer expansion and improved nutrient management in and around mussel habitat.	Dwarf wedgemussel, triangle floater, northern lance, creeper	Low
11.1	11 Climate Change	11.1 Habitat Shifting & Alteration		Sea-level rise	Improve understanding of where sea-level rise poses the greatest threat to mussel habitat and to what species.	Dwarf wedgemussel, alewife floater, yellow lampmussel, eastern lampmussel, tidewater mucket, eastern pondmussel	Low
11.1.2	11 Climate Change	11.1 Habitat Shifting & Alteration	11.1.2 Phenological mismatch		Conduct expansive studies or literature reviews to evaluate the potential effects of phenological mismatch on recruitment.	Dwarf wedgemussel, triangle floater, brook floater, alewife floater, northern lance, yellow lance, yellow lampmussel, eastern lampmussel, green floater, tidewater mucket, eastern pondmussel, creeper, paper pondshell	High
11.2.1	11 Climate Change	11.2 Changes in Geochemical Regimes	11.2.1 Changes in pH of habitats	Streams in the Mid-Atlantic are becoming more alkaline	Conduct expansive studies or evaluate existing datasets to understand the potential threat to state and federally listed species.	Dwarf wedgemussel, triangle floater, brook floater, northern lance, yellow lance, green floater, creeper	High
11.3.1	11 Climate Change	11.3 Changes in Temperature Regimes	11.3.1 Heat waves	Heat waves could cause mussel die-offs	Conduct expansive studies to evaluate potential effects on population dynamics.	Dwarf wedgemussel, triangle floater, brook floater, alewife floater, northern lance, yellow lance, yellow lampmussel, eastern lampmussel, green floater, tidewater mucket, eastern pondmussel, creeper, paper pondshell	Low
12.2	12 Other Options	12.2 Resource Needs	Management decision needs	Need for fish, wildlife and/or habitat planning: Susquehanna River drainage	Evaluate the need for reintroduction and/or augmentation into Maryland's portion of Susquehanna River drainage and implement if found to be warranted.	Alewife floater, yellow lampmussel, eastern lampmussel, tidewater mucket	Low
12.2	12 Other Options	12.2 Resource Needs	Management decision needs	Need for fish, wildlife and/or habitat planning: watershed planning	Develop holistic watershed conservation and restoration plans to protect or rehabilitate habitat of extant populations.	Dwarf wedgemussel, brook floater, yellow lance, green floater	High

Appendix 6a. Species-level threats and actions (Inverts: Freshwater Mussels)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Associated Species	Action Priority (Threat Impact x Action Urgency)
12.2	12 Other Options	12.2 Resource Needs	Management decision needs	Need to conduct environmental reviews: transportation projects	Ensure that future transportation-related activities of state and local jurisdictions do no further harm to listed mussel species and their habitat. Develop cooperative agreement between agencies to proactively address potential conflicts and avoid impacts, establish standard survey protocols and methods, and develop project screening layers for freshwater mussels.	Dwarf wedgemussel, triangle floater, brook floater, yellow lance, green floater, creeper	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of initial baseline inventory: unsurveyed habitats can limit the effectiveness of environmental review, conservation planning, and species status assessments	Continue surveys to document new populations. To help target surveys, use Maryland Biological Stream Survey (MBSS) stream monitoring records, recent and historical mussel distribution data, Species Distribution Models (SDMs), and eDNA sampling, when appropriate.	Dwarf wedgemussel, triangle floater, brook floater, alewife floater, northern lance, yellow lance, yellow lampmussel, eastern lampmussel, green floater, tidewater mucket, eastern pondmussel, creeper, paper pondshell	Medium
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of up-to-date existing information	Re-evaluate species' status in Maryland in order to ensure appropriate and effective protection and conservation actions are being taken.	Triangle floater, northern lance, yellow lampmussel, eastern lampmussel, creeper	High
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of up-to-date existing information	Monitor extant populations and stream conditions. Re-evaluate goals, methods, efficacy, and scheduling of recent efforts and make improvements where needed.	Dwarf wedgemussel, brook floater, yellow lance, green floater	Medium
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of up-to-date existing information	Determine species' status in streams/watersheds where its continued presence is in question. Employ a combination of eDNA techniques and traditional survey methods.	Dwarf wedgemussel, yellow lance	High
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of up-to-date existing information: old data can limit the effectiveness of environmental review and species status assessments	Survey element occurrence (EO) source features for tracked (S1-S3) species that are more than 15 years old.	Triangle floater, brook floater, alewife floater, yellow lampmussel, green floater, tidewater mucket, eastern pondmussel, creeper	High
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of up-to-date existing information: undersurveyed habitats can limit the effectiveness of environmental review, conservation planning, and species status assessments	Conduct surveys and monitoring in under-surveyed lentic habitats, including tidal-freshwater, millponds, and other small impoundments in order to help evaluate status and conservation needs. Determine species occupancy, population demographics, and habitat associations.	Alewife floater, yellow lampmussel, eastern lampmussel, tidewater mucket, eastern pondmussel, paper pondshell	Medium

Appendix 6a. Species-level threats and actions (Inverts: Freshwater Mussels)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Associated Species	Action Priority (Threat Impact x Action Urgency)
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of up-to-date existing information: undersurveyed habitats can limit the effectiveness of environmental review, conservation planning, and species status assessments	Complete an inventory of the Potomac River (initially focusing on the Ridge and Valley) to better determine the species' distribution and abundance and establish a baseline for future monitoring. Upon completion, inventory the Blue Ridge and Piedmont.	Triangle floater, brook floater, northern lance, yellow lampmussel, green floater, creeper	Medium
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Continue to use river and stream monitoring data to determine ecological requirements of mussels in order to guide protection guidelines and restoration planning.	Dwarf wedgemussel, brook floater, yellow lance, green floater	Medium
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	To extent possible, determine population-specific causes of population decline and major threats (ongoing and future) in order to guide protection guidelines and restoration planning.	Brook floater, yellow lance, yellow lampmussel, green floater	High
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question: need to determine species and streams to implement conservation actions	Develop and implement restoration plans for species and streams identified by MD DNR as priorities (e.g., Town Creek, upper Potomac River, etc.), which may include the need for restoration suitability studies.	Brook floater, northern lance, creeper	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question: need to evaluate the need for active conservation measures	Evaluate need for population augmentation or reintroduction via propagation or translocation.	Triangle floater, brook floater, alewife floater, yellow lampmussel, eastern lampmussel, tidewater mucket, eastern pondmussel, creeper	High
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question: need to evaluate the need for active conservation measures	Evaluate the need for mussel propagation to meet population restoration goals via augmentation or reintroduction.	Dwarf wedgemussel, yellow lance, green floater	High
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question: taxonomic confusion can limit the effectiveness of environmental review, conservation planning, and species status assessments	Resolve taxonomic confusion regarding this and other lanceolate <i>Elliptio</i> species.	Northern lance, yellow lance	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question: taxonomic confusion can limit the effectiveness of environmental review, conservation planning, and species status assessments	Resolve taxonomic confusion; refine techniques to identify, distinguish from non-native <i>Lampsilis</i> spp.	Yellow lampmussel	Low

Appendix 6a. Species-level threats and actions (Inverts: Freshwater Mussels)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Associated Species	Action Priority (Threat Impact x Action Urgency)
12.4	12 Other Options	12.4 Administrative Needs	Coordination/administration needs	Need for coordination for effective program/project management: interstate coordination	Coordinate conservation actions with surrounding states where these mussel species occur through species workgroups and collaborative grants.	Dwarf wedgemussel, triangle floater, brook floater, alewife floater, yellow lance, yellow lampmussel, eastern lampmussel, green floater, tidewater mucket, eastern pondmussel, creeper	Low
12.4	12 Other Options	12.4 Administrative Needs	Coordination/administration needs	Need for coordination for effective program/project management: use of existing regulatory authority	Encourage the development and implementation of Tier III Clean Water Act Anti-Degradation policy within MD DNR and Maryland Department of the Environment (MDE).	Dwarf wedgemussel	Low

Appendix 6a. Species-level threats and actions (Inverts: Snails)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Associated Species	Action Priority (Threat Impact x Action Urgency)
5.3.5	5 Bio Resource Use	5.3 Logging & Wood Harvesting	5.3.5 Management of cutting areas		Protect and maintain forest canopy around limestone cliffs and outcrops.	Cherrystone drop	Medium
9.3	9 Pollution	9.3 Agricultural & Forestry Effluents			Restore, protect, and maintain riparian and wetland buffers at Cranesville Swamp to block siltation, pesticide, and fertilizer runoff to wetlands	Striped whitelip	Medium
11.1.1	11 Climate Change	11.1 Habitat Shifting & Alteration	11.1.1 Changes in vegetation communities	Habitat loss/degradation	Take measures to mitigate habitat change resulting from changes in thermal regime and precipitation patterns, including limiting impervious surfaces, surface and groundwater abstraction, and buffer encroachment in wetlands with sensitive species.	Striped whitelip	Medium
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of initial baseline inventory	Conduct targeted surveys to determine or refine species distribution.	Angular disc snail, Blue Ridge springsnail, spruce knob threetooth, striped whitelip, Appalachian springsnail, cherrystone drop	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of up-to-date existing information	Improve understanding of species distribution, abundance, status, and habitat requirements through monitoring and research.	Angular disc snail, Blue Ridge springsnail, spruce knob threetooth, striped whitelip, Appalachian springsnail, cherrystone drop	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Estimate population size and evaluate trends.	Angular disc snail, Blue Ridge springsnail, spruce knob threetooth, striped whitelip, Appalachian springsnail, cherrystone drop	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Assess threats that may be contributing to population declines or negatively impacting sites.	Angular disc snail, Blue Ridge springsnail, spruce knob threetooth, striped whitelip, Appalachian springsnail, cherrystone drop	Low

Appendix 6a. Species-level threats and actions (Inverts: Butterflies)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Associated Species	Action Priority (Threat Impact x Action Urgency)
1 - 4				Loss of oak forests (various causes)	Engage appropriate departments and agencies in discussions about the ecological value of oak forests.	Northern oak hairstreak	Low
1	1 Development	1. Residential & Commercial Development		Development of wetlands or nearby areas	Purchase swamp and surrounding area.	Harris's checkerspot, two-spotted skipper	Medium
1	1 Development	1. Residential & Commercial Development		Some habitat in unprotected areas	Educate and encourage landowners to conserve habitat where this butterfly occurs.	Baltimore checkerspot	High
1	1 Development	1. Residential & Commercial Development		Some habitat in unprotected areas	Work with landowners to conserve floral resources.	King's hairstreak	Low
1	1 Development	1. Residential & Commercial Development		Loss of grasslands, due in part to using strip mine land for development	Engage departments and agencies in discussions about the ecological value of grasslands over forests in Maryland.	Frosted elfin, Leonard's skipper, cobweb skipper, Indian skipper	Medium
3.3.4	3 Energy Production	3.3 Renewable Energy	3.3.4 Solar farms		Work with solar development companies to create grassland habitat and wildlife management plans. Provide oversight on seed mixes and mowing timing. Provide increased incentives for Solar Pollinator-Friendly Designation.	Frosted elfin	Low
4.1.1	4 Transportation	4.1 Roads & Railroads	4.1.1 Roads	Grading of dirt roadsides harming host plant	Outline best management practices (BMPs) for roadside grading.	Silvery blue	High
4.2.1	4 Transportation	4.2 Utility & Service Lines	4.2.1 Power and service lines	Maintenance and expansion of power line rights-of-way (ROWs)	Create a conservation agreement regarding mowing and herbicide use.	Northern metalmark, Olympia marble, silvery blue, cobweb skipper	Medium
4.2.1	4 Transportation	4.2 Utility & Service Lines	4.2.1 Power and service lines	Maintenance and expansion of power line rights-of-way (ROWs)	Carefully guide the placement of new transmission line projects.	Baltimore checkerspot	High
5.1.4	5 Bio Resource Use	5.1 Hunting & Collecting Terrestrial Animals	5.1.4 Poaching/persecution of terrestrial animals		Since this is the charismatic state butterfly, there is greater risk for collection. Need to educate the public on the rarity of this species to discourage collection. List for state protection as well.	Baltimore checkerspot	Low

Appendix 6a. Species-level threats and actions (Inverts: Butterflies)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Associated Species	Action Priority (Threat Impact x Action Urgency)
5.1.4	5 Bio Resource Use	5.1 Hunting & Collecting Terrestrial Animals	5.1.4 Poaching/persecution of terrestrial animals	Well-known and only location is poaching threat	Better monitor visits to site to be sure of lawful behavior.	Olympia marble, Edwards' hairstreak	Low
5.2.4	5 Bio Resource Use	5.2 Gathering Terrestrial Plants or Fungi	5.2.4 Poaching/eradication of terrestrial plants or fungi	Possible future eradication to control pine blister rust	Maintain communication with the Maryland Department of Agriculture (MDA) regarding any possibilities of ban or eradication.	Gray comma	Low
5.3.1	5 Bio Resource Use	5.3 Logging & Wood Harvesting	5.3.1 Complete removal of the forest cover	Sediment filling wetland from nearby logging	Purchase surrounding areas.	Two-spotted skipper	Medium
5.3.2	5 Bio Resource Use	5.3 Logging & Wood Harvesting	5.3.2 Partial removal of the forest cover	Logging in Chesapeake forest land	Outline conservation areas to avoid logging activities.	King's hairstreak	Low
6.1.1	6 Human Intrusions	6.1 Recreational Activities	6.1.1 Motor vehicles	Mowing to create all-terrain vehicle (ATV) trails	Educate neighbors on the policies of access/use and prosecute trespassers.	Hoary elfin	Medium
6.1.2	6 Human Intrusions	6.1 Recreational Activities	6.1.2 Hiking	Overuse of site could introduce invasive plants or harm host plants	Reroute trails to avoid sensitive location(s).	Edwards' hairstreak	Low
6.1.3	6 Human Intrusions	6.1 Recreational Activities	6.1.3 Recreational use of cliffs and rock faces		Prevent erosion by fencing off shale barren at public site.	Olympia marble	Low
7.1	7 Natural System Modifications	7.1 Fire & Fire Suppression		Poor timing and subdividing of prescribed fire	Better time prescribed fire so as to not kill adult individuals or completely burn host plant during mating period. Create burn block rotations so as not to burn population area all at once. Low priority for frosted elfin, high priority for King's hairstreak.	Frosted elfin	Medium
7.2.2	7 Natural System Modifications	7.2 Dams & Water Management / Use	7.2.2 Beaver dam management	Loss of marshland	Assess trapping regulations in western Maryland.	Silver-bordered fritillary, black dash, long dash	Low
7.2.4	7 Natural System Modifications	7.2 Dams & Water Management / Use	7.2.4 Drainage in agricultural environments		Assess causes for drying of bogs and wetlands.	Bog copper	Low
7.2.4	7 Natural System Modifications	7.2 Dams & Water Management / Use	7.2.4 Drainage in agricultural environments	Draining and ditching of marshes	Educate landowners, offer conservation opportunities, and enforce existing regulations.	Black dash, long dash, bronze copper, mulberry wing	Low
7.3	7 Natural System Modifications	7.3 Other Ecosystem Modifications		Non-rotational vegetation control	Create management plan for small site that outlines timing and details of vegetation control.	Edwards' hairstreak	High

Appendix 6a. Species-level threats and actions (Inverts: Butterflies)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Associated Species	Action Priority (Threat Impact x Action Urgency)
7.3	7 Natural System Modifications	7.3 Other Ecosystem Modifications		Roadside mowing of host plants	Educate landowners, offer conservation opportunities, and enforce existing regulations.	Bronze copper	Medium
7.3	7 Natural System Modifications	7.3 Other Ecosystem Modifications		Roadside mowing of nectaring plants	Create a conservation agreement regarding mowing and herbicide use. Low priority for cobweb skipper, high priority for Leonard's skipper.	Leonard's skipper, cobweb skipper	Medium
7.3	7 Natural System Modifications	7.3 Other Ecosystem Modifications		Roadside mowing of nectaring plants	Create signage and mowing recommendations for nearby pollinator areas. Especially important for buttonbush / rare skipper.	Great purple hairstreak, northern metalmark, Palamedes swallowtail, rare skipper	High
7.3.2	7 Natural System Modifications	7.3 Other Ecosystem Modifications	7.3.2 Vegetation succession		Remove other woody species in order to protect bear oak.	Edwards' hairstreak	Medium
7.3.2	7 Natural System Modifications	7.3 Other Ecosystem Modifications	7.3.2 Vegetation succession	Canopy closure	Selectively remove trees, shrubs, and other vegetation in order to (re-)open the tree canopy in important habitat areas. Priority varies from low to high depending on SGCN/habitat in question.	Cobweb skipper, hoary elfin, Leonard's skipper, Indian skipper, pepper and salt skipper, northern metalmark, Olympia marble, silvery blue, frosted elfin, bog copper, Harris's checkerspot, two-spotted skipper, silver-bordered fritillary, black dash, long dash, mulberry wing	Medium
7.4.1	7 Natural System Modifications	7.4 Removing / Reducing Human Maintenance	7.4.1 Reducing or ceasing vegetation control	Lack of prescribed fire, especially in/on shale barrens	Begin and/or increase fire management in targeted habitat areas. Priority varies from low to high depending on SGCN/habitat in question.	Hoary elfin, cobweb skipper, Leonard's skipper, northern metalmark, Olympia marble, silvery blue	Medium
8.1.1	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.1 Terrestrial animals	Redbay ambrosia beetle	Monitor swamp red bay (the plant) for pest introduction.	Palamedes swallowtail	Low
8.1.2	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.2 Terrestrial plants	Garlic mustard	Study whether garlic mustard is actually an ecological trap. Remove garlic mustard and other invasive plants in priority areas.	West Virginia white	High
8.1.2	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.2 Terrestrial plants	Invasive plants competing with spring flowers	Locate spring flowers and remove competing invasive plants.	Olympia marble	Low
8.1.2	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.2 Terrestrial plants	Invasive woody plants (e.g., autumn olive)	Cut and treat woody invasives.	Frosted elfin	High
8.1.4	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.4 Aquatic plants	Common reed (<i>Phragmites australis</i>)	Remove <i>Phragmites</i> and replace with wild rice.	Rare skipper	Medium

Appendix 6a. Species-level threats and actions (Inverts: Butterflies)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Associated Species	Action Priority (Threat Impact x Action Urgency)
8.2.2	8 Invasive and Problematic Species	8.2 Problematic Native Plants & Animals	8.2.2 Increased grazing by vertebrates	White-tailed deer	Protect host plant(s) from deer browse with fencing. Low priority for big copper and frosted elfin, high priority for Baltimore checkerspot.	Bog copper, frosted elfin, Baltimore checkerspot.	Medium
8.2.2	8 Invasive and Problematic Species	8.2 Problematic Native Plants & Animals	8.2.2 Increased grazing by vertebrates	White-tailed deer	Encourage more hunting in targeted area to decrease white-tailed deer feeding on nectaring resources.	Hoary elfin	Medium
8.2.2	8 Invasive and Problematic Species	8.2 Problematic Native Plants & Animals	8.2.2 Increased grazing by vertebrates	White-tailed deer	Encourage more hunting in targeted areas to decrease white-tailed deer feeding on oak saplings. Prioritize existing forests with low recruitment for oak tree plantings.	Northern oak hairstreak	Medium
8.5	8 Invasive and Problematic Species	8.5 Intrinsic Biological Limitations		Lack of connectivity between populations means local extirpations could lead to larger declines	Move elfin caterpillars from thriving populations to unoccupied, protected baptisia locations.	Frosted elfin	Medium
8.5	8 Invasive and Problematic Species	8.5 Intrinsic Biological Limitations		Lack of connectivity between populations means local extirpations could lead to larger declines	Survey surrounding wetlands for cranberry plants and butterflies.	Bog copper	Low
8.5.2	8 Invasive and Problematic Species	8.5 Intrinsic Biological Limitations	8.5.2 Depends on another species that has declined	Depends on swamp red bay	Protect host plant (swamp red bay) from maintenance threats and deer browse.	Palamedes swallowtail	Medium
8.5.2	8 Invasive and Problematic Species	8.5 Intrinsic Biological Limitations	8.5.2 Depends on another species that has declined	Depends on gooseberry species	Search surrounding areas for host plants (gooseberry). Reduce plant competition around host plants.	Gray comma	High
8.5.2	8 Invasive and Problematic Species	8.5 Intrinsic Biological Limitations	8.5.2 Depends on another species that has declined	Depends on large amount of trailing arbutus or bearberry	Search surrounding areas for host plants (trailing arbutus or bearberry). Reduce plant competition around host plants.	Hoary elfin	High
8.5.2	8 Invasive and Problematic Species	8.5 Intrinsic Biological Limitations	8.5.2 Depends on another species that has declined	Depends on common sweetleaf	Survey for host plant locations.	King's hairstreak	Medium
8.5.2	8 Invasive and Problematic Species	8.5 Intrinsic Biological Limitations	8.5.2 Depends on another species that has declined	Depends on Carolina vetch	Locate Carolina vetch and assess threats.	Silvery blue	Low

Appendix 6a. Species-level threats and actions (Inverts: Butterflies)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Associated Species	Action Priority (Threat Impact x Action Urgency)
8.5.2	8 Invasive and Problematic Species	8.5 Intrinsic Biological Limitations	8.5.2 Depends on another species that has declined	Depends on smooth rockcress	Locate rockcress and assess threats.	Olympia marble	Medium
8.5.2	8 Invasive and Problematic Species	8.5 Intrinsic Biological Limitations	8.5.2 Depends on another species that has declined	Depends on bear oak	Augment bear oak near current hairstreak population; plant in previous site as well.	Edwards' hairstreak	High
8.5.2	8 Invasive and Problematic Species	8.5 Intrinsic Biological Limitations	8.5.2 Depends on another species that has declined	Depends on cranberry	Promote and augment the growth and reproduction of cranberries.	Bog copper	Medium
8.5.2	8 Invasive and Problematic Species	8.5 Intrinsic Biological Limitations	8.5.2 Depends on another species that has declined	Depends on toothworts (mainly <i>Cardamine diphylla</i>)	Promote and augment the growth and reproduction of toothworts.	West Virginia white	High
8.5.2	8 Invasive and Problematic Species	8.5 Intrinsic Biological Limitations	8.5.2 Depends on another species that has declined	Depends on flat-topped white aster	Augment host plant (flat-topped white aster) populations.	Harris's checkerspot	Low
8.5.2	8 Invasive and Problematic Species	8.5 Intrinsic Biological Limitations	8.5.2 Depends on another species that has declined	Depends on turtlehead	Augment turtlehead populations.	Baltimore checkerspot	High
8.5.2	8 Invasive and Problematic Species	8.5 Intrinsic Biological Limitations	8.5.2 Depends on another species that has declined	Utilizes <i>Packera obovata</i> as host plant and woodland sunflowers as nectaring resource	Augment plant species with local seed(s).	Northern metalmark	Medium
8.5.2	8 Invasive and Problematic Species	8.5 Intrinsic Biological Limitations	8.5.2 Depends on another species that has declined	Depends on lupine or baptisia	Plant <i>Baptisia tinctoria</i> seeds or plugs.	Frosted elfin	High
8.5.2	8 Invasive and Problematic Species	8.5 Intrinsic Biological Limitations	8.5.2 Depends on another species that has declined	Depends on purple flowers	Plant native purple nectaring resources.	Leonard's skipper	High
8.5.2	8 Invasive and Problematic Species	8.5 Intrinsic Biological Limitations	8.5.2 Depends on another species that has declined	Unknown ant species tends larvae	Identify ant tender species.	Edwards' hairstreak	Medium
9.3.3	9 Pollution	9.3 Agricultural & Forestry Effluents	9.3.3 Herbicides & pesticides	Herbicide spraying of drainage ditches and field edges	Educate landowners, offer conservation opportunities, and enforce existing regulations.	Bronze copper	Low

Appendix 6a. Species-level threats and actions (Inverts: Butterflies)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Associated Species	Action Priority (Threat Impact x Action Urgency)
9.3.3	9 Pollution	9.3 Agricultural & Forestry Effluents	9.3.3 Herbicides & pesticides	Spongy moth spraying	Outline conservation areas to avoid pesticide use.	Pepper and salt skipper, Atlantis fritillary, great purple hairstreak, silver-bordered fritillary, northern metalmark, Harris's checkerspot, Olympia marble, silvery blue, Leonard's skipper, cobweb skipper, Indian skipper, gray comma, northern oak hairstreak, King's hairstreak, West Virginia white	High
11.1.2	11 Climate Change	11.1 Habitat Shifting & Alteration	11.1.2 Phenological mismatch	Out of sync with <i>Liatris</i>	Study phenological mismatch to determine if it is actually an issue.	Leonard's skipper	Low
11.2.2	11 Climate Change	11.2 Changes in Geochemical Regimes	11.2.2 Changes in salinity	Saltwater intrusion	Protect swamps from storm surges	Rare skipper, Palamedes swallowtail	Medium
11.3.4	11 Climate Change	11.3 Changes in Temperature Regimes	11.3.4 Increase in temperature fluctuations	Species distribution models (SDMs) show declines due to increased annual temperatures	Assess the impact(s) of climate change on these populations. Medium priority for Baltimore checkerspot.	Two-spotted skipper, black dash, mulberry wing, silver-bordered fritillary, Harris's checkerspot, bog copper, Atlantis fritillary, Baltimore checkerspot	Low
11.4.2	11 Climate Change	11.4 Changes in Precipitation & Hydrological Regimes	11.4.2 Droughts	Droughts affect nectaring resources in/on shale barrens	Monitor precipitation, plant health, and metalmark populations each year.	Northern metalmark	High
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Better understand elfin feeding preferences	Identify differences between lupine- and baptisia-feeding populations. Is there interbreeding?	Frosted elfin	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of records, perhaps due to difficulty of ID	Revisit iNaturalist records and conduct focused surveys to compare population numbers with other fritillaries.	Atlantis fritillary	Medium
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of surveys	Conduct surveys in isolated wetlands.	Silver-bordered fritillary, Harris's checkerspot	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of surveys	Conduct extensive surveys of the region for host plant and butterfly.	Hoary elfin	High
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of surveys	Conduct habitat modeling and field surveys to locate additional populations.	Edwards' hairstreak	High

Appendix 6a. Species-level threats and actions (Inverts: Butterflies)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Associated Species	Action Priority (Threat Impact x Action Urgency)
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of surveys	Locate additional populations and assess threats.	Baltimore checkerspot	High
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of surveys, questions about hostplant	Monitor elfin population at Furnace every year.	Frosted elfin	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Surveying difficulties	Provide trainings on hairstreak identification.	Northern oak hairstreak	High
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Surveying difficulties	Provide trainings on skipper identification.	Black dash, cobweb skipper, Indian skipper, long dash, mulberry wing, pepper and salt skipper	High

Appendix 6a. Species-level threats and actions (Inverts: Moths)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Associated Species	Action Priority (Threat Impact x Action Urgency)
5.2.4	5 Bio Resource Use	5.2 Gathering Terrestrial Plants or Fungi	5.2.4 Poaching/eradication of terrestrial plants or fungi	Collection of pitcher plants	Monitor The Nature Conservancy (TNC) site for pitcher plant poachers.	<i>Exyra fax</i>	High
5.2.4	5 Bio Resource Use	5.2 Gathering Terrestrial Plants or Fungi	5.2.4 Poaching/eradication of terrestrial plants or fungi	Possible future eradication to control pine blister rust	Maintain communication with the Maryland Department of Agriculture (MDA) regarding any possibilities of ban or eradication.	<i>Macaria subcessaria</i>	Low
7.3.2	7 Natural System Modifications	7.3 Other Ecosystem Modifications	7.3.2 Vegetation succession	Conversion of open marsh wetlands into closed canopy	Remove overgrown vegetation in targeted marshy habitat areas.	<i>Nemoria tuscarora</i>	Medium
7.3.2	7 Natural System Modifications	7.3 Other Ecosystem Modifications	7.3.2 Vegetation succession		Remove other woody species and conduct prescribed burns in areas where bear oak is extensive.	<i>Zale lunifera</i>	Medium
7.3.2	7 Natural System Modifications	7.3 Other Ecosystem Modifications	7.3.2 Vegetation succession		Remove woody species and conduct prescribed burns to encourage cacti growth in targeted areas.	<i>Melitara prodenialis</i>	Medium
7.3.2	7 Natural System Modifications	7.3 Other Ecosystem Modifications	7.3.2 Vegetation succession		Remove woody species and conduct prescribed burns as necessary to preserve barren habitat.	<i>Chytonix sensilis, Cyenia inopinatus, Eucloptocnemis fimbriaris, Feltia manifesta, Virbia laeta, Zanclognatha martha</i>	Medium
7.3.2	7 Natural System Modifications	7.3 Other Ecosystem Modifications	7.3.2 Vegetation succession		Conduct prescribed burns as necessary. (Re)plant bear oak in burned areas to support this specialist species.	<i>Cicinnus melsheimeri</i>	Medium
8.1.1	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.1 Terrestrial animals	Emerald ash borer (EAB)	Assess threat of EAB to these species. Can these species survive off of ash resprouts? Survey ash for these species.	<i>Caloptilia fraxinella, Copivaleria grotei, Manduca jasminearum, Marmara fraxinicola, Olceclostera angelica, Palpita illibalis, Palpita magniferalis, Papaipema furcata, Plagodis kuetzingi, Podosesia aureocincta, Podosesia syringae, Sphinx chersis, Sphinx franckii</i>	Medium
8.1.1	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.1 Terrestrial animals	Hemlock wooly adelgid (HWA)	Continue release of <i>Laricobius nigrinus</i> in targeted areas.	<i>Feralia comstocki</i>	High
8.1.1	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.1 Terrestrial animals	Low possibility of nutria reinvasion	Continue nutria eradication program.	<i>Coleotechnites variella, Cutina albopunctella, Cutina distincta, Dioryctria pygmaeella, Iridopsis pergracilis, Isoparce cupressi, Lithophane abita, Nemoria elfa</i>	Low

Appendix 6a. Species-level threats and actions (Inverts: Moths)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Associated Species	Action Priority (Threat Impact x Action Urgency)
8.1.2	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.2 Terrestrial plants	Depends on <i>Phacelia</i> , which are threatened by invasives	Remove invasive species threatening large populations of <i>Phacelia</i> .	<i>Ethmia macelhosiella</i> , <i>Ethmia zelleriella</i>	Medium
8.1.2	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.2 Terrestrial plants	Common reed (<i>Phragmites</i>)	Remove <i>Phragmites</i> from high-quality wetlands in the Coastal Plain.	<i>Meropleon titan</i>	Low
8.5.2	8 Invasive and Problematic Species	8.5 Intrinsic Biological Limitations	8.5.2 Depends on another species that has declined	Depends on gooseberry species as host plant	Search surrounding areas for host plants (i.e., gooseberries). Reduce plant competition around host plants.	<i>Macaria subcessaria</i>	High
8.5.2	8 Invasive and Problematic Species	8.5 Intrinsic Biological Limitations	8.5.2 Depends on another species that has declined	Depends on Rattlebox (<i>Crotalaria</i>)	Augment and protect <i>Crotalaria</i> populations as needed.	<i>Utetheisa ornatix</i>	Medium
9.3.3	9 Pollution	9.3 Agricultural & Forestry Effluents	9.3.3 Herbicides & pesticides	Nearby mosquito spraying	Outline conservation areas to avoid pesticide use and educate landowners.	<i>Coleotechnites variella</i> , <i>Cutina albopunctella</i> , <i>Cutina distincta</i> , <i>Dioryctria pygmaeella</i> , <i>Feralia comstocki</i> , <i>Iridopsis pergracilis</i> , <i>Isoparce cupressi</i> , <i>Lithophane abita</i> , <i>Meropleon titan</i> , <i>Nemoria elfa</i>	Medium
9.3.3	9 Pollution	9.3 Agricultural & Forestry Effluents	9.3.3 Herbicides & pesticides	Powerline herbicide application	Outline conservation areas to avoid herbicide use, especially in powerline rights-of-way (ROWs).	<i>Exyra fax</i>	High
11.5.2	11 Climate Change	11.5 Storms & Severe Weather	11.5.2 Storm surges	Erosion of coastal dunes	Engage land managers at Assateague regarding dune preservation.	<i>Apamea lintneri</i> , <i>Drasteria graphica</i> , <i>Eucloptocnemis fimbriaris</i> , <i>Melipotis jucunda</i> , <i>Papaipema duovata</i> , <i>Schinia saturata</i>	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of surveys	Set out lights in cypress swamps in order to better survey for these species.	<i>Coleotechnites variella</i> , <i>Cutina albopunctella</i> , <i>Cutina distincta</i> , <i>Dioryctria pygmaeella</i> , <i>Iridopsis pergracilis</i> , <i>Isoparce cupressi</i> , <i>Lithophane abita</i> , <i>Nemoria elfa</i>	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of surveys	Set out lights in pitcher plant bogs in order to better survey for this species. Examine pitcher plants for caterpillars and damage.	<i>Exyra fax</i>	High

Appendix 6a. Species-level threats and actions (Inverts: Odonates)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Associated Species	Action Priority (Threat Impact x Action Urgency)
1.1.2	1 Development	1.1 Housing & Urban Areas	1.1.2 Low-density housing areas	Fifteen-Mile Creek Watershed at risk from possible development	Acquire property directly or through easement(s). Conduct surveys to locate any rare species in the area.	Appalachian jewelwing, green-faced clubtail, pygmy snaketail, rusty snaketail, spine-crowned clubtail, Uhler's sundragon	Medium
1.1.2	1 Development	1.1 Housing & Urban Areas	1.1.2 Low-density housing areas		Increase surveys in urban areas to better guide Environmental Review (ER).	Appalachian snaketail, black-tipped damer, Laura's clubtail, rapids clubtail, Selys' sundragon	Medium
1.1.2	1 Development	1.1 Housing & Urban Areas	1.1.2 Low-density housing areas	Destruction of seeps for development	Increase surveys in urban areas to better guide ER.	Seepage dancer	High
1.2.1	1 Development	1.2 Commercial & Industrial Areas	1.2.1 Commercial & industrial areas	Development of wetland at known species location	Update <i>Odonata</i> and other invertebrate records in Biotics so that records can be used for ER. Work with developer to ensure protection of wetland.	Green-striped damer, little blue dragonlet, northern bluet	High
3.2.1	3 Energy Production	3.2 Mining & Quarrying	3.2.1 Underground mines	Possible future coal mines	Discourage additional coal operations near known populations.	Crimson-ringed whiteface, Hudsonian whiteface	Low
3.2.2	3 Energy Production	3.2 Mining & Quarrying	3.2.2 Open-pit mines	Refilling of borrow pit	Work with landfill to ensure protection of borrow pit.	Atlantic bluet	Low
5.1.2	5 Bio Resource Use	5.1 Hunting & Collecting Terrestrial Animals	5.1.2 Trapping	Loss of beaver dams	Clarify landowner permit requirements for nuisance wildlife removal (i.e., beavers). Discuss adjusting bag limits for beavers in western Maryland. Priority is low for southern sprite and northern bluet, medium for all other species.	American emerald, beaverpond baskettail, crimson-ringed whiteface, frosted whiteface, Hudsonian whiteface, northern bluet, southern sprite, spatterdock damer	Medium
5.3.2	5 Bio Resource Use	5.3 Logging & Wood Harvesting	5.3.2 Partial removal of the forest cover	Logging in areas surrounding bogs	Work with landowners to identify sensitive wetland habitat within their logging operations.	American emerald, crimson-ringed whiteface, Hudsonian whiteface	Low
6.1.1	6 Human Intrusions	6.1 Recreational Activities	6.1.1 Motor vehicles	Use of all-terrain vehicles (ATVs) on and around sensitive habitat	Post signs and prosecute trespassers.	Coppery emerald, elfin skimmer, fine-lined emerald, pale bluet, ski-tailed emerald, southern pygmy clubtail, superb jewelwing, treetop emerald	Low
7.2.3	7 Natural System Modifications	7.2 Dams & Water Management / Use	7.2.3 Water management using culverts	Disruption of stream flow	Avoid culvert use whenever possible and utilize bridges that do not restrict waterflow.	Appalachian snaketail, banded spiketail, Laura's clubtail, rapids clubtail, seepage dancer	Low
7.2.5	7 Natural System Modifications	7.2 Dams & Water Management / Use	7.2.5 Drainage in forest environments	Ditches that drain natural water features	Plug ditches that drain temporary pools (i.e., vernal pools).	Blackwater bluet, coppery emerald, royal river cruiser, sparkling jewelwing, treetop emerald	Low
7.3.1	7 Natural System Modifications	7.3 Other Ecosystem Modifications	7.3.1 Shoreline alteration	Disruption of lake edge near element occurrence (EO)	More strictly assess buffer strip permits around lake in particular habitat area.	Rainbow bluet	Medium
8.1.2	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.2 Terrestrial plants	Invasive plants overrunning bogs	Remove invasive plants from bogs.	Sphagnum sprite	Low

Appendix 6a. Species-level threats and actions (Inverts: Odonates)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Associated Species	Action Priority (Threat Impact x Action Urgency)
8.1.3	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.3 Aquatic animals	Illegal stocking of ponds with fish	Assess risk of stocked ponds to this species. Conduct outreach to limit stocking.	Spatterdock damner	Low
8.1.3	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.3 Aquatic animals	Stocking of particular creek with rainbow trout	Assess risk of stocked trout to this species. Adjust stocking areas if necessary.	Zebra clubtail	Low
9.1.2	9 Pollution	9.1 Domestic & Urban waste water	9.1.2 Runoff		Work with various counties to target runoff reductions in and around important habitat area(s). Priority varies from low to high depending on SGCN/habitat in question.	Appalachian snaketail, black-tipped damner, Laura's clubtail, rainbow bluet, rapids clubtail, seepage dancer, southern sprite, sphagnum sprite	Medium
9.1.2	9 Pollution	9.1 Domestic & Urban waste water	9.1.2 Runoff	Runoff from nearby golf course	Work with golf course to reduce runoff entering impoundment where this species is known to occur.	Atlantic bluet	Low
9.2.2	9 Pollution	9.2 Industrial & Military Effluents	9.2.2 Acid mine drainage		Restore acid mine drainage locations. Ensure operating mines abide by regulations. High priority for mustached clubtail, medium priority for other species.	Harpoon clubtail, Maine snaketail, mustached clubtail, ski-tailed emerald	Medium
9.3	9 Pollution	9.3 Agricultural & Forestry Effluents		Agricultural runoff near stream	Work with farmers to reduce runoff entering nearby stream(s).	Appalachian jewelwing, blackwater bluet, burgundy bluet, pale bluet, royal river cruiser, southern pygmy clubtail, sparkling jewelwing, spine-crowned clubtail, splendid clubtail, superb jewelwing	Low
9.3.3	9 Pollution	9.3 Agricultural & Forestry Effluents	9.3.3 Herbicides & pesticides	Mosquito control	Engage local communities on ecologically safe mosquito reduction tactics. Encourage the use of <i>Bacillus thuringiensis</i> (BT) instead of broad adulticides.	Appalachian snaketail, black-tipped damner, fine-lined emerald, Laura's clubtail, little blue dragonlet, midland clubtail, rainbow bluet, rapids clubtail, royal river cruiser, seepage dancer, Selys' sundragon, southern sprite, sphagnum sprite, St. Croix snaketail, Uhler's sundragon, white corporal	Medium
9.3.3	9 Pollution	9.3 Agricultural & Forestry Effluents	9.3.3 Herbicides & pesticides	Powerline herbicide application killing bog plants	Outline conservation areas to avoid herbicide use, especially in powerline rights-of-way (ROWs).	Sphagnum sprite	Low
11.2.2	11 Climate Change	11.2 Changes in Geochemical Regimes	11.2.2 Changes in salinity	Sea-level rise changing salinity of pond(s)	Manage shoreline erosion in locations where this species is known to occur.	Atlantic bluet	Low

Appendix 6a. Species-level threats and actions (Inverts: Odonates)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Associated Species	Action Priority (Threat Impact x Action Urgency)
11.3.3	11 Climate Change	11.3 Changes in Temperature Regimes	11.3.3 Gradual temperature change	Climate change may push this species out of Maryland	Assess impacts of climate change (e.g., range shifts) for these species.	Beaverpond baskettail, Canada darner, green-striped darner	Low

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Appendix 6a. Species-level threats and actions (Inverts: Bees)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Associated Species	Action Priority (Threat Impact x Action Urgency)
1.1	1 Development	1. Residential & Commercial Development		Capping of sand mine land for development	Engage appropriate agencies in discussion regarding the ecological value of artificial barrens (e.g., sand pits). Advocate for protection and/or acquisition. Priority varies from low to high depending on SGCN/habitat in question.	<i>Andrena accepta</i> , <i>Andrena fulvipennis</i> , <i>Colletes americanus</i> , <i>Dieunomia heteropoda</i> , <i>Dieunomia nevadensis</i> , <i>Epimelissodes comptus</i> , <i>Protandrena aestivalis</i>	Medium
1.1	1 Development	1. Residential & Commercial Development		Important occurrence on private property	Educate and encourage landowner to set aside space for sand-nesting bees. High priority for <i>Cemolobus</i> , low priority for <i>Epeolus</i> .	<i>Cemolobus ipomoeae</i> , <i>Epeolus howardi</i>	Medium
3.2.3	3 Energy Production	3.2 Mining & Quarrying	3.2.3 Quarries & sand pits	Important occurrence on private property	Educate and encourage businesses to set aside space for sand-nesting bees. Priority varies from low to high depending on SGCN/habitat in question.	<i>Andrena accepta</i> , <i>Andrena fulvipennis</i> , <i>Coelioxys immaculatus</i> , <i>Colletes americanus</i> , <i>Dieunomia heteropoda</i> , <i>Dieunomia nevadensis</i> , <i>Epeolus howardi</i> , <i>Epeolus pusillus</i> , <i>Epimelissodes comptus</i> , <i>Lasioglossum sopinci</i> , <i>Protandrena aestivalis</i>	Medium
4.2.1	3 Energy Production	4.2 Utility & Service Lines	4.2.1 Power and service lines	Maintenance rights-of-way (ROWs) could harm host plants	Educate and encourage power company to reduce maintenance activities in specific area where bee was found.	<i>Macropis ciliata</i>	Medium
5.2.4	5 Bio Resource Use	5.2 Gathering Terrestrial Plants or Fungi	5.2.4 Poaching/eradication of terrestrial plants or fungi	Depend on plants often thought of as weeds	Advocate for leaving "weeds" (native thistles, <i>Ipomoea</i>) in areas where these bees are known to occur.	<i>Cemolobus ipomoeae</i> , <i>Osmia chalybea</i> , <i>Osmia texana</i>	Low
6.1.2	6 Human Intrusions	6.1 Recreational Activities	6.1.2 Hiking	Trampling on Erythronium (trout lilies)	Fence off large patches of trout lily where this bee species is known to occur.	<i>Andrena erythronii</i>	Low
7.3	7 Natural System Modifications	7.3 Other Ecosystem Modifications		Roadside mowing of nectaring and host plants	Create signage and mowing recommendations for nearby pollinator areas. Plant roadside wildflowers in certain areas to supplement pollinator habitat.	<i>Andrena helianthi</i> , <i>Andrena ziziae</i> , <i>Bombus affinis</i> , <i>Bombus terricola</i> , <i>Colletes nudus</i> , <i>Osmia texana</i> , <i>Paranthidium jugatorium</i>	High
7.4.1	7 Natural System Modifications	7.4 Removing / Reducing Human Maintenance	7.4.1 Reducing or ceasing vegetation control	Loss of (sandy) barren habitat due to vegetation succession	Conduct prescribed burns in targeted habitat areas, especially sandy coastal plain forests. Priority varies from low to high depending on SGCN/habitat in question, though it is high for most species.	<i>Lasioglossum arantium</i> , <i>Lasioglossum floridanum</i> , <i>Lasioglossum nymphale</i> , <i>Lasioglossum raleighense</i> , <i>Melissodes apicatus</i> , <i>Nomada rubicunda</i> , <i>Nomia maneei</i> , <i>Osmia felti</i> , <i>Perdita bradleyi</i> , <i>Protandrena abdominalis</i>	High
7.4.1	7 Natural System Modifications	7.4 Removing / Reducing Human Maintenance	7.4.1 Reducing or ceasing vegetation control	Loss of (sandy) barren habitat due to vegetation succession	Remove trees to open canopy in targeted habitat areas. Priority varies from low to medium depending on SGCN/habitat in question.	<i>Andrena accepta</i> , <i>Andrena fulvipennis</i> , <i>Colletes americanus</i> , <i>Dieunomia heteropoda</i> , <i>Dieunomia nevadensis</i> , <i>Epeolus howardi</i> , <i>Epeolus pusillus</i> , <i>Epimelissodes comptus</i> , <i>Protandrena aestivalis</i>	Medium

Appendix 6a. Species-level threats and actions (Inverts: Bees)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Associated Species	Action Priority (Threat Impact x Action Urgency)
7.4.1	7 Natural System Modifications	7.4 Removing / Reducing Human Maintenance	7.4.1 Reducing or ceasing vegetation control	Loss of (sandy) barren habitat due to vegetation succession	Where feasible, conduct prescribed burns in sandy coastal plain forests. Where burning is unfeasible, remove trees to open canopy instead. Priority is medium for <i>Coelioxys</i> and <i>Lasioglossum</i> , low for <i>Perdita</i> and <i>Sphecodes</i> .	<i>Coelioxys immaculatus</i> , <i>Lasioglossum sopinci</i> , <i>Perdita boltoniae</i> , <i>Sphecodes brachycephalus</i>	Medium
8.1.2	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.2 Terrestrial plants	Nonnative species out compete the hostplant <i>Geranium maculatum</i> .	Remove invasive species that threaten host and nectaring plants in important habitat areas. Priority varies from low to high depending on SGCN/habitat in question.	<i>Andrena distans</i> , <i>Andrena erythronii</i> , <i>Andrena geranii</i> , <i>Andrena lamelliterga</i> , <i>Andrena phaceliae</i> , <i>Bombus affinis</i> , <i>Bombus terricola</i> , <i>Colletes aestivalis</i> , <i>Macropis ciliata</i>	Medium
8.1.2	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.2 Terrestrial plants	Invasive species are threats to <i>Zizia</i>	Augment existing populations of <i>Zizia</i> and encourage garden plantings.	<i>Andrena ziziae</i>	High
8.1.2	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.2 Terrestrial plants	Invasive species compete with spring ephemerals	Remove invasive species (e.g., garlic mustard, lesser celandine, and other spring non-natives) where native wildflowers (e.g., <i>Arabis</i> , <i>Cardamine</i> , and <i>Dentaria</i>) are abundant. Survey garlic mustard for this bee; does its presence cause a population sink for this species?	<i>Andrena arabis</i>	Medium
8.2.2	8 Invasive and Problematic Species	8.2 Problematic Native Plants & Animals	8.2.2 Increased grazing by vertebrates	White-tailed deer	Locate native azaleas where this bee is known to occur and protect from deer browse with fencing.	<i>Andrena cornelli</i>	Medium
8.4.3	8 Invasive and Problematic Species	8.4 Pathogens	8.4.3 Fungal pathogens		Survey for non-native <i>Osmias</i> near native populations. Assess fungal threats from non-native <i>Osmias</i> .	<i>Osmia chalybea</i> , <i>Osmia felti</i> , <i>Osmia texana</i>	Low
8.4.3	8 Invasive and Problematic Species	8.4 Pathogens	8.4.3 Fungal pathogens	Pathogen spillover from domesticated bumblebees (<i>Nosema bombi</i>)	Increase regulations on shipment and screening of commercially reared bees.	<i>Bombus affinis</i> , <i>Bombus terricola</i>	Low
8.5.2	8 Invasive and Problematic Species	8.5 Intrinsic Biological Limitations	8.5.2 Depends on another species that has declined	Depends on <i>Oenothera</i>	Augment <i>Oenothera</i> in areas where this bee is known to occur.	<i>Epimelissodes comptus</i>	Low
8.5.2	8 Invasive and Problematic Species	8.5 Intrinsic Biological Limitations	8.5.2 Depends on another species that has declined	Depends on <i>Andrena gardineri</i> , which in turn depends on <i>Packeria</i>	Augment <i>Packeria</i> flowers in areas where this bee is known to occur.	<i>Nomada seneciophila</i>	Medium
8.5.2	8 Invasive and Problematic Species	8.5 Intrinsic Biological Limitations	8.5.2 Depends on another species that has declined	Depends on vining beans like <i>Strophostyles</i>	Augment climbing beans in areas where this bee is known to occur.	<i>Nomia maneei</i>	Medium
8.5.2	8 Invasive and Problematic Species	8.5 Intrinsic Biological Limitations	8.5.2 Depends on another species that has declined	Depends on <i>Monarda punctata</i>	Augment <i>Monarda punctata</i> populations and create signage and mowing recommendations for areas with <i>Monarda punctata</i> .	<i>Protandrena abdominalis</i>	Low
8.5.2	8 Invasive and Problematic Species	8.5 Intrinsic Biological Limitations	8.5.2 Depends on another species that has declined	Depends on <i>Heuchera</i>	Augment existing populations of <i>Heuchera</i> and encourage garden plantings of non-cultivars.	<i>Colletes aestivalis</i>	Low

Appendix 6a. Species-level threats and actions (Inverts: Bees)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Associated Species	Action Priority (Threat Impact x Action Urgency)
8.5.2	8 Invasive and Problematic Species	8.5 Intrinsic Biological Limitations	8.5.2 Depends on another species that has declined	Depends on <i>Geranium maculatum</i>	Encourage garden plantings of non-cultivars of <i>Geranium maculatum</i> .	<i>Andrena distans</i>	Medium
9.3.1	9 Pollution	9.3 Agricultural & Forestry Effluents	9.3.1 Nutrient loads	Depends on extensive <i>Pontederia cordata</i> beds in healthy wetlands	Establish and advocate for larger wetland buffers.	<i>Melissodes apicatus</i>	Low
11.3.3	11 Climate Change	11.3 Changes in Temperature Regimes	11.3.3 Gradual temperature change	Range retraction likely due to increased temperatures	Remove invasive species threatening large populations of spring wildflowers.	<i>Bombus vagans</i>	Low
11.5.2	11 Climate Change	11.5 Storms & Severe Weather	11.5.2 Storm surges	Erosion of coastal dunes	Engage land managers in discussion regarding dune preservation. Priority is medium for <i>Lasioglossum georgeickworti</i> , low for all others.	<i>Andrena braccata</i> , <i>Colletes speculiferus</i> , <i>Epeolus pusillus</i> , <i>Lasioglossum georgeickworti</i> , <i>Lasioglossum nymphale</i>	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of surveys for <i>Heuchera</i>	Survey for <i>Huchera</i> and this rare bee.	<i>Colletes aestivalis</i>	Low

Appendix 6a. Species-level threats and actions (Inverts: Tiger Beetles)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Associated Species	Action Priority (Threat Impact x Action Urgency)
4.2.1	4 Transportation	4.2 Utility & Service Lines	4.2.1 Power and service lines	Maintenance and expansion of power line rights-of-way (ROWs)	Work with ROW users on ways to mitigate disturbance.	Cow path tiger beetle, splendid tiger beetle	Low
4.2.1	4 Transportation	4.2 Utility & Service Lines	4.2.1 Power and service lines	Utility traffic, herbicide application, rock blasting, and mowing on ROWs and utility roads.	Work with ROW users on ways to mitigate disturbance.	Common claybank tiger beetle, northern barrens tiger beetle	High
6.1.1	6 Human Intrusions	6.1 Recreational Activities	6.1.1 Motor vehicles	Use of all-terrain vehicles (ATVs) on sandy forest roads	Post signs and prosecute trespassers.	Eastern pinebarrens tiger beetle	Low
6.1.1	6 Human Intrusions	6.1 Recreational Activities	6.1.1 Motor vehicles	Use of ATVs on stream banks	Post signs and prosecute ATV use on the wrong trails.	Appalachian tiger beetle	Low
6.1.1	6 Human Intrusions	6.1 Recreational Activities	6.1.1 Motor vehicles	Vehicles on beach in southern Assateague Island National Seashore	Limit access to dunes for vehicles using fencing and signage.	Ghost tiger beetle, white tiger beetle	Low
6.1.2	6 Human Intrusions	6.1 Recreational Activities	6.1.2 Hiking	Mountain biking on trails damages nesting habitat	Expand habitat area away from trails.	Common claybank tiger beetle, cow path tiger beetle, northern barrens tiger beetle	High
6.1.3	6 Human Intrusions	6.1 Recreational Activities	6.1.3 Recreational use of cliffs and rock faces	Rock climbing in non-designated locations	Post signs and prosecute trespassers. Work with climbing groups to self-monitor. Discuss possibility of acquiring Haystack Mountain.	Common claybank tiger beetle, cow path tiger beetle, northern barrens tiger beetle	High
6.1.4	6 Human Intrusions	6.1 Recreational Activities	6.1.4 Recreational boating	Trampling of beaches from boaters	Post signage at boat ramps encouraging boaters to reduce disturbance of beaches. Conduct outreach to boating organizations.	Eastern beach tiger beetle, Puritan tiger beetle	Medium
7.3.1	7 Natural System Modifications	7.3 Other Ecosystem Modifications	7.3.1 Shoreline alteration	Shoreline hardening that destroys sand beaches and promotes the growth of vegetation on exposed cliff faces	Monitor shoreline hardening projects in Environmental Review (ER) closely. Do not let projects undergo development without Natural Heritage Program (NHP) involvement.	Eastern beach tiger beetle, Puritan tiger beetle	High
7.4.1	7 Natural System Modifications	7.4 Removing / Reducing Human Maintenance	7.4.1 Reducing or ceasing vegetation control	Loss of barren habitat due to vegetation succession	Conduct prescribed burns in targeted habitat areas.	Common claybank tiger beetle, cow path tiger beetle, eastern pinebarrens tiger beetle, northern barrens tiger beetle, splendid tiger beetle	High

Appendix 6a. Species-level threats and actions (Inverts: Tiger Beetles)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Associated Species	Action Priority (Threat Impact x Action Urgency)
7.4.1	7 Natural System Modifications	7.4 Removing / Reducing Human Maintenance	7.4.1 Reducing or ceasing vegetation control	Loss of barrens habitat due to vegetation succession	Remove trees to open canopy in targeted habitat areas.	Common claybank tiger beetle, cow path tiger beetle, eastern pinebarrens tiger beetle, northern barrens tiger beetle	High
8.1.1	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.1 Terrestrial animals	Feral horse trampling and feeding in swales and dunes	Continue sterilization work to manage herd size at Assateague.	Ghost tiger beetle, white tiger beetle	Low
8.1.2	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.2 Terrestrial plants	Invasive species along streams	Remove invasive plant species (e.g., Japanese knot weed and stiltgrass) along streams where this species is known to occur.	Appalachian tiger beetle	High
8.1.2	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.2 Terrestrial plants	Invasive species covering cliffs	Spray herbicides on cliff faces where this species is known to occur.	Puritan tiger beetle	High
8.1.2	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.2 Terrestrial plants	Invasive plant species along beaches	Remove invasive species (e.g., common reed [<i>Phragmites</i>]) along beaches with tiger beetle records.	Eastern beach tiger beetle	Medium
8.1.2	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.2 Terrestrial plants	Common reed (<i>Phragmites</i>)	Remove invasive species within swales behind dunes at Assateague.	Ghost tiger beetle, white tiger beetle	Low
8.5	8 Invasive and Problematic Species	8.5 Intrinsic Biological Limitations		Lack of connectivity between populations means local extirpations could lead to larger declines	Move tiger beetles to adjacent habitat to increase the number of populations.	Eastern pinebarrens tiger beetle	Medium
9.3.3	9 Pollution	9.3 Agricultural & Forestry Effluents	9.3.3 Herbicides & pesticides	Application of mosquito adulticides	Work with the Maryland Department of Agriculture (MDA) to set guidelines for the use of mosquito control funds. Make mosquito control on private property opt-in instead of opt-out. Switch from adulticides to <i>Bacillus thuringiensis</i> (BT).	Eastern beach tiger beetle	Medium
11.4.1	11 Climate Change	11.4 Changes in Precipitation & Hydrological Regimes	11.4.1 Overabundant rains	Increased floods causing washouts of silt bars	Consider trapping sediment in locations with extant populations.	Appalachian tiger beetle	Medium
11.5.2	11 Climate Change	11.5 Storms & Severe Weather	11.5.2 Storm surges	Beach erosion from sea-level rise and storm surges	Assess risks of sea-level rise and develop management plan for Assateague.	Ghost tiger beetle, white tiger beetle	High
11.5.2	11 Climate Change	11.5 Storms & Severe Weather	11.5.2 Storm surges	Beach erosion from sea-level rise and storm surges	Assess risks of sea-level rise and develop management plan to conserve beaches without harming habitat.	Eastern beach tiger beetle, Puritan tiger beetle	Medium
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of surveys	Assess Severn River populations after the shoreline hardening event from 2021.	Puritan tiger beetle	High

Appendix 6a. Species-level threats and actions (Inverts: Tiger Beetles)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Associated Species	Action Priority (Threat Impact x Action Urgency)
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of surveys	Conduct surveys around current known locations in order to locate additional populations.	Appalachian tiger beetle, eastern beach tiger beetle, eastern pinebarrens tiger beetle	High
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of surveys	(Continue to) conduct surveys on lands with known populations.	Common claybank tiger beetle, ghost tiger beetle, white tiger beetle	Low

Appendix 6a. Species-level threats and actions (Inverts: Fireflies)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Associated Species	Action Priority (Threat Impact x Action Urgency)
1.3.2	1 Development	1.3 Tourism & Recreation Areas	1.3.2 Campgrounds	Assateague campground abutting swales with large numbers of fireflies	Fence off swales near campground at Assateague.	Bethany Beach firefly	Low
7.2.1	7 Natural System Modifications	7.2 Dams & Water Management / Use	7.2.1 Water level management using dams	Reduced or increased flow rates across scour areas	Engage with dam managers to discuss outflow and other conservation possibilities.	Potomac firefly	Medium
7.2.5	7 Natural System Modifications	7.2 Dams & Water Management / Use	7.2.5 Drainage in forest environments	Ditching impeding natural hydrology	Remove ditches from areas near Atlantic white cedar in order to restore natural hydrology.	Mysterious lantern firefly	Medium
8.1.1	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.1 Terrestrial animals	Feral horse trampling and feeding in swales	Fence off high-quality swales with firefly occurrences. Continue sterilization work to manage herd size at Assateague.	Bethany Beach firefly	Low
8.1.2	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.2 Terrestrial plants	Invasive plants in high-quality forested peatland habitats	Remove invasive species within forested peatlands at Assateague.	Mysterious lantern firefly	Low
8.1.2	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.2 Terrestrial plants	Invasive species on river scour ecosystems	Remove invasive species along river scour islands.	Potomac firefly	High
8.1.2	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.2 Terrestrial plants	Common reed (<i>Phragmites</i>)	Remove <i>Phragmites</i> in high-quality saltmarsh areas.	Keel-necked firefly, salt marsh firefly	Medium
8.1.2	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.2 Terrestrial plants	Common reed (<i>Phragmites</i>)	Remove invasive species (especially <i>Phragmites</i>) within swales at Assateague.	Bethany Beach firefly	Low
9.3.3	9 Pollution	9.3 Agricultural & Forestry Effluents	9.3.3 Herbicides & pesticides	Potential future use of adulticide pesticides to control mosquitoes	Advocate for no use of pesticides in sensitive habitat areas.	Keel-necked firefly, mysterious lantern firefly, salt marsh firefly	Low
9.6.1	9 Pollution	9.6 Excess Energy	9.6.1 Light pollution	Light pollution around campsite and roads	Advocate for reduced lighting near swales at Assateague.	Bethany Beach firefly	Low
11.1.1	11 Climate Change	11.1 Habitat Shifting & Alteration	11.1.1 Changes in vegetation communities	Loss of ice scour allows for increased tree growth and canopy closure	Cut river scour trees that are becoming overgrown at targeted locations (e.g., maples and sycamores).	Potomac firefly	High
11.5.1	11 Climate Change	11.5 Storms & Severe Weather	11.5.1 Storms & severe weather	Open canopy due to storm felled trees	Replant felled trees in targeted areas, especially Atlantic white cedar.	Mysterious lantern firefly	Low

Appendix 6a. Species-level threats and actions (Inverts: Fireflies)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Associated Species	Action Priority (Threat Impact x Action Urgency)
11.5.2	11 Climate Change	11.5 Storms & Severe Weather	11.5.2 Storm surges	Beach erosion from sea-level rise and storm surges	Assess risks of sea-level rise and develop management plan, especially for Assateague.	Bethany Beach firefly, keel-necked firefly, salt marsh firefly	High
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of surveys	Train biologists on firefly identification.	Keel-necked firefly, mysterious lantern firefly, salt marsh firefly	High

Appendix 6a. Species-level threats and actions (Inverts: Aquatic Orders, or EPT)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Associated Species	Action Priority (Threat Impact x Action Urgency)
1.1.1	1 Development	1.1 Housing & Urban Areas	1.1.1 Dense housing & urban areas	Expansion of apartments near habitat	Ensure that construction near water avoids harming stream through silt or chemical runoff. Avoid cutting trees in order to help with this.	Lobed stone	Low
1.1.2	1 Development	1.1 Housing & Urban Areas	1.1.2 Low-density housing areas	15-Mile Creek Watershed at risk from possible development	acquire property directly or through easement(s). Conduct surveys to locate any rare species in the area.	Dusky sallfly, lash springfly, Shenandoah sallfly	Low
4.2.1	4 Transportation	4.2 Utility & Service Lines	4.2.1 Power and service lines	Maintenance and expansion of power line rights-of-way (ROWs)	Create a conservation agreement regarding mowing and herbicide use.	Variable needfly	Medium
4.2.1	4 Transportation	4.2 Utility & Service Lines	4.2.1 Power and service lines	Maintenance and expansion of power line rights-of-way (ROWs)	Work with power companies to avoid impacts to small streams that cross ROWs.	Shenandoah sallfly	High
4.2.1	4 Transportation	4.2 Utility & Service Lines	4.2.1 Power and service lines	Construction of transmission corridors in western Maryland wildlands affecting hydrology	Challenge improper land use in court. Work with developers to site transmission lines outside of vulnerable drainage basins.	Lash springfly, Shenandoah needfly	Medium
7.3.2	7 Natural System Modifications	7.3 Other Ecosystem Modifications	7.3.2 Vegetation succession	Woody plant encroachment reducing size of open bog	Remove encroaching woody plants in sensitive habitat areas.	Variable needfly	High
8.1.1	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.1 Terrestrial animals	Hemlock wooly adelgid (HWA)	Continue release of <i>Laricobius nigrinus</i> in targeted areas.	Pocahontas sallfly, Shenandoah needfly	Low
9.1.2	9 Pollution	9.1 Domestic & Urban waste water	9.1.2 Runoff		Work with Prince George's County to target runoff reductions in and around important habitat area(s).	Variable needfly	Medium
9.3	9 Pollution	9.3 Agricultural & Forestry Effluents		Agricultural runoff near streams	Work with farmers to reduce runoff entering nearby stream(s).	Lobed stone, vernal springfly	Low
9.3.3	9 Pollution	9.3 Agricultural & Forestry Effluents	9.3.3 Herbicides & pesticides	Use of mosquito adulticides	Engage neighborhood near known location(s) regarding ecologically safe mosquito reduction tactics.	Variable needfly	Medium

Appendix 6a. Species-level threats and actions (Inverts: Cave and Groundwater)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Associated Species	Action Priority (Threat Impact x Action Urgency)
1.1.2	1 Development	1.1 Housing & Urban Areas	1.1.2 Low-density housing areas	Development in catchment basin(s)	Acquire springs and surrounding areas where these species are known to occur. Prevent runoff from entering springs. Medium priority for <i>Stygobromus paxillus</i> , low for all others.	<i>Paraplanaria dactyligera</i> , <i>Stygobromus caecilius</i> , <i>Stygobromus felleri</i> , <i>Stygobromus foliatus</i> , <i>Stygobromus gracilipes</i> , <i>Stygobromus indentatus</i> , <i>Stygobromus paxillus</i>	Low
3.2.3	3 Energy Production	3.2 Mining & Quarrying	3.2.3 Quarries & sand pits	Sand and silt filling up spring from nearby mine	Communicate with landowner regarding threat. Work to prevent the flow of silt into spring.	<i>Paraplanaria dactyligera</i> , <i>Stygobromus caecilius</i>	Medium
4.2.1	4 Transportation	4.2 Utility & Service Lines	4.2.1 Power and service lines	Construction of transmission corridors in western Maryland wildlands affecting hydrology	Challenge improper land use in court. Work with developers to site transmission lines outside of vulnerable drainage basins.	<i>Caecidotea franzi</i> , <i>Sphalloplana buchanani</i> , <i>Stygobromus amicus</i>	Medium
8.5.2	8 Invasive and Problematic Species	8.5 Intrinsic Biological Limitations	8.5.2 Depends on another species that has declined	Species may rely on waste from declining mammal species	Assess threat of declining mammals and their waste.	<i>Caecidotea alleghenyensis</i> , <i>Caecidotea franzi</i> , <i>Crangonyx dearolfi</i> , <i>Pseudobaicalasellus holsingeri</i> , <i>Sphalloplana buchanani</i> , <i>Stygobromus amicus</i> , <i>Stygobromus emarginatus</i>	Low
9.1.2	9 Pollution	9.1 Domestic & Urban waste water	9.1.2 Runoff	Yard chemicals, road salt, pet waste	Work to reduce runoff entering spring(s).	<i>Stygobromus kenki</i> , <i>Stygobromus sextarius</i>	High
9.3.1	9 Pollution	9.3 Agricultural & Forestry Effluents	9.3.1 Nutrient loads	Nutrient pollution from agriculture in drainage basins	acquire vulnerable locations in drainage basins. Protect springs and caves by filtering drainage basin through techniques such as increasing vegetation and structural elements.	<i>Caecidotea alleghenyensis</i> , <i>Conasellus pricei</i> , <i>Crangonyx dearolfi</i> , <i>Procotyla typhlops</i> , <i>Pseudobaicalasellus holsingeri</i> , <i>Sphalloplana hoffmasteri</i> , <i>Sphalloplana pricei</i> , <i>Stygobromus amicus</i> , <i>Stygobromus biggersi</i> , <i>Stygobromus emarginatus</i> , <i>Stygobromus pizzinii</i>	Low
9.3.2	9 Pollution	9.3 Agricultural & Forestry Effluents	9.3.2 Soil erosion, sedimentation	Sediment pollution	Reforest around particular spring edge to reduce sedimentation in the spring.	<i>Stygobromus gracilipes</i>	Medium
9.3.3	9 Pollution	9.3 Agricultural & Forestry Effluents	9.3.3 Herbicides & pesticides	Hemlock wooly adelgid (HWA) pesticides near springs	Advise on where trunk application should be used (instead of drenching) for HWA.	<i>Procotyla typhlops</i> , <i>Sphalloplana buchanani</i> , <i>Stygobromus amicus</i>	High
9.4.1	9 Pollution	9.4 Garbage & Solid Waste	9.4.1 Garbage	Littering of mine shaft	Post signage to prevent littering in sensitive habitat areas.	<i>Caecidotea franzi</i>	High

Appendix 6a. Species-level threats and actions (Inverts: Cave and Groundwater)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Associated Species	Action Priority (Threat Impact x Action Urgency)
9.4.1	9 Pollution	9.4 Garbage & Solid Waste	9.4.1 Garbage	Littering of mine shaft	Remove existing trash and post signage to prevent further littering in/around particular habitat area. Maintain gate to prevent entry. Priority varies from low to high depending on SGCN.	<i>Conasellus pricei</i> , <i>Pseudobaicalasellus mausi</i> , <i>Pseudobaicalasellus vandeli</i> , <i>Sphalloplana hoffmasteri</i> , <i>Stygobromus pizzinii</i>	Medium
11.4.1	11 Climate Change	11.4 Changes in Precipitation & Hydrological Regimes	11.4.1 Overabundant rains	Silt backing up into mine pool from Potomac	Work with National Park Service (NPS) to prevent flooding of the mine where this species is known to occur.	<i>Pseudobaicalasellus mausi</i>	Medium

Appendix 6a. Species-level threats and actions (Inverts: Other)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Associated Species	Action Priority (Threat Impact x Action Urgency)
1	1 Development	1. Residential & Commercial Development		Important occurrence on private property	Educate and encourage landowner to set aside space for reindeer lichen.	A tenebrionid beetle (<i>Schoenicus puberulus</i>)	High
1.1.1	1 Development	1.1 Housing & Urban Areas	1.1.1 Dense housing & urban areas	Many occurrences in unprotected forest remnants near development	Establish environmental easements in unprotected forest pockets where this species is found.	Painted wood fly (<i>Blera pictipes</i>)	Low
1.1.2	1 Development	1.1 Housing & Urban Areas	1.1.2 Low-density housing areas	Chance of expanding adjacent residential neighborhood	Acquire land or establish easment(s) where this species is found.	Seth Forest water scavenger beetle (<i>Hydrochus spangleri</i>)	Medium
1.2.1	1 Development	1.2 Commercial & Industrial Areas	1.2.1 Commercial & industrial areas	Development in/near known habitat	Rank and possibly list this species	Riley's 13-year cicada (<i>Magicicada tredecim</i>)	High
5.2.4	5 Bio Resource Use	5.2 Gathering Terrestrial Plants or Fungi	5.2.4 Poaching/eradication of terrestrial plants or fungi	Collection of pitcher plants	Monitor The Nature Conservancy (TNC) site for pitcher plant poachers.	Purple pitcher plant flesh fly (<i>Fletcherimyia fletcheri</i>), pitcher plant midge (<i>Metriocnemus knabi</i>), pitcher plant mosquito (<i>Wyeomyia smithii</i>), pitcher plant mite (<i>Sarraceniopus gibsoni</i>)	High
5.3.1	5 Bio Resource Use	5.3 Logging & Wood Harvesting	5.3.1 Complete removal of the forest cover	Removal of tree cover around vernal pools	Locate and map vernal pools and delmarva bays so that they can be protected and surveyed. Prevent Chesapeake forest land logging adjacent to vernal pools.	A dytiscid beetle (<i>Hoperius planatus</i>), Seth Forest water scavenger beetle (<i>Hydrochus spangleri</i>)	Medium
5.3.2	5 Bio Resource Use	5.3 Logging & Wood Harvesting	5.3.2 Partial removal of the forest cover	Harvesting forest stands with known occurrences using heavy equipment compacts soil	Consult Maryland Forest Service about circumventing dunes at Pocomoke site to enter logging area.	A tenebrionid beetle (<i>Helops cisteloides</i>)	High
6.1.2	6 Human Intrusions	6.1 Recreational Activities	6.1.2 Hiking	Disturbance of the thin soil layer supporting <i>Eleocharis</i> harmed by foot traffic	Place fences preventing access to <i>Limotettix</i> areas.	Eastern sedge barrens leafhopper (<i>Limotettix minuendus</i>)	High
7.1.1	7 Natural System Modifications	7.1 Fire & Fire Suppression	7.1.1 Increase in the fire regime	Burn blocks that are too large threaten leafhoppers	Create burn block rotations so as to avoid burning population area all at once.	Eastern sedge barrens leafhopper (<i>Limotettix minuendus</i>)	Medium
7.2.5	7 Natural System Modifications	7.2 Dams & Water Management / Use	7.2.5 Drainage in forest environments	Draining of vernal pools and Delmarva bays with ditches	Plug ditches that drain temporary pools.	A dytiscid beetle (<i>Hoperius planatus</i>), Seth Forest water scavenger beetle (<i>Hydrochus spangleri</i>)	High

Appendix 6a. Species-level threats and actions (Inverts: Other)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Associated Species	Action Priority (Threat Impact x Action Urgency)
7.3.2	7 Natural System Modifications	7.3 Other Ecosystem Modifications	7.3.2 Vegetation succession	Virginia pine and <i>Smilax</i> covering fields	Open up canopy with selective tree removal and prescribed burns, as appropriate.	Eastern sedge barrens leafhopper (<i>Limotettix minuendus</i>)	High
7.3.2	7 Natural System Modifications	7.3 Other Ecosystem Modifications	7.3.2 Vegetation succession	Woody plant encroachment reducing size of open bog	Remove encroaching woody plants from important habitat areas.	Pitcher plant mite (<i>Sarraceniopus gibsoni</i>)	High
7.4.1	7 Natural System Modifications	7.4 Removing / Reducing Human Maintenance	7.4.1 Reducing or ceasing vegetation control	Loss of barrens habitat due to vegetation succession	Conduct prescribed burns in important dune and barren habitat areas.	A tenebrionid beetle (<i>Helops cisteloides</i>), a tenebrionid beetle (<i>Schoenicus puberulus</i>)	High
7.4.1	7 Natural System Modifications	7.4 Removing / Reducing Human Maintenance	7.4.1 Reducing or ceasing vegetation control	Loss of barrens habitat due to vegetation succession	Conduct targeted removal of trees at important habitat area.	A tenebrionid beetle (<i>Schoenicus puberulus</i>)	High
8.1.1	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.1 Terrestrial animals	Emerald ash borer (EAB)	Assess threat of EAB to these species. Can these species survive off of ash sprouts? Survey ash for these species. Priority is high for <i>Colobopsis</i> , medium for all others.	A carpenter ant (<i>Colobopsis mississippiensis</i>), ash bullet gall midge (<i>Dasineura pellex</i>), swollen ash gall midge (<i>Dasineura tumidosae</i>), fringetree lace bug (<i>Leptopypha mutica</i>), a sh leaf gall mite (<i>Aceria fraxini</i>), ash flower gall mite (<i>Aceria fraxiniflora</i>), ash key gall mite (<i>Aceria fraxinivora</i>), blackheaded ash sawfly (<i>Tethida barda</i>), encircled borer (<i>Agrilus subcinctus</i>), Charlie Brown's flea beetle (<i>Capraita sexmaculata</i>), eastern ash bark beetle (<i>Hylesinus aculeatus</i>), an ash seed weevil (<i>Lignyodes bischoffi</i>), an ash seed weevil (<i>Lignyodes fraxini</i>), an ash seed weevil (<i>Lignyodes helvolus</i>), an ash seed weevil (<i>Lignyodes horridulus</i>)	Medium
8.5	8 Invasive and Problematic Species	8.5 Intrinsic Biological Limitations		Lack of connectivity between populations means local extirpations could lead to larger declines	Relocate leafhoppers from high population areas to low population areas.	Eastern sedge barrens leafhopper (<i>Limotettix minuendus</i>)	Medium
9.1.2	9 Pollution	9.1 Domestic & Urban waste water	9.1.2 Runoff		Work with Prince George's County to target runoff reductions in and around important habitat area(s).	Pitcher plant mite (<i>Sarraceniopus gibsoni</i>)	Medium

Appendix 6a. Species-level threats and actions (Inverts: Other)

PART 1: THREATS					PART 2: ACTIONS		
IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Associated Species	Action Priority (Threat Impact x Action Urgency)
9.3.3	9 Pollution	9.3 Agricultural & Forestry Effluents	9.3.3 Herbicides & pesticides	Herbicide use in power line rights-of-way (ROWs)	Outline conservation areas to avoid herbicide use.	Purple pitcher plant flesh fly (<i>Fletcherimyia fletcheri</i>), pitcher plant midge (<i>Metriocnemus knabi</i>), pitcher plant mosquito (<i>Wyeomyia smithii</i>), pitcher plant mite (<i>Sarraceniopus gibsoni</i>)	High
11.1.1	11 Climate Change	11.1 Habitat Shifting & Alteration	11.1.1 Changes in vegetation communities	Replacement of hardwoods with loblolly pine in eastern Maryland	Selectively log/remove loblollies in order to promote hardwood reestablishment.	A dytiscid beetle (<i>Hoperius planatus</i>)	Medium
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of surveys	Survey pitcher plant contents for these species.	Purple pitcher plant flesh fly (<i>Fletcherimyia fletcheri</i>), pitcher plant midge (<i>Metriocnemus knabi</i>), pitcher plant mosquito (<i>Wyeomyia smithii</i>)	High
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of surveys	Conduct blacklight surveys at other locations with reindeer lichen in order to survey for this species.	A tenebrionid beetle (<i>Schoenicus puberulus</i>)	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of surveys in other possible occurrence areas	Conduct surveys in other serpentine barrens.	Eastern sedge barrens leafhopper (<i>Limotettix minuendus</i>)	High

Appendix 6b. Habitat-level threats and actions

IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable regions	Applicable habitat groups	Priority KWHs	Priority Level
1 - 4				Habitat loss (from various causes)	Encourage implementation of best management practices (BMPs) that minimize and reduce habitat fragmentation in land use plans, especially for large, contiguous forest blocks and old growth conditions that are connected by effective movement/dispersal corridors.	ALL	Forests, Floodplain Wetlands, Groundwater Wetlands, Tidal Wetlands	Basic Mesic Forests, Cove Forest, Hemlock-Northern Hardwood Forest, Coastal Plain Oak Pine Forest, Oak-Hickory Forest, High Elevation Ridge Forest, Montane-Piedmont Oak-Pine Forest, Maritime Forest and Shrubland, Montane-Piedmont Seepage Swamp, Montane Acidic Fen, Piedmont Upland Depression Swamp, Maritime Swamp, Montane-Piedmont Floodplain, Coastal Plain Floodplain, Tidal Forest	High
1	1 Development			Coastal development	Work with local and county planning departments to ensure that coastal, tourism-heavy communities plan for smart, long-term growth that will minimally impact coastal SGCN and habitats.	Southern, Eastern, Central	Bay/Ocean, Coastal Beaches/Dunes, (Sub)urban, Tidal Wetlands	Intertidal Mudflat and Sand Flat, Tidal Forest, Tidal Brackish Marsh and Shrubland, Tidal Freshwater Marsh and Shrubland	Mid
1	1 Development			(Sub)urban sprawl	Incentivize multi-use and mixed-use development to reduce travel distances.	ALL	(Sub)urban		Low
1.1	1 Development	1.1 Housing & Urban Areas			Encourage policies and practices that focus on the renovation of existing housing rather than new development.	ALL	(Sub)urban		Low
1.1 / 1.2	1 Development	1.1 Housing & Urban Areas / 1.2 Commercial & Industrial Areas			Promote and support conservation landscaping techniques and projects in residential and commercial settings. Connect landowners to existing organizations (e.g., Chesapeake Bay Landscape Professionals) and provide new incentives.	ALL	(Sub)urban, Floodplain Wetlands, Groundwater Wetlands, Tidal Wetlands, Streams/Rivers, Bay/Ocean, Artificial Wetlands	Montane-Piedmont Seepage Swamp, Montane Acidic Fen, Piedmont Seepage Wetland, Coastal Plain Seepage Acidic Fen, Tidal Salt Marsh and Shrubland, Coastal Plain Seepage Swamp, Piedmont Upland Depression Swamp, Delmarva Bay, Maritime Swamp, Montane-Piedmont Floodplain, Coastal Plain Floodplain, Intertidal Mudflat and Sand Flat, Tidal Forest, Tidal Brackish Marsh and Shrubland, Tidal Freshwater Marsh and Shrubland, Artificial Impoundment and Artificial Wetland	Mid
1.2	1 Development	1.2 Commercial & Industrial Areas		Unproductive former industrial/commercial lands	Explore the possibility of turning currently unproductive lands (capped landfills, old golf courses, dredged material containment facilities, etc.) into productive grassland habitat.	ALL	Working Lands, (Sub)urban	Artificial Structure - Mine and Tunnel, Managed Grassland	Low

Appendix 6b. Habitat-level threats and actions

IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable regions	Applicable habitat groups	Priority KWHs	Priority Level
1.3	1 Development	1.3 Tourism & Recreation Areas			Increase funding for additional staffing, public education efforts, and environmentally sensitive design with regards to recreational areas in or near important SGCN habitat.	ALL	CATCH-ALL		Low
1.3	1 Development	1.3 Tourism & Recreation Areas			Streamline process (e.g., waivers and permits) for public lands to implement "keep out zones" as needed to protect sensitive SGCN habitat.	ALL	CATCH-ALL		Low
1.3.1	1 Development	1.3 Tourism & Recreation Areas	1.3.1 Parks and sports fields		Work with municipal and county planning and zoning offices to ensure a balance of natural areas versus traditional recreational areas (e.g., sports fields).	ALL	CATCH-ALL	Urban and Suburban Environment	Low
1.3.1	1 Development	1.3 Tourism & Recreation Areas	1.3.1 Parks and sports fields		Discourage the use of artificial turf and promote/incentivize native turf grass alternatives.	ALL	CATCH-ALL	Urban and Suburban Environment	High
1.3.4	1 Development	1.3 Tourism & Recreation Areas	1.3.4 Recreational trails		Limit or more carefully place trails to protect forest interior dwelling species (FIDS) habitat and other sensitive areas.	ALL	Forests, Glades/Barrens/Cliffs, Floodplain Wetlands, Groundwater Wetlands, Streams/Rivers, Subterranean, Tidal Wetlands	Basic Mesic Forests, Cove Forest, Hemlock-Northern Hardwood Forest, Coastal Plain Oak Pine Forest, Oak-Hickory Forest, High Elevation Ridge Forest, Montane-Piedmont Oak-Pine Forest, Maritime Forest and Shrubland, Montane-Piedmont Seepage Swamp, Montane Acidic Fen, Piedmont Upland Depression Swamp, Maritime Swamp, Montane-Piedmont Floodplain, Coastal Plain Floodplain, Tidal Forest, Serpentine Barren, Shale Barren, Acidic Glade and Barren, Basic Glade and Barren, Cliff and Rock Outcrop	Low
2.1	2 Agriculture and Aquaculture	2.1 Annual & Perennial Non-Timber Crops			Work with the Maryland Department of Agriculture (MDA) and the University of Maryland Extension Office to diversify the agricultural landscape (in terms of scale, crops, etc.) by supporting "niche" crops, farmers markets, organic/regenerative farming practices, etc.	ALL	Working Lands	Managed Grassland	Mid

Appendix 6b. Habitat-level threats and actions

IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable regions	Applicable habitat groups	Priority KWHs	Priority Level
2.1.1	2 Agriculture and Aquaculture	2.1 Annual & Perennial Non-Timber Crops	2.1.1 Annual cropping systems (field crops)	Increase in biofuel crop production leads to habitat loss and fragmentation	Encourage development of biofuel crops on existing farmland.	ALL	Working Lands	Managed Grassland	High
2.2	2 Agriculture and Aquaculture	2.2 Plantations		Historical and current forest monocultures (i.e., pine plantations)	Work with state land managers and partner organizations to revert pine plantations to natural forest types, where possible, especially organizations with an interest in sustainable forest management.	ALL	Forests, Working Lands	Managed Montane Conifer Forest, Managed Successional Forest	Mid
2.4	2 Agriculture and Aquaculture	2.4 Marine & Freshwater Aquaculture			Design and site aquaculture facilities in a manner that positively impacts estuarine and marine ecosystems.	Eastern, Southern	Bay/Ocean	Atlantic Ocean	Mid
3	3 Energy Production			Fossil fuels	Continue and increase efforts to establish in-state mitigation funds to offset damages caused by fossil fuel extraction and related operations.	ALL	CATCH-ALL		High
3	3 Energy Production			Fossil fuels	Explore the feasibility of increased nuclear power generation through means such as small modular reactors, expanded capacity at existing sites, etc. Work with entities such as the Power Plant Research Program (PPRP) and Public Service Commission (PSC) to do so.	ALL	CATCH-ALL		Low
3	3 Energy Production			Fossil fuels: methane gas	Increase efforts to monitor, map, and mitigate methane gas leaks from various sources.	ALL	CATCH-ALL		High
3.1.2	3 Energy Production	3.1 Oil & Gas Drilling	3.1.2 Offshore oil development		Site (potential) offshore oil and gas drilling in a manner that avoids or minimizes impacts on marine habitats and SGCN.	Eastern	Bay/Ocean	Atlantic Ocean	Low
3.1.4	3 Energy Production	3.1 Oil & Gas Drilling	3.1.4 Onshore natural gas development		Evaluate the threats---biological, chemical, and physical---posed by (potential) hydraulic fracturing to habitats and SGCN.	Western	Streams/Rivers, Floodplain Wetlands, Glades/Barrens/Cliffs, Forests, Groundwater Wetlands, Artificial Wetlands	Cliff and Rock Outcrop, Cove Forest, Hemlock-Northern Hardwood Forest, Montane-Piedmont Floodplain, Montane-Piedmont Oak-Pine Forest, Montane-Piedmont Seepage Swamp, Piedmont Seepage Wetland, Montane Acidic Fen, Shale Barren	Low

Appendix 6b. Habitat-level threats and actions

IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable regions	Applicable habitat groups	Priority KWHs	Priority Level
3.1.4	3 Energy Production	3.1 Oil & Gas Drilling	3.1.4 Onshore natural gas development		Site (potential) hydrofracturing development in a manner that avoids or minimizes impacts on SGCN and their habitats, including impacts of hydraulic fracturing-related groundwater extraction.	Western	Streams/Rivers, Floodplain Wetlands, Glades/Barrens/Cliffs, Forests, Groundwater Wetlands, Artificial Wetlands	Cliff and Rock Outcrop, Cove Forest, Hemlock-Northern Hardwood Forest, Montane-Piedmont Floodplain, Montane-Piedmont Oak-Pine Forest, Montane-Piedmont Seepage Swamp, Piedmont Seepage Wetland, Montane Acidic Fen, Shale Barren	Low
3.2	3 Energy Production	3.2 Mining & Quarrying			Continue to carefully review new/updated mine plans, especially concerning potential impacts to sensitive habitat and SGCN.	Western	Working Lands, Subterranean		Low
3.3.2	3 Energy Production	3.3 Renewable Energy	3.3.2 Wind farms		Conduct research to determine the impacts of industrial wind development on SGCN and their habitats, both terrestrial and aquatic. Determine how to minimize and mitigate these impacts, as needed.	Western, Eastern	Forests, Bay/Ocean, Glades/Barrens/Cliffs	High Elevation Ridge Forest; Cliff and Rock Outcrop; Atlantic Ocean	High
3.3.2	3 Energy Production	3.3 Renewable Energy	3.3.2 Wind farms		Site industrial wind development in a manner that avoids or minimizes impacts on SGCN and their habitats.	Western, Eastern	Forests, Glades/Barrens/Cliffs, Bay/Ocean	High Elevation Ridge Forest; Cliff and Rock Outcrop; Atlantic Ocean	High
3.3.4	3 Energy Production	3.3 Renewable Energy	3.3.4 Solar farms		Continue to look into impacts of solar farms on various terrestrial and aquatic habitat types, including habitat fragmentation, groundwater recharge, runoff, and erosion. Potentially use findings to enact legislation that identifies "off-limit zones" for solar development.	ALL	Forests, Glades/Barrens/Cliffs, Floodplain Wetlands, Working Lands, Groundwater Wetlands	Montane-Piedmont Seepage Swamp, Montane Acidic Fen, Piedmont Seepage Wetland, Coastal Plain Seepage Acidic Fen, Coastal Plain Seepage Swamp, Piedmont Upland Depression Swamp, Coastal Plain Flatwood and Depression Swamp, Delmarva Bay, Maritime Swamp, Montane-Piedmont Floodplain, Coastal Plain Floodplain, Managed Grassland	Mid
3.3.4	3 Energy Production	3.3 Renewable Energy	3.3.4 Solar farms		Encourage (or require) solar development in areas that are already developed, rooftops, brownfields, etc. in order to minimize forest and grassland loss.	ALL	Forests, Glades/Barrens/Cliffs, Floodplain Wetlands, Working Lands, Groundwater Wetlands	Montane-Piedmont Seepage Swamp, Montane Acidic Fen, Piedmont Seepage Wetland, Coastal Plain Seepage Acidic Fen, Coastal Plain Seepage Swamp, Piedmont Upland Depression Swamp, Coastal Plain Flatwood and Depression Swamp, Delmarva Bay, Maritime Swamp, Montane-Piedmont Floodplain, Coastal Plain Floodplain, Managed Grassland	High

Appendix 6b. Habitat-level threats and actions

IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable regions	Applicable habitat groups	Priority KWHs	Priority Level
3.3.4	3 Energy Production	3.3 Renewable Energy	3.3.4 Solar farms		Site and design solar projects in a way that minimizes impacts on (and potentially benefits) SGCN and their habitats. Distribute guidelines and enforce regulations at the state level.	ALL	Forests, Glades/Barrens/Cliffs, Floodplain Wetlands, Working Lands, Groundwater Wetlands	Montane-Piedmont Seepage Swamp, Montane Acidic Fen, Piedmont Seepage Wetland, Coastal Plain Seepage Acidic Fen, Coastal Plain Seepage Swamp, Piedmont Upland Depression Swamp, Coastal Plain Flatwood and Depression Swamp, Delmarva Bay, Maritime Swamp, Montane-Piedmont Floodplain, Coastal Plain Floodplain, Managed Grassland	High
3.3.4	3 Energy Production	3.3 Renewable Energy	3.3.4 Solar farms		Consider incentive programs that could pay farmers to keep lands for agriculture rather than solar use. Alternatively, programs could incentivize particular kinds of solar farms that provide co-benefits to both humans and animals.	ALL	Working Lands	Managed Grassland	Mid
3.3.4	3 Energy Production	3.3 Renewable Energy	3.3.4 Solar farms		Implement demonstration projects on state-owned or state-partnered lands to showcase how solar arrays designed with a conservationist mindset can provide co-benefits to both humans and animals.	ALL	Working Lands, (Sub)urban	Managed Grassland	Mid
4.1	4 Transportation	4.1 Roads & Railroads			In order to minimize habitat fragmentation by transportation infrastructure, work with the Maryland Department of Transportation (MDOT) to improve transportation planning for new roads and encourage/facilitate additional opportunities for public transportation.	ALL	CATCH-ALL		Mid
4.1	4 Transportation	4.1 Roads & Railroads			Improve habitat connectivity in streams via blockage removal, culvert retrofit, and transportation BMPs.	ALL	Streams/Rivers, Floodplain Wetlands	Montane-Piedmont Floodplain, Coastal Plain Floodplain	High
4.1	4 Transportation	4.1 Roads & Railroads		Fish passage barriers	Require that barriers to fish passages be fixed within a certain time period once identified. Currently, there are fish passage barriers that have been unaddressed for decades on local and state roads.	ALL	Streams/Rivers, Floodplain Wetlands	Montane-Piedmont Floodplain, Coastal Plain Floodplain	Low

Appendix 6b. Habitat-level threats and actions

IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable regions	Applicable habitat groups	Priority KWHs	Priority Level
4.2	4 Transportation	4.2 Utility & Service Lines		Conversion of land to facilitate new energy transmission infrastructure (gas lines, powerlines, etc.)	Adhere to existing legislation regarding the siting of such projects on state lands.	ALL	Forests, Floodplain Wetlands, Streams/Rivers, (Sub)urban		High
4.2	4 Transportation	4.2 Utility & Service Lines		Conversion of land to facilitate new energy transmission infrastructure (gas lines, powerlines, etc.)	Further educate conservation groups regarding habitat conservation/protection from such projects.	ALL	Forests, Floodplain Wetlands, Streams/Rivers, (Sub)urban		Mid
4.2.1	4 Transportation	4.2 Utility & Service Lines	4.2.1 Power and service lines	Powerline rights-of-way for data centers and other industry	Evaluate potential impacts of data center corridors and work with appropriate regulatory agencies to avoid impacts.	Central, Western, Southern	Forests, Floodplain Wetlands, Streams/Rivers, (Sub)urban		High
4.3.2	4 Transportation	4.3 Shipping Lanes	4.3.2 Dredging of shipping lanes		Identify areas for and increase targeted placement of dredge material for habitat restoration, especially for islands and marshes.	Southern, Eastern, Central	Tidal Wetlands, Bay/Ocean, Coastal Beaches/Dunes	Small Coastal Plain Islands Tidal Brackish Marsh and Shrubland Tidal Salt Marsh and Shrubland	High
4.3.2	4 Transportation	4.3 Shipping Lanes	4.3.2 Dredging of shipping lanes		Work with appropriate agencies (e.g., Army Corps of Engineers [ACOE]) to improve permitting process for habitat restoration using dredged material.	Southern, Eastern, Central	Tidal Wetlands, Bay/Ocean, Coastal Beaches/Dunes	Small Coastal Plain Islands Tidal Brackish Marsh and Shrubland Tidal Salt Marsh and Shrubland	High
4.3.2	4 Transportation	4.3 Shipping Lanes	4.3.2 Dredging of shipping lanes		Improve coordination between relevant agencies (ACOE, MD DNR, etc.) to ensure that dredging occurs during appropriate times of year, dredged material is given beneficial use (i.e., habitat restoration), and dredge placement projects are properly maintained.	Southern, Eastern, Central	Tidal Wetlands, Bay/Ocean, Coastal Beaches/Dunes	Small Coastal Plain Islands Tidal Brackish Marsh and Shrubland Tidal Salt Marsh and Shrubland	High
5.3	5 Bio Resource Use	5.3 Logging & Wood Harvesting			Continue to encourage sustainable forestry practices among private landowners and foresters through programs like American Tree Farm System (ATFS) and Sustainable Forestry Initiative (SFI).	ALL	Forests	Basic Mesic Forest, Cove Forest, Hemlock-Northern Hardwood Forest, Coastal Plain Oak Pine Forest, Oak-Hickory Forest, High Elevation Ridge Forest, Montane-Piedmont Oak-Pine Forest	Low

Appendix 6b. Habitat-level threats and actions

IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable regions	Applicable habitat groups	Priority KWHs	Priority Level
5.3	5 Bio Resource Use	5.3 Logging & Wood Harvesting			Support properties managed for forest growth at both ends of the age spectrum (i.e., old growth forest and early successional habitat).	ALL	Forests, Working Lands	Basic Mesic Forest, Cove Forest, Hemlock-Northern Hardwood Forest, Coastal Plain Oak Pine Forest, Oak-Hickory Forest, High Elevation Ridge Forest, Montane-Piedmont Oak-Pine Forest	Mid
5.3	5 Bio Resource Use	5.3 Logging & Wood Harvesting			Protect remaining old growth forest (including adequate no-cut buffers) on public and private lands, and (where possible) expand these areas and promote the establishment of additional extensive tracts of old growth forest.	ALL	Forests	Basic Mesic Forest, Cove Forest, Hemlock-Northern Hardwood Forest, Coastal Plain Oak Pine Forest, Oak-Hickory Forest, High Elevation Ridge Forest, Montane-Piedmont Oak-Pine Forest	High
5.3	5 Bio Resource Use	5.3 Logging & Wood Harvesting			Increase enforcement regarding riparian buffer removal or culling. Consider tactics such as increased fines and streamlined violation reporting.	ALL	Forests, Floodplain Wetlands, Groundwater Wetlands, Tidal Wetlands, Artificial Wetlands, Streams/Rivers, Working Lands	Montane-Piedmont Seepage Swamp, Montane Acidic Fen, Piedmont Seepage Wetland, Coastal Plain Seepage Acidic Fen, Coastal Plain Seepage Swamp, Piedmont Upland Depression Swamp, Coastal Plain Flatwood and Depression Swamp, Delmarva Bay, Maritime Swamp, Montane-Piedmont Floodplain, Coastal Plain Floodplain	Mid
5.3	5 Bio Resource Use	5.3 Logging & Wood Harvesting			Coordinate with local forestry boards, private foresters, state foresters, etc. to ensure that forest workplans for sensitive rock outcrops are compatible with SGCN and habitat needs.	Western	Forests, Glades/Barrens/Cliffs	Cliff & Rock Outcrop, Shale Barrens, Serpentine Barren, Acidic Glade and Barren, Basic Glade and Barren	High
5.4.2	5 Bio Resource Use	5.4 Fishing & Harvesting Aquatic Resources	5.4.2 Commercial fishing		Work with counties, state agencies, etc. to better support "working waterfronts" (i.e., smaller scale fishing operations).	Central, Southern, Eastern	Bay/Ocean, Streams/Rivers, Floodplain Wetlands, Tidal Wetlands	Montane-Piedmont Floodplain, Coastal Plain Floodplain, Tidal Salt Marsh and Shrubland, Intertidal Mudflat and Sand Flat, Tidal Brackish Marsh and Shrubland, Tidal Freshwater Marsh and Shrubland	Mid
6.1	6 Human Intrusions	6.1 Recreational Activities			Build a culture of stewardship among natural area user groups through tactics such as roundtable meetings, inclusion in field work days, educational signage and talks, encouraging use in less sensitive areas, etc.	ALL	CATCH-ALL		Mid

Appendix 6b. Habitat-level threats and actions

IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable regions	Applicable habitat groups	Priority KWHs	Priority Level
6.1	6 Human Intrusions	6.1 Recreational Activities		Disturbance of sensitive beach and dune habitat	Create and implement a visitor use management plan for Assateague Island, as its beach and dune habitat is easily disturbed by hiking and off-road vehicle use.	Eastern	Coastal Beaches/Dunes, Forests	Maritime Forest and Shrubland, Maritime Dune and Grassland	Mid
6.1.1	6 Human Intrusions	6.1 Recreational Activities	6.1.1 Motor vehicles		Encourage and increase the number/quality of off-road vehicle trails in areas other than sensitive wetland habitats.	ALL	Floodplain Wetlands, Groundwater Wetlands, Tidal Wetlands	Montane-Piedmont Seepage Swamp, Montane Acidic Fen, Piedmont Seepage Wetland, Coastal Plain Seepage Acidic Fen, Coastal Plain Seepage Swamp, Montane-Piedmont Floodplain, Coastal Plain Floodplain	Low
6.1.3 / 6.1.7	6 Human Intrusions	6.1 Recreational Activities	6.1.3 Recreational use of cliffs and rock faces / 6.1.7 Caving		Better coordinate with the Office of Outdoor Recreation and climbing/spelunking groups to identify and increase understanding regarding sensitive areas where human disturbance is prohibited.	Western	Glades/Barrens/Cliffs, Subterranean	Cliff & Rock Outcrop, Shale Barrens, Serpentine Barren, Acidic Glade and Barren, Basic Glade and Barren	High
6.3.3	6 Human Intrusions	6.3 Work & Other Activities	6.3.3 Vandalism		Decrease cave vandalism/breaking and entering through tactics such as emergency gating, cameras, increased signage, and improved response time. Explore options for funding these interventions.	Western	Subterranean	Cave and Karst	High
7.1.2	7 Natural System Modifications	7.1 Fire & Fire Suppression	7.1.2 Suppression in the fire regime		Work with new prescribed fire groups to restore and maintain habitat by re-establishing natural fire regimes (where feasible), particularly to control woody vegetation and canopy closure. Push for increased training and regulatory changes, as needed.	ALL	Forests, Working Lands, Glades/Barrens/Cliffs, Groundwater Wetlands	Coastal Plain Oak-Pine Forest, High Elevation Ridge Forest, Montane-Piedmont Oak-Pine Forest, Serpentine Barren, Shale Barren, Acidic Glade and Barren, Basic Glade and Barren	Mid
7.1.2	7 Natural System Modifications	7.1 Fire & Fire Suppression	7.1.2 Suppression in the fire regime		Continue to improve land management for better oak regeneration, especially through prescribed burning.	ALL	Forests	Coastal Plain Oak-Pine Forest, High Elevation Ridge Forest, Montane-Piedmont Oak-Pine Forest, Maritime Forest and Shrubland	Low
7.2	7 Natural System Modifications	7.2 Dams & Water Management / Use			Strengthen protections for wetlands against drainage, ditching, filling, water withdrawal, excessive raising of water levels, and other damaging practices that alter hydrology.	ALL	Floodplain Wetlands, Groundwater Wetlands, Tidal Wetlands	Montane-Piedmont Seepage Swamp, Montane Acidic Fen, Piedmont Seepage Wetland, Coastal Plain Seepage Acidic Fen, Coastal Plain Seepage Swamp, Montane-Piedmont Floodplain, Coastal Plain Floodplain	Mid

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IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable regions	Applicable habitat groups	Priority KWHs	Priority Level
7.2	7 Natural System Modifications	7.2 Dams & Water Management / Use			For habitats already affected by damaging, hydrology-altering practices, restore natural hydrology through structural interventions (e.g., plugging ditches).	ALL	Floodplain Wetlands, Groundwater Wetlands, Tidal Wetlands, Streams/Rivers	Montane-Piedmont Seepage Swamp, Montane Acidic Fen, Piedmont Seepage Wetland, Coastal Plain Seepage Acidic Fen, Coastal Plain Seepage Swamp, Montane-Piedmont Floodplain, Coastal Plain Floodplain	High
7.2	7 Natural System Modifications	7.2 Dams & Water Management / Use			Retrofit dams and other river blockages with functional fish ladders. Focus efforts on improved design and methods of excluding/sorting invasive species.	ALL	Streams/Rivers, Floodplain Wetlands	Montane-Piedmont Floodplain, Coastal Plain Floodplain	Mid
7.2.6 / 7.2.7	7 Natural System Modifications	7.2 Dams & Water Management / Use	7.2.6 Withdrawal of surface water / 7.2.7 Withdrawal of groundwater	Groundwater use and surface water withdrawals can reduce surface water quantity and quality	Work with appropriate regulatory agencies to understand the impacts of water withdrawals (both ground and surface) on surface water quantity and quality; pursue measures to minimize these impacts.	Central, Western	Floodplain Wetlands, Groundwater Wetlands, Streams/Rivers, Subterranean	Montane-Piedmont Seepage Swamp, Montane Acidic Fen, Piedmont Seepage Wetland, Coastal Plain Seepage Acidic Fen, Coastal Plain Seepage Swamp, Montane-Piedmont Floodplain, Coastal Plain Floodplain	Mid
7.2.7	7 Natural System Modifications	7.2 Dams & Water Management / Use	7.2.7 Withdrawal of groundwater		Decrease groundwater extraction and aquifer depletion through tactics such as careful monitoring/metering, encouraging "precision agriculture" techniques that use less water, and updating withdrawal limits based on the most current research.	ALL	Floodplain Wetlands, Groundwater Wetlands, Tidal Wetlands, Streams/Rivers, Subterranean, Working Lands	Montane-Piedmont Seepage Swamp, Montane Acidic Fen, Piedmont Seepage Wetland, Coastal Plain Seepage Acidic Fen, Coastal Plain Seepage Swamp, Montane-Piedmont Floodplain, Coastal Plain Floodplain	Mid
7.3	7 Natural System Modifications	7.3 Other Ecosystem Modifications			Reduce stream channelization, ditching, and impoundments, which reduce access to spawning areas and take away habitat.	ALL	Streams/Rivers, Tidal Wetlands, Floodplain Wetlands	Montane-Piedmont Floodplain, Coastal Plain Floodplain, Tidal Salt Marsh and Shrubland, Intertidal Mudflat and Sand Flat, Tidal Forest, Tidal Freshwater Marsh and Shrubland, Tidal Salt Marsh and Shrubland	Mid
7.3	7 Natural System Modifications	7.3 Other Ecosystem Modifications		Inappropriate timing of mowing (public lands and large parcels)	Coordinate with utility companies and land managers to promote longer treatment intervals of vegetation in powerline rights-of-way and other grassy areas. Include an education component regarding the benefits of related practices such as the use of native plants, bird boxes, Integrated Pest Management (IPM), etc.	ALL	Working Lands, (Sub)urban	Roadside and Utility Right-of-Way, Managed Grassland	High

Appendix 6b. Habitat-level threats and actions

IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable regions	Applicable habitat groups	Priority KWHs	Priority Level
7.3	7 Natural System Modifications	7.3 Other Ecosystem Modifications		Incompatible ordinances for mowing/vegetation height	Enact legislation and/or create incentives that require/encourage large landowners (farmers, municipalities, counties, etc.) to change the timing and frequency of mowing in order to balance maintenance needs with wildlife habitat.	ALL	Working Lands, (Sub)urban	Roadside and Utility Right-of-Way, Managed Grassland	Mid
7.3	7 Natural System Modifications	7.3 Other Ecosystem Modifications		Over-mowing and over-raking (residential areas)	Utilize existing (e.g., Wild Acres) and new educational materials/programs to emphasize the negative impacts of over-mowing and over-raking on the biodiversity of residential landscapes, including the benefits of traditional yard alternatives. Education will need to be done at both the municipal and landowner level in order to address legal barriers (e.g., grass height ordinances) and public perception.	ALL	Working Lands, (Sub)urban	Urban and Suburban Environment, Managed Grassland	High
7.3	7 Natural System Modifications	7.3 Other Ecosystem Modifications		Stream restoration practices	Increase (requirements for) collaboration on stream restoration projects; well-designed projects can restore natural hydrology and related biological uplift, but poorly designed stream restorations can reduce important forest habitat. Potentially develop incentives for biological integrity improvements as well as water quality credits.	ALL	Streams/Rivers, Floodplain Wetlands	Montane-Piedmont Floodplain, Coastal Plain Floodplain	Mid
7.3	7 Natural System Modifications	7.3 Other Ecosystem Modifications		Stream restoration practices	Strengthen the requirements for and influence of pre-restoration assessments for stream restoration projects, especially in SGCN-critical habitat.	ALL	Streams/Rivers, Floodplain Wetlands	Montane-Piedmont Floodplain, Coastal Plain Floodplain	Mid
7.3.1	7 Natural System Modifications	7.3 Other Ecosystem Modifications	7.3.1 Shoreline alteration		Work with the Maryland Department of the Environment (MDE) to review and strengthen living shoreline requirements and documentation (such as design manuals).	Central, Southern, Eastern	Bay/Ocean, Streams/Rivers, Coastal Beaches/Dunes, Tidal Wetlands, Forests	Montane-Piedmont Floodplain, Coastal Plain Floodplain	Low

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IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable regions	Applicable habitat groups	Priority KWHs	Priority Level
7.3.1	7 Natural System Modifications	7.3 Other Ecosystem Modifications	7.3.1 Shoreline alteration		Continue to update "living shoreline" guidelines, processes (especially for permitting), and educational materials. Create more incentives for private properties to adopt this approach.	Central, Southern, Eastern	Bay/Ocean, Streams/Rivers, Coastal Beaches/Dunes, Tidal Wetlands, Forests	Maritime Forest and Shrubland, Maritime Dune and Grassland, Tidal Salt Marsh and Shrubland, Intertidal Mudflat and Sand Flat, Tidal Forest, Tidal Brackish Marsh and Shrubland, Tidal Freshwater Marsh and Shrubland	Low
7.3.2	7 Natural System Modifications	7.3 Other Ecosystem Modifications	7.3.2 Vegetation succession		Restore high elevation, spruce-dominated forests, especially on ridgelines.	Western	Forests, Groundwater Wetlands	High Elevation Ridge Forest, Montane Acidic Fen	Low
7.3.2	7 Natural System Modifications	7.3 Other Ecosystem Modifications	7.3.2 Vegetation succession	Decline in early- and mid-successional forest	Actively manage for early- and mid-successional habitat in certain areas. Use herbicide in a targeted way to suppress development of taller trees until shrub lay develops.	ALL	Forests, Working Lands		Low
7.3.3	7 Natural System Modifications	7.3 Other Ecosystem Modifications	7.3.3 Natural erosion and sedimentation		Further research and promote natural, less traditional solutions to shoreline erosion and sedimentation such as leaving fallen trees, building up oyster reefs, restoring dunes, using "reef balls," etc.	Central, Southern, Eastern	Bay/Ocean, Streams/Rivers, Coastal Beaches/Dunes, Floodplain Wetlands, Tidal Wetlands	Montane-Piedmont Floodplain, Coastal Plain Floodplain, Intertidal Mudflat and Sand Flat, Tidal Forest, Tidal Brackish Marsh and Shrubland, Coastal Beach	High
7.3.4	7 Natural System Modifications	7.3 Other Ecosystem Modifications	7.3.4 Beach development		Promote natural overwash processes in some areas by removing (man-made) impediments and limiting practices like beach nourishment.	Eastern	Coastal Beaches/Dunes, Forests	Maritime Forest and Shrubland, Maritime Dune and Grassland	Low
8	8 Invasive and Problematic Species				Increase education and outreach efforts regarding invasive species reporting, invasive plant removal, and tree disease/pest control. Consider tactics such as the promotion of community monitoring efforts (through iNaturalist, Maryland Biodiversity Project, etc.); increased signage on public lands; and other centralized reporting websites/apps.	ALL	Forests, Floodplain Wetlands, Groundwater Wetlands, Tidal Wetlands, Artificial Wetlands, Streams/Rivers, Working Lands, (Sub)urban	Basic Mesic Forest, Cove Forest, Oak-Hickory Forest, Shale Barren, Basic Glade and Barren, Montane-Piedmont Seepage Swamp, Piedmont Seepage Wetland, Coastal Plain Seepage Acidic Fen, Coastal Plain Seepage Swamp, Piedmont Upland Depression Swamp, Coastal Plain Flatwood and Depression Swamp, Montane-Piedmont Floodplain, Coastal Plain Floodplain, Roadside and Utility Right-of-way, Artificial Impoundment and Artificial Wetland	Mid

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IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable regions	Applicable habitat groups	Priority KWHs	Priority Level
8	8 Invasive and Problematic Species			Tree diseases and pests	Continue to support research on location, spread, and potential control measures for tree diseases.	ALL	Forests, Floodplain Wetlands, Groundwater Wetlands, (Sub)urban	Basic Mesic Forest, Cove Forest, Oak-Hickory Forest, Shale Barren, Basic Glade and Barren, Montane-Piedmont Basic Seepage Swamp, Montane-Piedmont Floodplain, Coastal Plain Floodplain, Tidal Forest, Cove Forest, Hemlock-Northern Hardwood Forest, Montane-Piedmont Seepage Swamp	Mid
8.1	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals			Work with MDA to streamline the process for adding plants to the invasive list, which will in turn phase them out of the ecosystem more quickly.	ALL	Forests, Floodplain Wetlands, Groundwater Wetlands, Tidal Wetlands, Artificial Wetlands, Streams/Rivers, Working Lands, (Sub)urban	Basic Mesic Forest, Cove Forest, Oak-Hickory Forest, Montane-Piedmont Basic Seepage Swamp, Montane-Piedmont Floodplain, Coastal Plain Floodplain, Tidal Forest, Cove Forest, Hemlock-Northern Hardwood Forest, Montane-Piedmont Seepage Swamp	Mid
8.1	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals			Increase MD DNR's capacity for invasive species monitoring and management by funding data analysis efforts (animals), deepening involvement with preexisting removal efforts (plants), and encouraging staff to get certified in herbicide application (plants).	ALL	CATCH-ALL		High
8.1	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals			Better coordinate invasive species monitoring and management efforts through evidence-based, localized plans. Utilize existing partnerships (e.g., National Capital PRISM) and create new ones in order to share resources, prioritize areas/actions, have a stable volunteer base, and create lasting partnerships.	ALL	CATCH-ALL		Mid
8.1.1	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.1 Terrestrial animals	Hemlock wooly adelgid	Continue to research the effects of adelgid-related loss of eastern hemlock forest on species populations. Continue to implement treatment measures that minimize these effects.	Western, Central	Forests, Floodplain Wetlands, Groundwater Wetlands, Streams/Rivers	Cove Forest, Hemlock-Northern Hardwood Forest, Montane-Piedmont Seepage Swamp, Coldwater Stream	Mid
8.1.1	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.1 Terrestrial animals	Predation from domestic cats	Continue to educate the public on effects of free-ranging cats on wildlife. Research population management options other than trap-neuter-release programs.	ALL	CATCH-ALL	Urban and Suburban Environment	Mid

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IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable regions	Applicable habitat groups	Priority KWHs	Priority Level
8.1.2	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.2 Terrestrial plants		Support the refining and implementation of state-level invasive species legislation.	ALL	CATCH-ALL		High
8.1.2	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.2 Terrestrial plants		Continue and increase targeted efforts regarding invasive species removal, especially on state lands.	ALL	CATCH-ALL		High
8.1.2	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.2 Terrestrial plants		Prioritize the planting of and education about native plants, especially on state-owned properties.	ALL	CATCH-ALL		High
8.1.2	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.2 Terrestrial plants		Increase native plant cover (grasses, shrubs, trees, etc.) by incentivizing nurseries to stock native plants; expand existing programs (such as MD DNR's native tree coupon) and create new ones, as needed.	ALL	Forests, (Sub)urban, Working Lands, Floodplain Wetlands, Groundwater Wetlands, Glades/Barrens/Cliffs	Basic Mesic Forest, Cove Forest, Oak-Hickory Forest, Shale Barren, Basic Glade and Barren, Montane-Piedmont Basic Seepage Swamp, Montane-Piedmont Floodplain, Coastal Plain Floodplain, Tidal Forest, Cove Forest, Hemlock-Northern Hardwood Forest, Montane-Piedmont Seepage Swamp	High
8.1.2	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.2 Terrestrial plants		Explore the feasibility of banning the sale of invasive plant species.	ALL	CATCH-ALL		High
8.1.2	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.2 Terrestrial plants		In order to slow the spread of invasive species, ensure that native plants are re-established soon after invasive plant removal efforts. Discourage tree harvesting in forests with no invasive plants as well.	ALL	Forests, Groundwater Wetlands, Floodplain Wetlands, Tidal Wetlands	Basic Mesic Forest, Cove Forest, Oak-Hickory Forest, Montane-Piedmont Basic Seepage Swamp, Montane-Piedmont Floodplain, Coastal Plain Floodplain, Tidal Forest, Cove Forest, Hemlock-Northern Hardwood Forest, Montane-Piedmont Seepage Swamp	Mid
8.1.2	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.2 Terrestrial plants		Control invasive plants and provide habitat for pollinators by creating and managing grassy habitat areas along roads, adjacent to cropland, in utility right-of-way areas, etc. with locally native seed mixes. Base future projects on successes along Route 1 corridor.	ALL	(Sub)urban, Working Lands	Roadside and Utility Right-of-way, Managed Grassland	Low

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IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable regions	Applicable habitat groups	Priority KWHs	Priority Level
8.1.2	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.2 Terrestrial plants	Common reed (<i>Phragmites</i>)	Improve coordination between relevant landowners and agencies in order to better manage common reed (<i>Phragmites</i>) (e.g., for Assateague, parties to better coordinate would be Assateague Island State Park and National Seashore).	Central, Southern, Eastern	Coastal Beaches/Dunes, Tidal Wetlands, Floodplain Wetlands, Artificial Wetlands, Working Lands, (Sub)urban, Groundwater Wetlands	Maritime Dune and Grassland, Maritime Swamp, Montane-Piedmont Floodplain, Tidal Freshwater Marsh and Shrubland, Piedmont Seepage Wetland, Artificial Impoundment and Artificial Wetland	Low
8.1.2 / 8.1.4	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.2 Terrestrial plants / 8.1.4 Aquatic plants		Create visitation management plans for public lands in order to reduce the spread of invasive plants (e.g., brush/shoe wash stations).	ALL	CATCH-ALL		Low
8.1.3	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.3 Aquatic animals		Continue to promote the use (i.e., consumption) of invasive species within seasonally appropriate times/places.	ALL	Streams/Rivers, Bay/Ocean, Artificial Wetlands, Groundwater Wetlands, Tidal Wetlands, Floodplain Wetlands	Maritime Dune and Grassland, Maritime Swamp, Montane-Piedmont Floodplain, Tidal Freshwater Marsh and Shrubland, Piedmont Seepage Wetland, Artificial Impoundment and Artificial Wetland	Low
8.1.3 / 8.1.4	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals	8.1.3 Aquatic animals / 8.1.4 Aquatic plants		Emphasize invasive species treatment at the watershed level rather than on a location-by-location basis.	ALL	Streams/Rivers, Bay/Ocean, Artificial Wetlands, Groundwater Wetlands, Tidal Wetlands, Floodplain Wetlands	Maritime Dune and Grassland, Maritime Swamp, Montane-Piedmont Floodplain, Tidal Freshwater Marsh and Shrubland, Piedmont Seepage Wetland, Artificial Impoundment and Artificial Wetland	Mid
8.1 / 8.2	8 Invasive and Problematic Species	8.1 Invasive Non-Native / Alien Plants & Animals / 8.2 Problematic Native Plants & Animals			Continue to manage all invasive non-native and problematic native plants and animals impacting key wildlife habitats.	ALL	CATCH-ALL		Low
8.2.2	8 Invasive and Problematic Species	8.2 Problematic Native Plants & Animals	8.2.2 Increased grazing by vertebrates	White-tailed deer	Continue to manage deer populations through education and outreach techniques, including: recruiting hunters; encouraging increased hunting throughout the season; increasing messaging on the importance of hunting, sharpshooter programs, and the like; and emphasizing the harvesting of does.	ALL	Forests, Glades/Barrens/Cliffs, Working Lands, (Sub)urban, Floodplain Wetlands, Groundwater Wetlands, Tidal Wetlands		High

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IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable regions	Applicable habitat groups	Priority KWHs	Priority Level
8.2.2	8 Invasive and Problematic Species	8.2 Problematic Native Plants & Animals	8.2.2 Increased grazing by vertebrates	White-tailed deer	Promote currently underutilized deer management techniques, including Deer Management Permits (DMPs) and Deer Cooperator Licenses and Permits (DCLs/DCPs, i.e., sharpshooter permits). Focus on more suburban areas as well as rural.	ALL	Forests, Glades/Barrens/Cliffs, Working Lands, (Sub)urban, Floodplain Wetlands, Groundwater Wetlands, Tidal Wetlands		High
8.2.2	8 Invasive and Problematic Species	8.2 Problematic Native Plants & Animals	8.2.2 Increased grazing by vertebrates	White-tailed deer	Address hunter access challenges by incentivizing private landowners to partner with hunters, and/or have MD DNR act as go-between to better connect hunters to land.	ALL	Forests, Glades/Barrens/Cliffs, Working Lands, (Sub)urban, Floodplain Wetlands, Groundwater Wetlands, Tidal Wetlands		High
8.2.2	8 Invasive and Problematic Species	8.2 Problematic Native Plants & Animals	8.2.2 Increased grazing by vertebrates	White-tailed deer	Research the feasibility of more widespread deer exclosure areas, both in terms of impact and potential funding.	ALL	Forests, Glades/Barrens/Cliffs, Working Lands, (Sub)urban, Floodplain Wetlands, Groundwater Wetlands, Tidal Wetlands		High
8.2.2	8 Invasive and Problematic Species	8.2 Problematic Native Plants & Animals	8.2.2 Increased grazing by vertebrates	White-tailed deer	Continue to explore new deer management techniques, such as increased harvest-to-donation opportunities and expanded hunting seasons in targeted conservation areas.	ALL	Forests, Glades/Barrens/Cliffs, Working Lands, (Sub)urban, Floodplain Wetlands, Groundwater Wetlands, Tidal Wetlands		High
8.2.2	8 Invasive and Problematic Species	8.2 Problematic Native Plants & Animals	8.2.2 Increased grazing by vertebrates	Feral horses (Assateague Island)	Re-establish and implement a vigorous vegetation monitoring plan in salt marshes (i.e., Assateague Island and surroundings) to ensure feral horses are not causing overgrazing.	Eastern	Coastal Beaches/Dunes, Tidal Wetlands, Forests	Coastal Beach, Maritime Forest and Shrubland, Maritime Dune and Grassland	Low
8.2.2	8 Invasive and Problematic Species	8.2 Problematic Native Plants & Animals	8.2.2 Increased grazing by vertebrates	Resident (Canada) geese	Increase efforts to control resident geese, which are negatively impacting marsh vegetation (e.g., along the Patuxent River).	ALL	Floodplain Wetlands, Groundwater Wetlands, Tidal Wetlands, Artificial Wetlands	Artificial Impoundment and Artificial Wetland, Piedmont Seepage Wetland, Coastal Plain Floodplain, Intertidal Mudflat and Sand Flat, Tidal Brackish Marsh and Shrubland, Tidal Salt Marsh and Shrubland, Tidal Freshwater Marsh and Shrubland	High
8.4	8 Invasive and Problematic Species	8.4 Pathogens		Unknown/unstudied diseases	Continue to support research to monitor wildlife health and identify emerging zoonotic diseases.	ALL	CATCH-ALL		High

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IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable regions	Applicable habitat groups	Priority KWHs	Priority Level
9	9 Pollution				Better assess and manage instances of point source pollution such as landfills, combined sewer overflows, leaking sewers/septic, residual pharmaceuticals, etc..	ALL	Floodplain Wetlands, Groundwater Wetlands, Tidal Wetlands, Artificial Wetlands, Streams/Rivers, Bay/Ocean, (Sub)urban	Piedmont Seepage Wetland, Coastal Plain Seepage Acidic Fen, Tidal Salt Marsh and Shrubland, Coastal Plain Seepage Swamp, Maritime Swamp, Montane-Piedmont Floodplain, Coastal Plain Floodplain, Intertidal Mudflat and Sand Flat, Tidal Forest, Tidal Brackish Marsh and Shrubland, Tidal Freshwater Marsh and Shrubland, Artificial Impoundment and Artificial Wetland	High
9	9 Pollution				Conduct expansive studies or literature reviews to understand threats posed by contaminants of emerging concern (CECs) to aquatic SGCN. CECs include per- and polyfluoroalkyl substances (PFAS), 6PPD(-quinone), microplastics, endocrine-disrupting chemicals (EDCs), sludge/biosolids, etc.	ALL	Floodplain Wetlands, Groundwater Wetlands, Tidal Wetlands, Artificial Wetlands, Streams/Rivers, Bay/Ocean	Piedmont Seepage Wetland, Coastal Plain Seepage Acidic Fen, Tidal Salt Marsh and Shrubland, Coastal Plain Seepage Swamp, Maritime Swamp, Montane-Piedmont Floodplain, Coastal Plain Floodplain, Intertidal Mudflat and Sand Flat, Tidal Forest, Tidal Brackish Marsh and Shrubland, Tidal Freshwater Marsh and Shrubland, Artificial Impoundment and Artificial Wetland	Mid
9	9 Pollution				Set temperature Total Maximum Daily Load (TMDL) for coldwater streams; require full infiltration and no discharge of untreated stormwater.	Central, Western	Streams/Rivers	Coldwater Stream	High
9	9 Pollution			PFAS	Work with MDE to further reduce the use of PFAS and other endocrine disrupting chemicals.	ALL	CATCH-ALL		Low
9.1.1	9 Pollution	9.1 Domestic & Urban waste water	9.1.1 Domestic wastewater		Better engage with utility companies and owners of septic systems (especially in riparian zones) in order to identify solutions to failed/failing wastewater infrastructure. To ensure future failures do not occur, work with government entities and NGOs in order to brainstorm, create, and enforce higher standards for maintenance and inspection.	ALL	Floodplain Wetlands, Groundwater Wetlands, Tidal Wetlands, Artificial Wetlands, Streams/Rivers	Piedmont Seepage Wetland, Coastal Plain Seepage Acidic Fen, Tidal Salt Marsh and Shrubland, Coastal Plain Seepage Swamp, Maritime Swamp, Montane-Piedmont Floodplain, Coastal Plain Floodplain, Intertidal Mudflat and Sand Flat, Tidal Forest, Tidal Brackish Marsh and Shrubland, Tidal Freshwater Marsh and Shrubland, Artificial Impoundment and Artificial Wetland	High

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IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable regions	Applicable habitat groups	Priority KWHs	Priority Level
9.1.1	9 Pollution	9.1 Domestic & Urban waste water	9.1.1 Domestic wastewater		Require small water treatment plants to follow the same regulations as larger plants. Improve funding for upgrades to these plants as needed.	ALL	Floodplain Wetlands, Groundwater Wetlands, Tidal Wetlands, Artificial Wetlands, Streams/Rivers	Piedmont Seepage Wetland, Coastal Plain Seepage Acidic Fen, Tidal Salt Marsh and Shrubland, Coastal Plain Seepage Swamp, Maritime Swamp, Montane-Piedmont Floodplain, Coastal Plain Floodplain, Intertidal Mudflat and Sand Flat, Tidal Forest, Tidal Brackish Marsh and Shrubland, Tidal Freshwater Marsh and Shrubland, Artificial Impoundment and Artificial Wetland	Mid
9.1.2	9 Pollution	9.1 Domestic & Urban waste water	9.1.2 Runoff		Increase construction requirements for retention areas to better capture toxics in runoff, focusing on particularly sensitive areas.	ALL	Floodplain Wetlands, Groundwater Wetlands, Tidal Wetlands, Artificial Wetlands, Streams/Rivers	Piedmont Seepage Wetland, Coastal Plain Seepage Acidic Fen, Tidal Salt Marsh and Shrubland, Coastal Plain Seepage Swamp, Maritime Swamp, Montane-Piedmont Floodplain, Coastal Plain Floodplain, Intertidal Mudflat and Sand Flat, Tidal Forest, Tidal Brackish Marsh and Shrubland, Tidal Freshwater Marsh and Shrubland, Artificial Impoundment and Artificial Wetland	High
9.1.2	9 Pollution	9.1 Domestic & Urban waste water	9.1.2 Runoff		Develop more incentives for green infrastructure projects, especially those related to stormwater management. Prioritize pervious surfaces and reduce impervious surfaces when possible.	ALL	Floodplain Wetlands, Groundwater Wetlands, Tidal Wetlands, Artificial Wetlands, Streams/Rivers	Piedmont Seepage Wetland, Coastal Plain Seepage Acidic Fen, Tidal Salt Marsh and Shrubland, Coastal Plain Seepage Swamp, Maritime Swamp, Montane-Piedmont Floodplain, Coastal Plain Floodplain, Intertidal Mudflat and Sand Flat, Tidal Forest, Tidal Brackish Marsh and Shrubland, Tidal Freshwater Marsh and Shrubland, Artificial Impoundment and Artificial Wetland	High
9.1.2	9 Pollution	9.1 Domestic & Urban waste water	9.1.2 Runoff		Promote and support "Bay-wise" landscaping practices, particularly through demonstration projects (e.g., rain gardens, bioswales, etc.) in highly visible locations.	ALL	Floodplain Wetlands, Groundwater Wetlands, Tidal Wetlands, Artificial Wetlands, Streams/Rivers	Piedmont Seepage Wetland, Coastal Plain Seepage Acidic Fen, Tidal Salt Marsh and Shrubland, Coastal Plain Seepage Swamp, Maritime Swamp, Montane-Piedmont Floodplain, Coastal Plain Floodplain, Intertidal Mudflat and Sand Flat, Tidal Forest, Tidal Brackish Marsh and Shrubland, Tidal Freshwater Marsh and Shrubland, Artificial Impoundment and Artificial Wetland	High

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IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable regions	Applicable habitat groups	Priority KWHs	Priority Level
9.1.2	9 Pollution	9.1 Domestic & Urban waste water	9.1.2 Runoff		Phase out the "grandfathering" approach and other exceptions for stormwater and bioretention requirements.	ALL	Floodplain Wetlands, Groundwater Wetlands, Tidal Wetlands, Artificial Wetlands, Streams/Rivers	Piedmont Seepage Wetland, Coastal Plain Seepage Acidic Fen, Tidal Salt Marsh and Shrubland, Coastal Plain Seepage Swamp, Maritime Swamp, Montane-Piedmont Floodplain, Coastal Plain Floodplain, Intertidal Mudflat and Sand Flat, Tidal Forest, Tidal Brackish Marsh and Shrubland, Tidal Freshwater Marsh and Shrubland, Artificial Impoundment and Artificial Wetland	Mid
9.1.2	9 Pollution	9.1 Domestic & Urban waste water	9.1.2 Runoff	Impacts from construction	Establish guidance and regulation to reduce the impact of stormwater both during and after construction for properties of all sizes.	ALL	Floodplain Wetlands, Groundwater Wetlands, Tidal Wetlands, Artificial Wetlands, Streams/Rivers	Piedmont Seepage Wetland, Coastal Plain Seepage Acidic Fen, Tidal Salt Marsh and Shrubland, Coastal Plain Seepage Swamp, Maritime Swamp, Montane-Piedmont Floodplain, Coastal Plain Floodplain, Intertidal Mudflat and Sand Flat, Tidal Forest, Tidal Brackish Marsh and Shrubland, Tidal Freshwater Marsh and Shrubland, Artificial Impoundment and Artificial Wetland	Mid
9.1.2	9 Pollution	9.1 Domestic & Urban waste water	9.1.2 Runoff	6-PPD and 6-PPDQ	Test streams where brook trout currently/historically are/were present for the presence of 6PPD and 6PPD-Q.	Central, Western	Streams/Rivers	Coldwater Stream	Low
9.1.2	9 Pollution	9.1 Domestic & Urban waste water	9.1.2 Runoff	Road salt	Assess impacts from road salt and develop abatement measures, including changes to MDE's chloride criteria. Assess and prioritize areas of greatest concern.	ALL	Floodplain Wetlands, Groundwater Wetlands, Tidal Wetlands, Artificial Wetlands, Streams/Rivers, Bay/Ocean	Piedmont Seepage Wetland, Coastal Plain Seepage Acidic Fen, Tidal Salt Marsh and Shrubland, Coastal Plain Seepage Swamp, Maritime Swamp, Montane-Piedmont Floodplain, Coastal Plain Floodplain, Intertidal Mudflat and Sand Flat, Tidal Forest, Tidal Brackish Marsh and Shrubland, Tidal Freshwater Marsh and Shrubland, Artificial Impoundment and Artificial Wetland	Mid
9.1.2	9 Pollution	9.1 Domestic & Urban waste water	9.1.2 Runoff	Chemicals (polycyclic aromatic hydrocarbons [PAHs], metals) in road materials or that run off vehicles	Work with appropriate regulatory agencies to understand the potential magnitude and extent of road chemicals. Propose the use of alternative, aquatic species-friendly materials instead.	ALL	Floodplain Wetlands, Groundwater Wetlands, Tidal Wetlands, Artificial Wetlands, Streams/Rivers, Bay/Ocean	Piedmont Seepage Wetland, Coastal Plain Seepage Acidic Fen, Tidal Salt Marsh and Shrubland, Coastal Plain Seepage Swamp, Maritime Swamp, Montane-Piedmont Floodplain, Coastal Plain Floodplain, Intertidal Mudflat and Sand Flat, Tidal Forest, Tidal Brackish Marsh and Shrubland, Tidal Freshwater Marsh and Shrubland, Artificial Impoundment and Artificial Wetland	Mid

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IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable regions	Applicable habitat groups	Priority KWHs	Priority Level
9.2	9 Pollution	9.2 Industrial & Military Effluents		Toxic chemicals from factories, illegal dumping of chemicals, other industrial effluent, ship waste discharge	Continue to work to reduce dumping of toxic chemicals in the Atlantic Ocean through various means (e.g., educational, regulatory, etc.).	Eastern	Bay/Ocean	Atlantic Ocean	Low
9.2.1	9 Pollution	9.2 Industrial & Military Effluents	9.2.1 Oil spills		Maintain capacity for efficient oil spill response through increased trainings. Perform "mock spill" trainings with Occupational Safety and Health Administration (OSHA) education center.	Southern, Eastern, Central	Bay/Ocean, Streams/Rivers, Coastal Beaches/Dunes, Tidal Wetlands, Groundwater Wetlands, Floodplain Wetlands, Artificial Wetlands	Coastal Plain Seepage Acidic Fen, Tidal Salt Marsh and Shrubland, Coastal Plain Seepage Swamp, Maritime Swamp, Coastal Plain Floodplain, Intertidal Mudflat and Sand Flat, Tidal Forest, Tidal Brackish Marsh and Shrubland, Tidal Freshwater Marsh and Shrubland, Artificial Impoundment and Artificial Wetland	Low
9.2.2	9 Pollution	9.2 Industrial & Military Effluents	9.2.2 Acid mine drainage		Continue to minimize acid mine drainage and mitigate damages resulting from such drainage.	Western	Groundwater Wetlands, Streams/Rivers, Artificial Wetlands, Floodplain Wetlands, Subterranean	Montane-Piedmont Floodplain, Montane-Piedmont Seepage Swamp, Montane Acidic Fen	Mid
9.3	9 Pollution	9.3 Agricultural & Forestry Effluents			Work with watershed groups, farmers, and large landowners to establish and maintain adequate forest buffers along rivers, streams, and wetlands (i.e., riparian buffers). Tactics could include additional incentives and/or education. Focus especially in agricultural areas.	ALL	Forests, Floodplain Wetlands, Groundwater Wetlands, Tidal Wetlands, Artificial Wetlands, Streams/Rivers, Working Lands	Piedmont Seepage Wetland, Coastal Plain Seepage Acidic Fen, Tidal Salt Marsh and Shrubland, Coastal Plain Seepage Swamp, Maritime Swamp, Montane-Piedmont Floodplain, Coastal Plain Floodplain, Intertidal Mudflat and Sand Flat, Tidal Forest, Tidal Brackish Marsh and Shrubland, Tidal Freshwater Marsh and Shrubland, Artificial Impoundment and Artificial Wetland	High
9.3	9 Pollution	9.3 Agricultural & Forestry Effluents			Increase effectiveness of existing and future riparian buffers by increasing funding for maintenance and keeping up-to-date maps of project locations.	ALL	Forests, Floodplain Wetlands, Groundwater Wetlands, Tidal Wetlands, Artificial Wetlands, Streams/Rivers, Working Lands	Piedmont Seepage Wetland, Coastal Plain Seepage Acidic Fen, Tidal Salt Marsh and Shrubland, Coastal Plain Seepage Swamp, Maritime Swamp, Montane-Piedmont Floodplain, Coastal Plain Floodplain, Intertidal Mudflat and Sand Flat, Tidal Forest, Tidal Brackish Marsh and Shrubland, Tidal Freshwater Marsh and Shrubland, Artificial Impoundment and Artificial Wetland	Mid

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IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable regions	Applicable habitat groups	Priority KWHs	Priority Level
9.3.1	9 Pollution	9.3 Agricultural & Forestry Effluents	9.3.1 Nutrient loads		Reduce sources of groundwater contamination by implementing BMPs for nutrients on agricultural lands (i.e., conservation agriculture techniques).	ALL	Working Lands, Subterranean, Groundwater Wetlands, Tidal Wetlands, Artificial Wetlands	Piedmont Seepage Wetland, Coastal Plain Seepage Acidic Fen, Tidal Salt Marsh and Shrubland, Coastal Plain Seepage Swamp, Maritime Swamp, Intertidal Mudflat and Sand Flat, Tidal Forest, Tidal Brackish Marsh and Shrubland, Tidal Freshwater Marsh and Shrubland, Artificial Impoundment and Artificial Wetland	Mid
9.3.3	9 Pollution	9.3 Agricultural & Forestry Effluents	9.3.3 Herbicides & pesticides		Develop strict protocols for restricting the use of pesticides, such as for mosquito control, in SGCN habitats.	ALL	CATCH-ALL	Piedmont Seepage Wetland, Coastal Plain Seepage Acidic Fen, Tidal Salt Marsh and Shrubland, Coastal Plain Seepage Swamp, Maritime Swamp, Montane-Piedmont Floodplain, Coastal Plain Floodplain, Intertidal Mudflat and Sand Flat, Tidal Forest, Tidal Brackish Marsh and Shrubland, Tidal Freshwater Marsh and Shrubland, Artificial Impoundment and Artificial Wetland	Low
9.3.3	9 Pollution	9.3 Agricultural & Forestry Effluents	9.3.3 Herbicides & pesticides		Explore regulatory means to limit or end use of pesticides and herbicides for "cosmetic" purposes.	ALL	Working Lands, (Sub)urban	Urban and Suburban Environment	Mid
9.3.3	9 Pollution	9.3 Agricultural & Forestry Effluents	9.3.3 Herbicides & pesticides		Regulate pest control companies to only allow <i>Bacillus thuringiensis</i> (BT) treatments rather than broad spectrum pesticides.	ALL	CATCH-ALL	Urban and Suburban Environment	High
9.3.3	9 Pollution	9.3 Agricultural & Forestry Effluents	9.3.3 Herbicides & pesticides	Commercial/residential use	Initiate new marketing and public service campaigns to educate the public on the harmful effects of inappropriate or off-label use of herbicides and pesticides, particularly those which are commercially available. Promote IPM as an alternative.	ALL	CATCH-ALL	Urban and Suburban Environment Managed Grassland Working Lands	High
9.3.3	9 Pollution	9.3 Agricultural & Forestry Effluents	9.3.3 Herbicides & pesticides	Agricultural use	Further restrict neonicotinoid (neonic) use in agriculture. Consider imitating recent legislative changes in New York by banning the use of neonic-covered seeds for corn and soybeans.	ALL	Working Lands	Managed Grassland	Mid

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9.3.3	9 Pollution	9.3 Agricultural & Forestry Effluents	9.3.3 Herbicides & pesticides	Agricultural use	Provide improved education to farmers on the appropriate uses of synthetic pesticides. Explore incentives to promote non-synthetic alternatives whenever and wherever possible.	ALL	Working Lands	Managed Grassland	Mid
9.3.3	9 Pollution	9.3 Agricultural & Forestry Effluents	9.3.3 Herbicides & pesticides	Agricultural use	Work with MDA to ensure that native plant buffers are established in agricultural lands in order to increase natural pest control and ecosystem services.	ALL	Working Lands	Managed Grassland	Mid
9.4.1	9 Pollution	9.4 Garbage & Solid Waste	9.4.1 Garbage		Improve public education on litter management, particularly on state lands. Utilize plastic pollution reduction campaigns such as 'pack it out' stations with provided bags.	ALL	CATCH-ALL		High
9.4.1	9 Pollution	9.4 Garbage & Solid Waste	9.4.1 Garbage		Increase coordination and education efforts regarding beach trash (e.g., better coordinate clean-ups; push "carry in, carry out" messaging; etc.)	Southern, Eastern, Central	Coastal Beaches/Dunes, Forests	Coastal Beach, Maritime Dune and Grassland, Maritime Forest and Shrubland	Low
9.4.1	9 Pollution	9.4 Garbage & Solid Waste	9.4.1 Garbage		Build on existing work (e.g., MDE's Historic Landfill Initiative) to locate and remove legacy waste disposal sites.	ALL	CATCH-ALL		Low
9.4.4	9 Pollution	9.4 Garbage & Solid Waste	9.4.4 Drifting plastic and entanglement rubbish	Discarded fishing tackle	Reduce wildlife conflicts and aquatic pollution from discarded fishing tackle by further promoting ethical angling practices.	ALL	Streams/Rivers, Bay/Ocean, Artificial Wetlands, Floodplain Wetlands, Tidal Wetlands	Artificial Impoundment and Artificial Wetland, Montane-Piedmont Floodplain, Coastal Plain Floodplain, Intertidal Mudflat and Sand Flat, Tidal Brackish Marsh and Shrubland, Tidal Freshwater Marsh and Shrubland	Low
9.4.4	9 Pollution	9.4 Garbage & Solid Waste	9.4.4 Drifting plastic and entanglement rubbish	Plastics	Continue to work to reduce dumping of garbage (particularly plastics) in the Atlantic Ocean through various means (e.g., educational, regulatory).	Eastern	Bay/Ocean	Atlantic Ocean	Low
9.6.1	9 Pollution	9.6 Excess Energy	9.6.1 Light pollution		Create state-level mandates, set of regulations, or educational campaign (similar to Lights Out Baltimore) regarding light pollution, especially during peak bat and bird migration months. Implement these policies and programs at the local community level.	ALL	(Sub)urban	Artificial Structure - Buildings and Other Structures	High

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9.6.3	9 Pollution	9.6 Excess Energy	9.6.3 Noise pollution		Create and enforce noise pollution regulations at the local, county, and state levels.	ALL	(Sub)urban		Mid
11	11 Climate Change				Better coordinate efforts in monitoring how/which species are affected by climate change (both plants and animals) in order to track populations, monitor overall impact, and adapt land management practices appropriately.	ALL	CATCH-ALL	Hemlock-Northern Hardwood Forest, Montane Acidic Fen, Coastal Plain Seepage Acidic Fen, Tidal Salt Marsh and Shrubland, Coastal Plain Flatwood and Depression Swamp, Maritime Swamp, Intertidal Mudflat and Sand Flat, Tidal Forest, Tidal Brackish Marsh and Shrubland, Tidal Freshwater Marsh and Shrubland, Coastal Beach	Mid
11	11 Climate Change				Support ongoing surveillance and continued monitoring of aquatic habitats, particularly for climate change-related events (e.g., increased algal blooms).	ALL	Streams/Rivers, Bay/Ocean, Artificial Wetlands, Tidal Wetlands	Artificial Impoundment and Artificial Wetland, Atlantic Sea Level Fen, Intertidal Mudflat and Sand Flat, Tidal Forest, Tidal Brackish Marsh and Shrubland, Tidal Freshwater Marsh and Shrubland	Low
11	11 Climate Change				Prepare for new invasive species and pathogens that are likely to establish themselves in Maryland due to changing climatic conditions. Create new guidance and rely on existing documentation, including MD DNR's Climate-Ready Fisheries Planning Menu (2024).	ALL	CATCH-ALL		Mid
11	11 Climate Change				Work with local and county governments to develop more localized models and plans for climate resiliency. Include aspects of flood response, stormwater management, storm damage, and major heat events.	ALL	CATCH-ALL		Low
11	11 Climate Change				Encourage the use of electric vehicles and lawn care equipment. Emphasize the multiple negative impacts of fossil fuel-powered equipment, including climate change and noise pollution, and continue to discourage overall usage through "leave the leaves" campaigns and similar initiatives.	ALL	CATCH-ALL	Urban and Suburban Environment	Mid

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11.1	11 Climate Change	11.1 Habitat Shifting & Alteration		Sea-level rise	Prioritize the conservation and restoration of rapidly disappearing islands, which is a vital habitat type for colonial waterbirds, tiger beetles, diamond-backed terrapins, and more.	Southern, Eastern	Bay/Ocean	Small Coastal Plain Islands	High
11.1	11 Climate Change	11.1 Habitat Shifting & Alteration		Sea-level rise	Prioritize the purchasing of lands abandoned due to sea-level rise to potentially assist with marsh migration. Continue and increase Conservation Reserve Enhancement Program (CREP) on agricultural lands that are no longer viable due to saltwater intrusion.	Southern, Eastern, Central	Tidal Wetlands, Working Lands, Coastal Beaches/Dunes	Intertidal Mudflat and Sand Flat, Tidal Salt Marsh and Shrubland, Tidal Brackish Marsh and Shrubland, Tidal Freshwater Marsh and Shrubland, Coastal Beach	Mid
11.1	11 Climate Change	11.1 Habitat Shifting & Alteration		Sea-level rise: marsh inundation	Continue and increase "living shoreline" efforts to help slow marsh and maritime/coastal forest loss due to sea-level rise.	Central, Southern, Eastern	Bay/Ocean, Streams/Rivers, Coastal Beaches/Dunes, Tidal Wetlands, Forests	Tidal Forest, Intertidal Mudflat and Sand Flat, Tidal Salt Marsh and Shrubland, Tidal Brackish Marsh and Shrubland, Tidal Freshwater Marsh and Shrubland, Coastal Beach	Low
11.1	11 Climate Change	11.1 Habitat Shifting & Alteration		Sea-level rise: marsh inundation	Continue research, development, and implementation of new sea-level rise mitigation techniques, such as "shallow runnels" and thin-layering, in order to slow marsh loss.	Eastern	Tidal Wetlands, Bay/Ocean	Tidal Forest, Intertidal Mudflat and Sand Flat, Tidal Freshwater Marsh and Shrubland, Tidal Brackish Marsh and Shrubland, Tidal Salt Marsh and Shrubland, Small Coastal Plain Islands	High
11.1.1	11 Climate Change	11.1 Habitat Shifting & Alteration	11.1.1 Changes in vegetation communities	Loss of SAV (submerged aquatic vegetation) beds	Restore depleted SAV beds with heat-resistant strains that will prove more resilient against increased temperatures.	Central, Southern, Eastern	Streams/Rivers, Bay/Ocean	Chesapeake Bay Coastal Plain Rivers	Mid
11.2.1	11 Climate Change	11.2 Changes in Geochemical Regimes	11.2.1 Changes in pH of habitats	Ocean acidification	Continue to support research regarding the impacts of ocean acidification on marine life.	Southern, Eastern	Bay/Ocean	Atlantic Ocean Coastal Bays	Low
11.3	11 Climate Change	11.3 Changes in Temperature Regimes			Further research the feasibility of using tree species with more southern ranges (i.e., those that will do well in the face of rising temperatures) to replace/bolster struggling native populations. Ensure that only non-invasives and species with similar ecological functions are considered.	ALL	Forests, (Sub)urban, Groundwater Wetlands	High Elevation Ridge Forest, Cove Forest, Hemlock-Northern Hardwood Forest, Montane Acidic Fen	Low

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11.4	11 Climate Change	11.4 Changes in Precipitation & Hydrological Regimes			Update both state- and county-level stormwater management regulations, as climate change has been overwhelming current regulations.	ALL	CATCH-ALL		High
11.4	11 Climate Change	11.4 Changes in Precipitation & Hydrological Regimes			Assist county planning departments in using recent sea-level rise models to improve zoning in floodplains.	Central, Southern, Eastern	Floodplain Wetlands, Tidal Wetlands	Montane-Piedmont Floodplain Coastal Plain Floodplain, Intertidal Mudflat and Sand Flat, Tidal Forest, Tidal Brackish Marsh and Shrubland, Tidal Freshwater Marsh and Shrubland	Mid
11.4.4	11 Climate Change	11.4. Changes in Precipitation and Hyrdologic Regimes	11.4.4 Increase of fluctuations in the precipitation regime	100- and 1000-year floods are becoming more frequent due to tropical storms and other heavy precipitation events	Conduct expansive studies or literature reviews to evaluate the potential effects of increased flooding on freshwater habitats and SGCN.	ALL	Floodplain Wetlands, Groundwater Wetlands, Tidal Wetlands, Artificial Wetlands, Streams/Rivers	Montane-Piedmont Floodplain, Coastal Plain Floodplain, Montane-Piedmont Seepage Swamp, Montane Acidic Fen, Piedmont Seepage Wetland, Coastal Plain Seepage Acidic Fen, Coastal Plain Seepage Swamp, Piedmont Upland Depression Swamp, Coastal Plain Flatwood and Depression, Swamp, Delmarva Bay, Maritime Swamp, Montane-Piedmont Floodplain, Coastal Plain Floodplain, Tidal Salt Marsh and Shrubland, Intertidal Mudflat and Sand Flat, Tidal Forest, Tidal Brackish Marsh and Shrubland, Tidal Freshwater Marsh and Shrubland, Artificial Impoundment and Artificial Wetland	Mid
11.5.2	11 Climate Change	11.5 Storms & Severe Weather	11.5.2 Storm surges	Salt-wedge encroachment into freshwater due to storm surges	Conduct expansive studies on salt-wedge encroachment to evaluate long term effects on freshwater habitats and SGCN.	Eastern, Southern	Streams/Rivers, Bay/Ocean, Floodplain Wetlands	Chesapeake Bay, Coastal Plain Rivers, Montane-Piedmont Floodplain, Coastal Plain Floodplain	Low
12.2	12 Other Options	12.2 Resource Needs		Lack of funding	Explore options for a permanent and significant source of funding for conservation work. Options to pursue include a portion of an existing state tax, a new state tax, a biodiversity license plate, charging for environmental review, or federal sources (e.g., Recovering America's Wildlife Act [RAWA]).	ALL	CATCH-ALL		High

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12.2	12 Other Options	12.2 Resource Needs	Management decision needs	Need for fish, wildlife and/or habitat planning	Include habitat protection and connectivity needs in local and county land zoning plans (e.g., comprehensive plans) through increased communication, outreach, and/or incentives to counties planning departments.	ALL	CATCH-ALL		Mid
12.2	12 Other Options	12.2 Resource Needs	Management decision needs	Need for fish, wildlife and/or habitat planning	Periodically re-evaluate state conservation status (i.e., S-ranks) for SGCN.	ALL	CATCH-ALL		High
12.2	12 Other Options	12.2 Resource Needs	Management decision needs	Need for fish, wildlife and/or habitat planning	Review beaver management and survey techniques currently employed by state and federal agencies to determine relevance and potential action items for inclusion into Maryland guidance.	ALL	Tidal Wetlands, Streams/Rivers, Working Lands, Artificial Wetlands, Floodplain Wetlands, Groundwater Wetlands	Montane-Piedmont Floodplain, Coastal Plain Floodplain, Montane-Piedmont Seepage Swamp, Montane Acidic Fen, Piedmont Seepage Wetland, Coastal Plain Seepage Acidic Fen, Coastal Plain Seepage Swamp, Piedmont Upland Depression Swamp, Coastal Plain Flatwood and Depression, Swamp, Delmarva Bay, Maritime Swamp, Montane-Piedmont Floodplain, Coastal Plain Floodplain, Tidal Salt Marsh and Shrubland, Intertidal Mudflat and Sand Flat, Tidal Forest, Tidal Brackish Marsh and Shrubland, Tidal Freshwater Marsh and Shrubland, Artificial Impoundment and Artificial Wetland	Mid
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of initial baseline inventory	Identify "almost old growth" forests, especially those on state land, in order to establish sample research areas that won't be harvested.	ALL	Forests	Basic Mesic Forest, Cove Forest, Hemlock-Northern Hardwood Forest, Coastal Plain Oak Pine Forest, Oak-Hickory Forest, High Elevation Ridge Forest, Montane-Piedmont Oak-Pine Forest	Mid
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of initial baseline inventory	Implement regular species surveys in grassland and early successional habitat.	ALL	Working Lands		Mid
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of initial baseline inventory	Generate geographical data (e.g., MERLIN Online) on grassland habitat distribution, which will make it easier to advocate for grassland habitats and species. Work with the public and land managers to identify these areas.	ALL	Working Lands		Low

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12.2	12 Other Options	12.2 Resource Needs	Outreach needs	Lack of initial baseline inventory	Identify areas and habitat where beaver presence is already or would be beneficial to SGCN, including freshwater mussels and odonates.	ALL	Tidal Wetlands, Streams/Rivers, Working Lands, Artificial Wetlands, Floodplain Wetlands, Groundwater Wetlands	Montane-Piedmont Floodplain, Coastal Plain Floodplain, Montane-Piedmont Seepage Swamp, Montane Acidic Fen, Piedmont Seepage Wetland, Coastal Plain Seepage Acidic Fen, Coastal Plain Seepage Swamp, Piedmont Upland Depression Swamp, Coastal Plain Flatwood and Depression, Swamp, Delmarva Bay, Maritime Swamp, Montane-Piedmont Floodplain, Coastal Plain Floodplain, Tidal Salt Marsh and Shrubland, Intertidal Mudflat and Sand Flat, Tidal Forest, Tidal Brackish Marsh and Shrubland, Tidal Freshwater Marsh and Shrubland, Artificial Impoundment and Artificial Wetland	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of research and surveying efforts regarding urban habitats and wildlife	Expand upon existing efforts in Baltimore to survey and map important urban species and habitats on a statewide scale.	ALL	(Sub)urban	Urban and Suburban Environment	Mid
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of up-to-date existing information	Identify and improve mapping of "rock habitat" (outcrops, talus, caves, etc.) in order to provide proper protections, especially on state lands.	Western	Glades/Barrens/Cliffs, Subterranean	Acidic Glade and Barren, Basic Glade and Barren, Cliff and Rock Outcrop	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Lack of up-to-date existing information	Increase capacity for monitoring, surveying, and researching caves and cave-dwelling species by building staff technical expertise.	Western	Subterranean	Cave and Karst	Low
12.2	12 Other Options	12.2 Resource Needs	Resource information collection needs	Need to answer research question	Work with universities, non-governmental organizations (NGOs), etc. to better understand the drivers behind dwindling fish populations. Mine existing data and conduct new research as necessary.	ALL	Streams/Rivers, Bay/Ocean	Atlantic Ocean, Chesapeake Bay, Coastal Plain Rivers, Montane-Piedmont Floodplain, Coastal Plain Floodplain	Mid
12.3	12 Other Options	12.3 Education & Outreach	Education needs	K-12 education needs	Encourage more schools to adopt Maryland's (relatively) new environmental literacy standards.	ALL	CATCH-ALL		Mid

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12.3	12 Other Options	12.3 Education & Outreach	Education needs	Lack of appreciation for urban trees (forests, street trees, etc.)	Improve education/outreach to urban residents regarding the benefits of urban trees, which are often seen as a risk due to the possibility of property damage, higher insurance costs, etc. Emphasize benefits such as improved stormwater management, decreased temperatures, and property value enhancement.	ALL	Forests, (Sub)urban	Urban and Suburban Environment	Low
12.3	12 Other Options	12.3 Education & Outreach	Education needs	Lack of understanding and appreciation of rare, threatened, and endangered species	Continue existing and create new efforts for education/outreach regarding the importance of conserving the state's rare, threatened, and endangered species. Utilize specific stories and species in order to have a greater, more personal/emotional impact.	ALL	CATCH-ALL		Low
12.3	12 Other Options	12.3 Education & Outreach	Education needs	Lack of understanding of and appreciation for grassland habitats, as well as how to maintain them	Improve education/outreach to farmers and other largescale landowners regarding the benefits of grassland habitat. Emphasize best practices for this habitat type as well, such as regenerative farming practices and the proper management of grazed farmlands, through both existing programs and new incentives.	ALL	Working Lands	Managed Grasslands	Mid
12.3	12 Other Options	12.3 Education & Outreach	Education needs	Lack of understanding regarding Critical Area requirements	Better educate large landowners and realtors regarding Critical Area property restrictions/requirements, including restrictions on tree removal and requirements for stormwater management.	Central, Southern, Eastern	Forests, Floodplain Wetlands, Tidal Wetlands, Streams/Rivers, Bay/Ocean, Working Lands, (Sub)urban		Low
12.3	12 Other Options	12.3 Education & Outreach	Education needs	Lack of understanding regarding how wildlife conservation is funded	Increase education/outreach to the public regarding how wildlife conservation is funded, emphasizing that no general state tax dollars go towards this work.	ALL	CATCH-ALL		Mid

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12.3	12 Other Options	12.3 Education & Outreach	Education needs	Lack of understanding regarding prescribed burning and best practices.	Work with groups such as the Maryland Prescribed Fire Council to increase public education regarding the importance and benefits of targeted prescribed burning (both educational materials and more hands-on demonstrations). Continue dispelling common fears/myths, such as out-of-control forest fires.	ALL	Forests, Working Lands, Glades/Barrens/Cliffs	Coastal Plain Oak-Pine Forest, High Elevation Ridge Forest, Montane-Piedmont Oak-Pine Forest, Maritime Forest and Shrubland, Shale Barrens, Acidic Glade and Barren, Cliff and Rock Outcrop, Maritime Dune and Grassland	Mid
12.3	12 Other Options	12.3 Education & Outreach	Education needs	Need for improved knowledge of fish and wildlife and their habitats	Continue to explore opportunities to incorporate beaver-influenced habitat into public land management for habitat conservation and educational purposes.	ALL	Streams/Rivers, Artificial Wetlands, Floodplain Wetlands, Groundwater Wetlands	Montane-Piedmont Seepage Swamp, Montane Acidic Fen, Piedmont Seepage Wetland, Coastal Plain Seepage Acidic Fen, Coastal Plain Seepage Swamp, Coastal Plain Flatwood and Depression Swamp, Montane-Piedmont Floodplain, Coastal Plain Floodplain	Low
12.3	12 Other Options	12.3 Education & Outreach	Outreach needs		Provide more outreach and education on available technical assistance programs, easements, etc. There are already a variety of available programs (state government, county government, University of Maryland Extension, etc.), but many landowners do not know they exist.	ALL	CATCH-ALL		High
12.3	12 Other Options	12.3 Education & Outreach	Outreach needs		Work with less "traditional" conservation partners such as scout groups, church groups, and civic centers to better distribute conservation-related messages and information.	ALL	CATCH-ALL		Mid
12.3	12 Other Options	12.3 Education & Outreach	Outreach needs		Build public interest in natural area stewardship through additional community workdays, opportunities for student volunteer hours, and creatively funded positions (e.g., AmeriCorps). Invasive species removal projects and surveying efforts are good ways to reach the most people.	ALL	CATCH-ALL		High

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12.3	12 Other Options	12.3 Education & Outreach	Outreach needs		Reach more people with conservation messaging through less traditional online means (YouTube shorts, Reddit, podcasts, etc.).	ALL	CATCH-ALL		Low
12.3	12 Other Options	12.3 Education & Outreach	Outreach needs		Improve the marketing of conservation plans to the general public in order to increase awareness and interest.	ALL	CATCH-ALL		Low
12.3	12 Other Options	12.3 Education & Outreach	Outreach needs		Increase efforts to influence legislators making infrastructure decisions that affect important habitat, especially in the realm of energy infrastructure.	ALL	CATCH-ALL		Mid
12.3	12 Other Options	12.3 Education & Outreach	Outreach needs		Increase outreach to urban residents and improve access to nature through initiatives such as nature camps, firefly walks, and new urban natural areas.	ALL	(Sub)urban		Mid
12.3	12 Other Options	12.3 Education & Outreach	Outreach needs		Research the feasibility of a state park (or similar) in Baltimore City in order to reach a new audience. Alternatively/additionally, improve non-car access to Patapsco State Park from Baltimore.	Central	(Sub)urban		Low
12.2	12 Other Options	12.3 Education & Outreach	Outreach needs		Elevate the visibility of beaver co-existence strategies and resources within DNR communications in order to increase cultural tolerance of beaver influenced habitat.	ALL	Tidal Wetlands, Streams/Rivers, Working Lands, Artificial Wetlands, Floodplain Wetlands, Groundwater Wetlands	Montane-Piedmont Floodplain, Coastal Plain Floodplain, Montane-Piedmont Seepage Swamp, Montane Acidic Fen, Piedmont Seepage Wetland, Coastal Plain Seepage Acidic Fen, Coastal Plain Seepage Swamp, Piedmont Upland Depression Swamp, Coastal Plain Flatwood and Depression, Swamp, Delmarva Bay, Maritime Swamp, Montane-Piedmont Floodplain, Coastal Plain Floodplain, Tidal Salt Marsh and Shrubland, Intertidal Mudflat and Sand Flat, Tidal Forest, Tidal Brackish Marsh and Shrubland, Tidal Freshwater Marsh and Shrubland, Artificial Impoundment and Artificial Wetland	Mid

Appendix 6b. Habitat-level threats and actions

IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable regions	Applicable habitat groups	Priority KWHs	Priority Level
12.3	12 Other Options	12.3 Education & Outreach	Outreach needs	Disproportionately low outreach to non-English speakers	Increase existing efforts (e.g., funding, materials, staff capacity) for non-English language outreach and education. Until capacity is larger, focus on the translation of existing materials and providing a presence at public cultural events.	ALL	CATCH-ALL		Low
12.3	12 Other Options	12.3 Education & Outreach	Outreach needs	Lack of focus on underrepresented communities	Make a concerted effort to include a more diverse group of participants in outreach efforts, volunteer opportunities, and other events by diversifying timing, availability, and length of engagement opportunities.	ALL	CATCH-ALL		Mid
12.3	12 Other Options	12.3 Education & Outreach	Outreach needs	Lack of oversight for HOAs, corporate bodies, and other quasi-community groups	Increase outreach to homeowner associations (HOAs) and similar organizations in order to promote environmentally friendly land management practices for groups with large holdings. Consider setting up advisory committee(s) of HOA members, government representatives, and NGO staff.	ALL	CATCH-ALL		Low
12.3	12 Other Options	12.3 Education & Outreach	Outreach needs	Lack of public trust in state management and expertise	Improve data sharing and transparency in targeted areas. Hold more meetings and roundtables with stakeholders as well as the general public in order to increase trust, transparency, and input in the decision-making process.	ALL	CATCH-ALL		Mid
12.3	12 Other Options	12.3 Education & Outreach	Outreach needs	Lack of social science expertise	Better incorporate social sciences into outreach and education techniques in order to reach diverse sets of people and encourage behavior change.	ALL	CATCH-ALL		Mid
12.3	12 Other Options	12.3 Education & Outreach	Outreach needs	Lack of surveyors for aquatic surveys	Encourage and assist with the development of community science groups to participate in stream assessments, spawning surveys, etc.	ALL	Streams/Rivers, Bay/Ocean	Chesapeake Bay, Atlantic Ocean, Montane-Piedmont Floodplain, Coastal Plain Floodplain	Low

Appendix 6b. Habitat-level threats and actions

IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable regions	Applicable habitat groups	Priority KWHs	Priority Level
12.4	12 Other Options	12.4 Administrative Needs	Coordination/administration needs	Need for agency organizational planning to meet goals and objectives	Consider adapting Maryland's 5 Million Trees initiative to include smaller plants (i.e., shrubs) in order to promote a wider variety of habitats.	ALL	Forests, Working Lands, (Sub)urban		Low
12.4	12 Other Options	12.4 Administrative Needs	Coordination/administration needs	Need for coordination for effective program/project management	Expand upon existing work by Audubon Mid-Atlantic regarding saltmarsh conservation and restoration. Establish a coordinated effort that involves multiple partners, sites, and objectives.	Eastern	Tidal Wetlands	Tidal Brackish Marsh and Shrubland Tidal Salt Marsh and Shrubland	Mid
12.4	12 Other Options	12.4 Administrative Needs	Coordination/administration needs	Need for coordination for effective program/project management	Pursue opportunities for larger scale coordination and collaboration. Specific needs include species/habitat inventory, research (existing and future), invasive species management, and more.	ALL	CATCH-ALL		High
12.4	12 Other Options	12.4 Administrative Needs	Coordination/administration needs	Need for coordination for effective program/project management	Facilitate better coordination between state agencies, conservation organizations, and other nonprofit groups to reduce competition for funding sources and volunteers, and increase effectiveness.	ALL	CATCH-ALL		Mid
12.4	12 Other Options	12.4 Administrative Needs	Coordination/administration needs	Need for coordination for effective program/project management	Work with Forest Service, conservation partners, etc. to implement forest conservation on private lands, especially where adjacent to public land. Improve incentives to landowners.	ALL	Forests	Basic Mesic Forest, Cove Forest, Hemlock-Northern Hardwood Forest, Coastal Plain Oak Pine Forest, Oak-Hickory Forest, High Elevation Ridge Forest, Montane-Piedmont Oak-Pine Forest	High
12.4	12 Other Options	12.4 Administrative Needs	Coordination/administration needs	Need for coordination for effective program/project management	Increase collaboration between foresters, wildlife conservationists, landowners, and others when creating forest stewardship plans. Potentially do this through a standing group that can establish considerations for wildlife, management techniques, educational materials, etc.	ALL	Forests	Basic Mesic Forest, Cove Forest, Hemlock-Northern Hardwood Forest, Coastal Plain Oak Pine Forest, Oak-Hickory Forest, High Elevation Ridge Forest, Montane-Piedmont Oak-Pine Forest	High

Appendix 6b. Habitat-level threats and actions

IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable regions	Applicable habitat groups	Priority KWHs	Priority Level
12.4	12 Other Options	12.4 Administrative Needs	Coordination/administration needs	Need for coordination for effective program/project management	Foster increased collaboration between organizations and programs responsible for aquatic habitat/species management and conservation (DNR, MDE, NGOs, etc.). Utilize intentional and targeted landowner engagement to encourage cooperation across multiple properties.	ALL	Streams/Rivers, Bay/Ocean	Chesapeake Bay, Atlantic Ocean, Montane-Piedmont Floodplain, Coastal Plain Floodplain	Mid
12.4	12 Other Options	12.4 Administrative Needs	Coordination/administration needs	Need for coordination for effective program/project management	Better identify, research, and manage fish-bird conflicts (e.g., menhaden and osprey population concerns) by increasing collaboration and communication among appropriate agencies and programs.	ALL	Streams/Rivers, Bay/Ocean	Chesapeake Bay, Atlantic Ocean, Montane-Piedmont Floodplain, Coastal Plain Floodplain	Mid
12.5	12 Other Options	12.5 State Specific Issues		Lack of incentives for land conservation, particularly in urban areas	Work with local, state, and federal agencies to create and build upon existing conservation incentives for landowners, especially for wooded urban and suburban areas.	ALL	Forests, (Sub)urban	Urban and Suburban Environment	Mid
12.5	12 Other Options	12.5 State Specific Issues		Lack of smaller scale land easements	Explore ways to incentivize less wealthy landowners (i.e., lower- and middle-income landowners who typically do not benefit from easement tax incentives) to conserve land. Tactics could include the selling of tax credits, financial assistance to cover legal and surveying costs, etc.	ALL	CATCH-ALL		Low
12.5	12 Other Options	12.5 State Specific Issues		Need for increased legal protection	Strengthen protections for vernal pools, springs, and other isolated wetlands. May want to establish a vernal pool (and related habitat) conservation workgroup across multiple fields of expertise in order to better identify, map, and create management actions for these habitats.	ALL	Groundwater Wetlands	Montane-Piedmont Seepage Swamp, Montane Acidic Fen, Piedmont Seepage Wetland, Coastal Plain Seepage Acidic Fen, Coastal Plain Seepage Swamp, Piedmont Upland Depression Swamp, Coastal Plain Flatwood and Depression Swamp, Delmarva Bay, Maritime Swamp, Vernal Pool, Spring	High
12.5	12 Other Options	12.5 State Specific Issues		Need for increased legal protection	Increase efforts to protect caves and cave drainages through easements and property acquisition.	Western	Subterranean	Cave and Karst, Mine and Tunnel	High

Appendix 6b. Habitat-level threats and actions

IUCN Code	IUCN Level 1	IUCN Level 2	IUCN Level 3	Further Threat Description (if needed)	Conservation Action (WHAT)	Applicable regions	Applicable habitat groups	Priority KWHs	Priority Level
12.5	12 Other Options	12.5 State Specific Issues		Need for increased legal protection	Increase efforts to protect floodplains and wetlands (especially tidal wetlands, which are threatened by sea-level rise) through easements and property acquisition.	ALL	Floodplain Wetlands, Groundwater Wetlands, Tidal Wetlands	Montane-Piedmont Floodplain, Coastal Plain Floodplain, Montane-Piedmont Seepage Swamp, Montane Acidic Fen, Piedmont Seepage Wetland, Coastal Plain Seepage Acidic Fen, Coastal Plain Seepage Swamp, Piedmont Upland Depression Swamp, Coastal Plain Flatwood and Depression Swamp, Delmarva Bay, Maritime Swamp, Vernal Pool, Spring	High
12.5	12 Other Options	12.5 State Specific Issues		Need for increased legal protection	Increase efforts to protect grassland habitat through easements and property acquisition.	ALL	Working Lands	Managed Successional Forest, Managed Grasslands, Managed Montane Conifer Forest, Roadside and Utility Right-of-Way	High
12.5	12 Other Options	12.5 State Specific Issues		Need for increased legal protection	Increase efforts to protect forested habitat through easements and property acquisition.	ALL	Forests	Basic Mesic Forest, Cove Forest, Hemlock-Northern Hardwood Forest, Coastal Plain Oak Pine Forest, Oak-Hickory Forest, High Elevation Ridge Forest, Montane-Piedmont Oak-Pine Forest	High
12.5	12 Other Options	12.5 State Specific Issues		Need for increased legal protection	Expand bog protection overlay zone beyond Anne Arundel County. Potentially model a state-wide overlay zone after the County's program.	ALL	Floodplain Wetlands, Groundwater Wetlands	Montane-Piedmont Floodplain, Coastal Plain Floodplain, Montane-Piedmont Seepage Swamp, Montane Acidic Fen, Piedmont Seepage Wetland, Coastal Plain Seepage Acidic Fen, Coastal Plain Seepage Swamp, Piedmont Upland Depression Swamp, Coastal Plain Flatwood and Depression Swamp, Delmarva Bay	Mid
12.5	12 Other Options	12.5 State Specific Issues		Need for updates to existing laws/regulations and enacting new laws/regulations	Provide a tax break for people who donate land easements across all Maryland counties, not just some of them.	ALL	CATCH-ALL		Low

Appendix 7a. Species-level monitoring programs in Maryland.

This list is presented in alphabetical order by Implementation Lead. Abbreviations are as follows: MD DNR: Maryland Department of Natural Resources; USFWS: U.S. Fish and Wildlife Service; USGS: U.S. Geological Survey; WHS: Wildlife and Heritage Service.

Monitoring Program or Action	Implementation Lead	Target	Monitoring Level		
			Individual Species	Groups of Species	Habitat
FrogWatch USA	Association of Zoos and Aquariums	Frogs, toads		X	
Bird Blitz Survey	Audubon Mid-Atlantic	Priority birds		X	
Important Bird Area Stewards	Audubon Mid-Atlantic. Maryland Bird Conservation Partnership	Priority birds		X	X
Saltmarsh Habitat and Avian Research Program	Audubon Mid-Atlantic, MD DNR WHS	Tidal marshbirds		X	X
Lights Out Baltimore!	Baltimore Bird Club	Migrating birds, urban birds		X	
Motus telemetry network	Birds Canada	Birds, bats	X	X	
Secretive Marsh Bird Monitoring	Chesapeake Bay National Estuarine Research Reserve Program	Marshbirds		X	
Marsh Vegetation Monitoring	Chesapeake Bay National Estuarine Research Reserve Program	Marsh plants		X	
Chesapeake Bay Monitoring Program	Chesapeake Bay Program	Water quality monitoring, fish, shellfish, blue crab, plankton, benthos		X	X
Project OspreyWatch	Center for Conservation Biology	Osprey	X		
Foreman's Branch Bird Observatory	Chester River Field Research Station	Birds		X	
Grassland Breeding Bird Ecology Study	Chester River Field Research Station	Grassland breeding birds		X	X
Northern Bobwhite Point Counts	Chester River Field Research Station	Northern bobwhite	X		
A Swift Night Out!	Chimney Swift Conservation Association	Chimney swift	X		
eBird	Cornell Lab of Ornithology	Birds, Breeding Bird Atlas	X		
Golden-winged Warbler Surveys	Cornell Lab of Ornithology	Golden-winged warbler	X		
Project FeederWatch	Cornell Lab of Ornithology	Winter birds		X	
Project NestWatch	Cornell Lab of Ornithology	Birds		X	
Great Backyard Bird Count	Cornell Lab of Ornithology, National	Birds		X	

Monitoring Program or Action	Implementation Lead	Target	Monitoring Level		
			Individual Species	Groups of Species	Habitat
	Audubon Society, and Bird Studies Canada				
Regional Black Rail Survey	Eastern Black Rail Working Group	Black rail	X		
Hawk Counts	Hawk Migration Association of North America	Hawks		X	
Monitoring of Avian Productivity and Survival	Institute for Bird Populations	Songbirds		X	
Winter Water Bird Survey	Jug Bay Wetlands Sanctuary	Waterbirds		X	
National Nightjar Survey	Maine Natural History Observatory; Birds Canada	Nightjars		X	
International Shorebird Survey/Program for Regional and International Shorebird Monitoring	Manomet Conservation Sciences	Shorebirds		X	
BioBlitzes/Targeted Field Trips	Maryland Biodiversity Project	All organisms or targeted groups	X	X	
Migratory Bird Counts	Maryland Biodiversity Project	Fall migration counts at two locations		X	
Bald Eagle Nest Monitoring Project	Maryland Bird Conservation Partnership	Bald eagle	X		
Farmland Raptor Program	Maryland Bird Conservation Partnership	American Kestrel, American Barn Owl, Short-eared Owl	X		
Forest Pest Management Program (Invasive and Non-Invasive)	Maryland Department of Agriculture, U.S. Department of Agriculture	Insects (Asian longhorned beetle, spongy moth, emerald ash borer, etc.)	X	X	X
Fish and Shellfish Contaminant Monitoring Program	Maryland Department of the Environment	Fish, shellfish, crabs		X	
Dredged Material Containment Facilities Surveys	Maryland Environmental Service	Birds		X	
Targeted Field Trips	Maryland Native Plant Society	Priority plants	X	X	
Bird Counts (Winter, Spring Migration, Breeding, Fall Migration)	Maryland Ornithological Society; Central Maryland Audubon Society; Southern Maryland Audubon Society	Birds		X	
Breeding Bird Atlas	Maryland Ornithological Society; MD DNR WHS; Maryland Bird	Breeding birds	X		

Monitoring Program or Action	Implementation Lead	Target	Monitoring Level		
			Individual Species	Groups of Species	Habitat
	Conservation Partnership				
Coastal Fisheries Program fish population monitoring in Coastal Bays and Atlantic Ocean	MD DNR Fisheries	Water quality, recreational and commercial fish		X	X
Commercial Fishery Harvest Monitoring	MD DNR Fisheries	Commercial finfish and shellfish species	X	X	X
Fall and Winter (Fish) Stock Assessment	MD DNR Fisheries	White perch, yellow perch, catfish, forage fish, invasive fish	X	X	
Fish Passage Monitoring	MD DNR Fisheries	Fishes		X	X
Marine Mammal and Sea Turtle Stranding Response Program	MD DNR Fisheries	Marine mammals, sea turtles		X	
Fisheries Habitat and Ecosystem Program, Habitat Investigations	MD DNR Fisheries	Recreational fish species in tidal waters	X	X	X
Fish Health/Disease Program	MD DNR Fisheries	Striped bass	X		
Juvenile Index Survey	MD DNR Fisheries	Juvenile commercial and recreational species, key forage species	X	X	
Stock Assessment of Selected Adult Resident and Migratory Fish in Maryland's Chesapeake Bay	MD DNR Fisheries	Resident and migratory Chesapeake Bay fishes	X	X	
Survey, Inventory, and Management of Maryland's Coldwater Fishery Resources	MD DNR Fisheries	Brook trout, rainbow trout, brown trout, benthic macroinvertebrates	X	X	
Fish Population Surveys	MD DNR Fisheries Service, Trout Unlimited	Trout (focus on brook trout)	X	X	X
American and Hickory Shad Restoration Surveys in Maryland Rivers	MD DNR Fisheries, Interstate Commission on the Potomac River Basin, USFWS, Washington, DC Fisheries	Shad	X		
Spawning Horseshoe Crab Monitoring	MD DNR Fisheries, Maryland Coastal Bays Program	Horseshoe crab	X		
Aquatic Invasive Species Monitoring	MD DNR Fisheries, MD DNR Resource Assessment Service	Non-native crabs, nutria, other non-native species	X	X	X
Investigation of Anadromous Alosids in Chesapeake Bay	MD DNR Fisheries, MD DNR Resource Assessment Service; USFWS	Alosine species	X	X	

Monitoring Program or Action	Implementation Lead	Target	Monitoring Level		
			Individual Species	Groups of Species	Habitat
Maryland Biological Stream Survey	MD DNR Resource Assessment Service	Stream fauna biodiversity, including fish, mussels, benthic macroinvertebrates	X	X	X
Submerged Aquatic Vegetation (SAV) Population Monitoring	MD DNR Resource Assessment Service, Chesapeake Bay National Estuarine Research Reserve, Virginia Institute of Marine Science	SAV habitat, water quality, water depth		X	X
National Coastal Assessment	MD DNR Watershed and Climate Services, U.S. Environmental Protection Agency	Water quality and condition, contaminants, floral and faunal communities, habitat		X	X
American Woodcock Singing-ground Survey	MD DNR WHS, USFWS	American Woodcock	X		
Bat Hibernacula Surveys	MD DNR WHS	Hibernating bats		X	
Bat Summer Surveys	MD DNR WHS	Bats	X	X	
Bog Turtle Monitoring	MD DNR WHS	Bog turtle	X		X
Brown Pelican Population Monitoring	MD DNR WHS	Brown pelican	X		
Colonial Waterbird Monitoring	MD DNR WHS	Colonial waterbirds		X	
Chronic Wasting Disease Monitoring	MD DNR WHS	White-tailed deer, sika deer	X		
Deer Management Program	MD DNR WHS	White-tailed deer, sika deer	X		
Diamond-backed Terrapin Monitoring	MD DNR WHS, Maryland Coastal Bays Program, other partners	Diamond-backed terrapins	X		
Distribution and Status of Eastern Hellbender in Maryland	MD DNR WHS	Eastern hellbender	X		
Eastern Tiger Salamander Study (distribution, population status)	MD DNR WHS	Eastern tiger salamander	X		
Furbearer Management Program	MD DNR WHS	Furbearer species		X	
Upland Game Bird Species Surveys	MD DNR WHS	Northern bobwhite, American woodcock	X		
Maryland Survey of Bowhunters	MD DNR WHS	Deer, wild turkey, northern bobwhite, furbearer species	X	X	

Monitoring Program or Action	Implementation Lead	Target	Monitoring Level		
			Individual Species	Groups of Species	Habitat
Mid-Winter Waterfowl Survey	MD DNR WHS, USFWS	Waterfowl (ducks, geese and swans)	X	X	
Mute Swan Surveys (population status and trends)	MD DNR WHS	Mute swan	X		
Nongame/Guild Monitoring	MD DNR WHS	Marshbirds, freshwater mussels, forest interior and other priority birds, priority insects, priority small mammals, priority reptiles and amphibians, priority plants	X	X	
Rare Plant Surveys	MD DNR WHS, Maryland Biodiversity Project	Rare and watchlist plants	X	X	
Restoration Site Monitoring	MD DNR WHS, MD DNR Watershed and Climate Services	Restored natural communities	X	X	X
Terrestrial Invasive Species Monitoring	MD DNR WHS, MD DNR Forest Service	Non-native and invasive plants and animals	X	X	X
Wild Turkey Observation Survey	MD DNR WHS	Wild turkey	X		
Rare Species Monitoring, (including federally listed species and rare natural communities)	MD DNR WHS, MD DNR Resource Assessment Service	Rare species and rare natural communities	X	X	X
Christmas Bird Count	National Audubon Society	Birds		X	
Fisheries Statistics & Economics program (stock assessments, landings)	National Oceanic and Atmospheric Administration-National Marine Fisheries Service	Fisheries species	X	X	
Monitoring in National Parks	National Park Service	Birds, reptiles, amphibians, plants		X	
Piping Plover Breeding Biology, Foraging Ecology and Behavior on Assateague Island	National Park Service	Piping plover	X		X
Targeted Field Trips	Natural History Society of Maryland	Priority species	X	X	
North American Bat Monitoring Program	North American Bat Monitoring Program Partnership	Bats	X	X	

Monitoring Program or Action	Implementation Lead	Target	Monitoring Level		
			Individual Species	Groups of Species	Habitat
Butterfly Counts	North American Butterfly Association	Butterflies		X	X
Osprey Monitoring	Operation Osprey	Osprey	X		
Otter Point Creek Monitoring Programs	Otter Point Creek – Anita C. Leight Estuary Center	Fishes, herpetofauna		X	X
Bluebird, Wood duck, and Winter Feeder Monitoring	Pickering Creek Audubon Center	Birds	X	X	
Project OwlNet	Project OwlNet (Dave Brinker, MD DNR)	Saw-whet owls, owls	X	X	
Project SNOWStorm	Project SNOWStorm (Dave Brinker, MD DNR)	Snowy owl	X		
Migratory Connectivity Project	Smithsonian Migratory Bird Research Center, USGS	Migratory birds	X		
Urban Ecology	Smithsonian Migratory Bird Research Center	Birds	X		
Pickering Creek Audubon Center eBird and Bluebird Monitoring Program	Talbot County Bird Club	Bluebirds, other species	X	X	
Oriole Migration Monitoring	University of Maryland, Baltimore County Department of Biological Sciences	Baltimore and Orchard Orioles	X		
Radar Analysis of Fall Migration Stopover Sites	University of Maryland Center for Environmental Science, Appalachian Lab	Migrating birds		X	
Maryland State Summer Acoustic Bat Monitoring	University of Maryland College Park	Bats		X	
Status of the Bald Eagle in Maryland (mid-winter surveys, nesting productivity)	U.S. Army Aberdeen Proving Ground, USFWS	Bald eagle	X		
National Mid-Winter Bald Eagle Survey	U.S. Army Corps of Engineers	Bald eagle	X		
Nature's Notebook	USA National Phenology Network	Timing of plant and animal seasonal activity	X	X	X
Bald Eagle Population Monitoring Program	USFWS	Bald eagle	X		
Integrated Waterbird Management and Monitoring Survey	USFWS	Waterbirds		X	
Delmarva Peninsula Fox Squirrel Monitoring	USFWS Blackwater National Wildlife Refuge	Delmarva fox squirrel	X		
Waterfowl Population Monitoring	USFWS Blackwater National Wildlife Refuge	Waterfowl	X	X	X

Monitoring Program or Action	Implementation Lead	Target	Monitoring Level		
			Individual Species	Groups of Species	Habitat
Marshbird Monitoring	USFWS Blackwater National Wildlife Refuge	Marshbirds	X	X	
Wildlife Monitoring	USFWS Eastern Neck National Wildlife Refuge	Waterfowl, songbirds, white-tailed deer, bats	X	X	X
Shrubland Right of Way Breeding Bird Survey	USFWS Patuxent Research Refuge	Birds		X	X
Shrubland Right of Way Pollinator Survey	USFWS Patuxent Research Refuge	Pollinators		X	X
Songbird Nest Box Monitoring	USFWS Patuxent Research Refuge	Birds		X	
Wood Duck Nest Box Monitoring	USFWS Patuxent Research Refuge	Wood duck	X		
Anuran Call Survey	USFWS Patuxent Research Refuge	Anurans		X	
Wildlife monitoring at Patuxent Research Refuge	USFWS Patuxent Research Refuge	White-tailed deer, waterbirds, reptiles, amphibians, harvested species	X	X	X
Chesapeake Bay Nutria Monitoring and Eradication Program	USFWS, MD DNR, USDA Animal and Plant Health Inspection Service	Nutria	X		X
Habitat Value of Restored Versus Natural Coastal Marshes and Islands to Migratory Birds in the Chesapeake Bay	USGS Eastern Ecological Science Center	Nesting waterbirds		X	X
Atlantic Seaduck Monitoring Program	USGS Eastern Ecological Science Center	Seaducks	X		
Atlantic Seaduck Study	USGS Eastern Ecological Science Center	Seaducks		X	X
Native Bee Inventory and Monitoring	USGS Eastern Ecological Science Center	Bees		X	
Bird Banding Laboratory	USGS Eastern Ecological Science Center	Birds		X	
Breeding Bird Survey	USGS Eastern Ecological Science Center	Birds		X	
Diving Duck Distribution, Abundance, and Food Habits in Chesapeake Bay	USGS Eastern Ecological Science Center	Diving ducks		X	
Northeast Amphibian Research and Monitoring Initiative	USGS Eastern Ecological Science Center	Amphibians		X	X

Monitoring Program or Action	Implementation Lead	Target	Monitoring Level		
			Individual Species	Groups of Species	Habitat
North American Amphibian Monitoring Program	USGS Eastern Ecological Science Center	Amphibians		X	
Osprey Nesting Platform Monitoring	USGS Eastern Ecological Science Center	Osprey	X		
Disease Surveillance	USGS, MD Dept. of Health	West Nile Virus, Avian Influenza	X		
Eastern Brook Trout Joint Venture	USGS, USFWS, U.S. Forest Service, MD DNR Fisheries Service	Water quality, brook trout populations	X		X

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Appendix 7b. Habitat-level monitoring programs in Maryland.

This list is presented in alphabetical order by Implementation Lead. Abbreviations are as follows: MD DNR: Maryland Department of Natural Resources; RAS: Resource Assessment Service; USFWS: U.S. Fish and Wildlife Service; USGS: U.S. Geological Survey; WHS: Wildlife and Heritage Service.

Monitoring Program or Action	Implementation Lead	Target	Monitoring Level		
			Individual Species	Groups of Species	Habitat
Alliance Citizen Monitoring Program	Alliance for the Chesapeake Bay	Water quality monitoring			X
American Chestnut Land Trust Water Quality Monitoring Program	American Chestnut Land Trust	Water quality monitoring			X
Water Quality Monitoring	Anacostia Watershed Society	Water quality monitoring			X
Assateague Coastkeeper	Assateague Coastal Trust	Water quality monitoring			X
Important Bird Area Stewards	Audubon Mid-Atlantic; Maryland Bird Conservation Partnership	Threats to habitats, priority birds		X	X
Audubon Naturalist Society Water Quality Monitoring Program	Audubon Naturalist Society	Water quality monitoring, benthic surveys			X
Baltimore County Stream Monitoring	Baltimore County Department of Environmental Protection and Sustainability	Water quality monitoring			X
Water Quality Monitoring	Blue Water Baltimore	Water quality monitoring			X
Baltimore Ecosystem Study – Long-term Ecological Research (LTER) project	Cary Institute of Ecosystem Studies	Ecological indicators (water quality, air quality, vegetation, etc.)		X	X
Chesapeake Bay Monitoring Program	Chesapeake Bay Program; USGS; MD DNR	Water quality monitoring including benthos, nutrients and sediments, freshwater inputs, chemical containments; freshwater flow; SAV		X	X
Water Quality Assessment of Chester River and Tributaries	Chester River Association	Water quality monitoring			X
Project Budburst	Chicago Botanic Garden	Climate change impacts		X	
County Water Quality Monitoring	Counties	Water quality monitoring			X
Periodic Outfall Monitoring	Friends of Sligo Creek	Water quality monitoring			X

Monitoring Program or Action	Implementation Lead	Target	Monitoring Level		
			Individual Species	Groups of Species	Habitat
Water Quality Monitoring and Data Management	Interstate Commission on the Potomac River Basin	Water quality monitoring			X
Stream Monitoring	Izaak Walton League of Maryland	Aquatic insects, chemical contaminants, physical appearance		X	X
Magothy River Creek Watchers	Magothy River Association	Water quality monitoring			X
The Magothy River Index	Magothy River Association	Water quality monitoring, SAV		X	X
Beach Water Quality Sampling Program	Maryland Beaches Program	Beach habitat health			X
Maryland Coastal Bays Volunteer Water Quality Monitoring Program	Maryland Coastal Bays Program, MD DNR, National Park Service	Water quality, algal blooms		X	X
Maryland Coastal Bays Wetland Assessments	Maryland Coastal Bays Program	Wetland condition			X
Shoreline Change and Rate Monitoring	Maryland Geological Survey	Shoreline change			X
Resource Assessment of Atlantic Coast Areas	Maryland Geological Survey	Mineral, water, land resources			X
Bird City/Campus/County Program	Maryland Bird Conservation Partnership	Bird habitat		X	X
Great Herring Bay Stream and Shore Survey	Maryland Save Our Streams	Water quality monitoring			X
Stream Monitoring	Maryland Stream Waders	Water quality monitoring, stream life		X	X
Watershed Water Quality Monitoring	Maryland Water Monitoring Council	Water quality monitoring			X
Acid Mine Drainage Restoration monitoring	Maryland Department of the Environment	Water quality monitoring			X
Forest Pest Management Program	Maryland Dept of Agriculture, U.S. Department of Agriculture, U.S. Forest Service	Forest impacts from insect pests (Asian longhorned beetle, gypsy moth, etc.)	X	X	X
Coastal LIDAR (high resolution elevation data)	MD DNR Watershed and Climate Services	Water quality monitoring			X
Coastal Fisheries Program Fish Population monitoring in Coastal Bays and Atlantic Ocean	MD DNR Fisheries	Water quality, tuna, billfish, other fish	X	X	X
Fisheries Habitat and Ecosystem Program, Habitat Investigations	MD DNR Fisheries	Recreational fish species in tidal waters	X	X	X
Invasive Species Monitoring	MD DNR Fisheries, MD DNR RAS	SAV, non-native crabs, nutria, other non-native species	X	X	X

Monitoring Program or Action	Implementation Lead	Target	Monitoring Level		
			Individual Species	Groups of Species	Habitat
Spawning Horseshoe Crab Voluntary Monitoring Program	MD DNR Fisheries, Maryland Coastal Bays Program	Horseshoe crab habitat	X		X
Forest Certification	MD DNR Forest Service	Forest condition and practices			X
Forest Inventory and Analysis	MD DNR Forest Service, U.S. Forest Service	Forest data			X
Stream Buffers	MD DNR Forest Service	Buffer plantings			X
Conservation Easements	MD DNR Maryland Environmental Trust, local land conservancies and trusts	Easement condition			X
Continuous Monitoring Program	MD DNR RAS	Water quality monitoring			X
Chesapeake Bay Monitoring Program, Ecosystem Processes Component	MD DNR RAS	Water quality monitoring			X
Chesapeake Bay Monitoring Program: Eyes on the Bay	MD DNR RAS	Water quality and habitat monitoring		X	X
Tidal Water and Habitat Quality Monitoring Program	MD DNR RAS	Water quality monitoring			X
Coastal Bays Water Quality Monitoring Program	MD DNR RAS	Water quality monitoring, SAV		X	X
Marcellus Shale Stream Monitoring Coalition	MD DNR RAS	Water quality monitoring in possible hydraulic fracturing area			X
Maryland Biological Stream Survey	MD DNR RAS	Ecological resources and conditions of stream and river habitat	X	X	X
Maryland River Input and Main Bay Monitoring Program	MD DNR RAS	Water quality monitoring, flow rate monitoring			X
Deer Management Program	MD DNR WHS	White-tailed deer; sika deer	X		X
Mast Survey (food supply for forest-dwelling fauna)	MD DNR WHS	Forest-dwelling animals		X	X
Nongame/Guild Monitoring	MD DNR WHS	Marshbirds, freshwater mussels		X	X
Rare Species and Natural Community Monitoring	MD DNR WHS	Rare species and natural communities	X	X	X

Monitoring Program or Action	Implementation Lead	Target	Monitoring Level		
			Individual Species	Groups of Species	Habitat
Restoration Site Monitoring	MD DNR WHS	Restored natural communities	X	X	X
Air Quality Monitoring	Maryland Department of the Environment	Air quality monitoring (ozone, pollutants)			X
Shellfish Harvest Monitoring	Maryland Department of the Environment	Water quality monitoring, disease, contaminants		X	X
Wetland Mitigation Monitoring	Maryland Department of the Environment	Water quality monitoring, SAV, sea-level rise		X	X
Wetland Status and Trends	Maryland Department of the Environment	Water quality monitoring, SAV, sea-level rise		X	X
Water Quality Monitoring Program	Maryland Department of the Environment	Water quality monitoring			X
Water Quality Monitoring	Nanticoke Watershed Alliance, Nanticoke Creekwatchers	Water quality monitoring		X	X
LANDSAT Remote Sensing (land use/land cover)	National Aeronautics and Space Administration, USGS, Maryland Department of Planning	Land use			X
Chesapeake Bay Water Quality Monitoring	National Aquarium in Baltimore	Water quality monitoring			X
Restoration Center Programs	National Oceanic and Atmospheric Administration	Oil spill and contamination monitoring			X
Sea-level Rise Monitoring	National Oceanic and Atmospheric Administration – National Geodetic Survey	Sea-level monitoring			X
National Estuarine Research Reserve System-wide Monitoring Program	National Oceanic and Atmospheric Administration, Chesapeake Bay National Estuarine Research Reserve	Water quality monitoring, weather, land use			X
National Estuarine Research Reserve System Wide Monitoring Program	National Oceanic and Atmospheric Administration, Chesapeake Bay National Estuarine Research Reserve	SAV, water quality		X	X
Assateague Island Geomorphology	National Park Service	Shoreline change			X
Estuarine Tides and Water Levels, Assateague Island NS	National Park Service	Tidal changes			X
Vegetation Change Monitoring, North End of Assateague Island NS	National Park Service	Plants		X	X

Monitoring Program or Action	Implementation Lead	Target	Monitoring Level		
			Individual Species	Groups of Species	Habitat
Water Quality and Threat monitoring	Riverkeepers (statewide)	Water quality monitoring			X
Operation Clearwater	Severn River Association	Water quality monitoring			X
South River Operation Clearwater	South River Federation	Water quality monitoring			X
State of the Beach Monitoring Program	Surfrider Foundation	Water quality monitoring			X
Aberdeen Proving Ground Environmental Monitoring	U.S. Army Aberdeen Proving Ground	Groundwater contaminants, water quality monitoring			X
Disposal Area Monitoring System	U.S. Army Corps of Engineers	Water quality monitoring			X
Poplar Island Restoration Project monitoring	U.S. Army Corps of Engineers	Water quality monitoring, fish, SAV, habitats		X	X
Fort Meade Environmental Monitoring	U.S. Army Environmental Center	Groundwater contaminants			X
Multi-Resolution Land Characteristics	U.S. Environmental Protection Agency	Land cover			X
Chesapeake Bay Benthic Monitoring Program	U.S. Environmental Protection Agency, Chesapeake Bay Program, MD DNR	Water quality monitoring, benthic invertebrates		X	X
Chesapeake Bay Monitoring	University of Maryland Center for Environmental Science, Chesapeake Biological Laboratory	Water quality monitoring, phytoplankton, SAV		X	X
Chesapeake Bay Remote Sensing Program	University of Maryland Center for Environmental Science, Maryland Sea Grant	Water quality monitoring (chlorophyll)		X	X
National Resources Inventory	U.S. Department of Agriculture, Natural Resources Conservation Service	Land use, wetlands distribution			X
Regional Monitoring Network	U.S. Environmental Protection Agency	water quality, stream flow parameters, and biological indicators of aquatic ecosystem health		X	X
National Wetlands Inventory Program	USFWS	Wetland distribution			X
Integrated Deer Population Monitoring	USFWS Patuxent Research Refuge	White-tailed deer habitat destruction	X		X

Monitoring Program or Action	Implementation Lead	Target	Monitoring Level		
			Individual Species	Groups of Species	Habitat
Invasive Plant Survey	USFWS Patuxent Research Refuge	Invasive plants		X	X
Shrubland Right of Way Breeding Bird Survey	USFWS Patuxent Research Refuge	Shrubland right-of-way		X	X
Shrubland Right of Way Pollinator Survey	USFWS Patuxent Research Refuge	Shrubland right-of-way		X	X
Shrubland Right of Way Vegetation Survey	USFWS Patuxent Research Refuge	Shrubland right-of-way		X	X
Effectiveness of Hydrological Restoration Efforts	USFWS Blackwater National Wildlife Refuge	Hydrological changes in marsh			X
Marsh Surface Elevation Trajectory	USFWS Blackwater National Wildlife Refuge	Marsh surface elevation			X
Monitoring Delmarva Fox Squirrel Occupancy (following forest management practices)	USFWS Blackwater National Wildlife Refuge	Forest habitats			X
Maryland Marsh Restoration Project	USFWS Blackwater National Wildlife Refuge, Audubon Mid-Atlantic	Marsh habitats			X
Chesapeake Bay River Input Monitoring Program	USGS	Water quality monitoring			X
Ground-Water Level Monitoring	USGS	Water quality monitoring			X
National Water Quality Assessment Program	USGS	Water quality monitoring			X
WaterWatch (measuring streamflow conditions of Chesapeake Bay tributaries)	USGS	Water quality monitoring			X
Assessing the Relative Habitat Value of Restored Versus Natural Coastal Marshes and Islands to Migratory Birds in Chesapeake Bay	USGS Eastern Ecological Science Center	Water quality monitoring, wetlands health, bird habitat		X	X
NPS Vital Signs Monitoring Program	USGS Eastern Ecological Science Center	Water quality, SAV		X	X
Predicting the Persistence of Coastal Wetlands to Global Change Effects	USGS Eastern Ecological Science Center	Sea-level monitoring			X
LIDAR Topographic Surveys, Assateague Island	USGS, National Park Service	Topographic survey			X
Eastern Brook Trout Joint Venture	USGS, USFWS, U.S. Forest Service, MD DNR Fisheries Service	Water quality, brook trout populations	X		X

Monitoring Program or Action	Implementation Lead	Target	Monitoring Level		
			Individual Species	Groups of Species	Habitat
Hydronet	Climate Resilience Network, University of Maryland College Park	Coastal flooding			X
Submerged Aquatic Vegetation Surveys	Virginia Institute of Marine Sciences	SAV, water quality		X	X

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Appendix 8a. Organizations that participated in Maryland's 2025 SWAP revision process.

Organization Name
Accokeek Foundation
Alliance for the Chesapeake Bay
American Chestnut Land Trust
American University
Anacostia Watershed Society
Anne Arundel County Department of Recreation and Parks, Jug Bay Wetlands Sanctuary
Appalachian Trail Conservancy
Audubon Mid-Atlantic
Baltimore City Department of Recreation and Parks
Baltimore County Green Alliance
Baltimore Green Space
Butterfly Society of Virginia
Calvert County Parks & Recreation, Natural Resources Division
Carnegie Museum of Natural History
Casey Trees
Catoctin Land Trust
Center for Ecosystem Recovery
Chesapeake Audubon Society, Pickering Creek Audubon Center
City of Frederick
Coastal Resources, Inc.
Defensores de la Cuenca
Delaware State University College of Agriculture, Science & Technology
Dragonflies & Damselflies of Calvert
Eastern Shore Land Conservancy
Edge Engineering & Science
FrogLog
Frostburg State University, Department of Biology
Garrett College
George Washington University, Columbian College of Arts and Sciences
Georgetown University, College of Arts & Sciences
Gunpowder Riverkeeper
Gunpowder Valley Conservancy
Harford Land Trust
Howard County Conservancy
i2L Research
Interfaith Partners for the Chesapeake
Izaak Walton League of America, Lois Green-Sligo Chapter
Izaak Walton league of America, Maryland Division
Izaak Walton League of America, Mid-Shore Chapter
Izaak Walton League of America, Sportsman's Chapter
Johns Hopkins University, Krieger School of Arts and Sciences
Leaf & Bed
Lower Shore Land Trust

Organization Name

Maryland Biodiversity Project
Maryland Bird Conservation Partnership
Maryland Coastal Bays Program
Maryland Commission on Indian Affairs
Maryland Department of Agriculture
Maryland Department of Natural Resources, Critical Area Commission
Maryland Department of Natural Resources, Fishing and Boating Service
Maryland Department of Natural Resources, Forest Service
Maryland Department of Natural Resources, Maryland Park Service
Maryland Department of Natural Resources, Office of Communications
Maryland Department of Natural Resources, Resource Assessment Service
Maryland Department of Natural Resources, Watershed and Climate Services
Maryland Department of Natural Resources, Wildlife and Heritage Service
Maryland Department of the Environment
Maryland Environmental Trust
Maryland Native Plant Society
Maryland Native Plant Society, Eastern Shore Chapter
Maryland Native Plant Society, Western Mountains Chapter
Maryland Ornithological Society
Maryland Ornithological Society, Anne Arundel Bird Club
Maryland Ornithological Society, Baltimore Bird Club
Maryland Ornithological Society, Caroline Bird Club
Maryland Ornithological Society, Cecil Bird Club
Maryland Ornithological Society, Montgomery Bird Club
Maryland Ornithological Society, Patuxent Bird Club
Maryland-DC Breeding Bird Atlas
Maryland-National Capital Park and Planning Commission, Montgomery Parks
Maryland-National Capital Park and Planning Commission, Prince George's County Planning
MDLepsOdes
Mid-Atlantic Center for Herpetology and Conservation
Mid-Atlantic Invertebrate Field Studies
Nanticoke Watershed Alliance
National Aquarium
National Park Service, Assateague Island National Seashore
National Park Service, C&O Canal National Historical Park
National Wild Turkey Federation, Maryland Chapter
Naval Air Station Patuxent River
Northeast Association of Fish and Wildlife Agencies
Old-Growth Forest Network
Operation Osprey
Owl Moon Rehab
Oyster Recovery Partnership
Patapsco Heritage Greenway
Patuxent Tidewater Land Trust
Quail Forever

Organization Name

Randolph-Macon College

Reynwood Forest Management (on behalf of Evergreen Heritage Center Foundation)

Ruffed Grouse Society

Salisbury University, Henson School of Science & Technology

Scenic Rivers Land Trust

Sierra Club, Maryland Chapter

Smithsonian Conservation Biology Institute, National Zoological Park

Smithsonian Environmental Research Center

Smithsonian National Museum of Natural History

Southern Maryland Audubon Society

Southern Maryland Resource Conservation & Development

Susquehannock Wildlife Society

The Beaver Institute

The Nature Conservancy

Towson University, Jess & Mildred Fisher College of Science & Mathematics

U.S. Department of Agriculture, Natural Resources Conservation Service

U.S. Fish and Wildlife Service, Chesapeake Bay Ecological Services Field Office

U.S. Fish and Wildlife Service, Native Bee Lab

U.S. Geological Survey, Eastern Ecological Science Center

U.S. Geological Survey, Patuxent Wildlife Research Center

University of Maryland Baltimore County, College of Natural and Mathematical Sciences

University of Maryland Center for Environmental Science, Appalachian Lab

University of Maryland Center for Environmental Science, Maryland Sea Grant

University of Maryland College Park, College of Agriculture and Natural Resources

University of Maryland College Park, College of Computer, Mathematical, & Natural Sciences

University of Maryland Extension Office, Central Maryland Research and Education Center

University of Maryland Extension Office, Wye Research and Education Center

Washington College, Center for Environment & Society

West Virginia Department of Natural Resources

Western Pennsylvania Conservancy

Wild Ones Chesapeake Bay

Wild Ones Greater Frederick

Wildlife Advisory Commission