

Appendix A Millsap Avian Ranking

A.1 Ranking Avifauna of the District for Selection of SGCN

The updated SGCN ranking lists 213 bird species that occur in the District of Columbia with enough regularity to not be considered a rare vagrant. The main framework for the avian ranking process comes from the Millsap paper. DDOE prioritized conservation efforts for District avifauna utilizing national, regional, and local aspects of several other ranking systems. These aspects include population status, vulnerability, population trends, current knowledge, specialization, and ongoing management.

Since the District is severely limited in geographic size, using only national or regional data would not adequately reflect the impact conservation efforts would have for some species. To attempt a balance that would more accurately assess conservation needs, species were scored on a number of biological variables for North America and the region, as well as District-only aspects.

A.2 Scoring

A.2.1 Biological Variables

Population size and range size data were collected from a number of sources, including U.S. Fish and Wildlife Waterfowl Population surveys, International Shorebird surveys, U.S. Flyways, Ducks Unlimited, Partners in Flight, and the Cornell Lab of Ornithology.

Population Size – Estimated number of adults throughout North America

0–500 individuals	10
501–1,000 individuals, or population suspected to be small	8
1,001–3000 individuals	6
3,001–10,000 individuals	4
10,001–50,000 individuals, or population suspected to be large	2
> 50,000 individuals	0

Population Trend – Overall trend in number of individuals in North America

Population size known to be decreasing	10
Trend unknown, but population suspected to be decreasing	8
Population formerly experienced serious declines, but stable or increasing	6
Population size stable or suspected to be increasing	2
Population size known to be increasing	0

This score is based solely on data from the North American Breeding Bird Survey (Eastern BBS Region) to associate the scoring more regionally with the District.

Range Size – Size of areas over which species is distributed when most restricted

<100 km ²	10
101–1,000 km ²	9
1,001–40,000 km ²	7
40,001–100,000 km ²	4
100,001–2,000,000 km ²	1
>2,000,000 km ²	0

Population concentration – Degree to which populations congregate at specific locations

Majority concentrates in single location	10
Concentrates at 1–25 locations	6
Concentrates at >25 locations	2
Does not concentrate	0

Reproductive potential for recovery – Ability of species to recover from serious population declines

(a) Average number of eggs or young produced per adult female per year

<1 offspring/female/year	5
1–9 offspring/female/year	3
10–100 offspring/female/year	1
>100 offspring/female/year	0

(b) Minimum age at which females typically reproduce

>8 years	5
4–8 years	3
2–3 years	1
<2 years	0

Ecological specialization – Degree to which the species is dependent upon environmental factors

(a) Dietary specialization – primary response to decrease in availability of primary food source

Number of individuals declines, no substantial shift in diet	3.3
Little change in number of individuals, shift in diet	0

(b) Reproductive specialization – primary response of local populations to decrease in preferred breeding sites

Number of individuals or breeding attempts decline, no substantial shift to alternate breeding sites	3.3
Substantial shift to alternate breeding sites with little change in number of individuals	0

Other specialization – Ecological or behavioral specializations (roosting, hibernacula, etc.)

Highly specialized	3.3
Moderately specialized	1.7
Not specialized	0

A.2.2 Action Variables

Knowledge of distribution in the District

Distribution is extrapolated from a few locations or limited knowledge	10
Broad range limits or habitat associations are known, but local occurrence cannot be predicted accurately	5
Distribution is well known and occurrence predictable	0

Species Identified as a High Priority Northeast Species of Conservation Need

As designated in the *Northeast Regional Conservation Synthesis for State Wildlife Action Plan Revisions*.

Very high	10
High	8
Not listed as regional high priority species	0

Breeding population trend based for the District and Maryland

Extrapolated from the *2nd Atlas of the Breeding Birds of Maryland and the District of Columbia ©2010*, based on percentage change in number of blocks species was detected.

Breeding population size known to be decreasing	10
Breeding population trend unknown, suspected to be decreasing	8
Breeding population formerly experienced serious declines, but is presently stable or increasing	6
Breeding population stable or suspected to be stable or increasing	2
Population size known to be increasing	0

Population Trend – Overall trend in number of individuals in the District

Population size known to be decreasing	10
Trend unknown, but population suspected to be decreasing	8
Population formerly experienced serious declines, but is presently stable or increasing	6
Population stable or suspected to be stable or increasing	2
Population size known to be increasing	0

Ongoing management activities in the District

None directed primarily at the species	10
Management mostly related to enforcement of conservation laws	5
Some direct management activities in addition to law enforcement	0

Several of the ranking factors in the Millsap paper that dealt with harvest, percentage of total range in area of concern, and period of occurrence were not included due to the lack of a hunting season in the District and the relatively diminutive area of the District in terms of the total range of any avian species. Using data from the *Second Atlas of the Breeding Birds of Maryland and the District of Columbia* should account for period of occurrence without unbalancing the breeding/resident/migrating dynamic.

2014 State of the Birds Report

The *2014 State of the Birds Report* was released in September 2014. Data was collected from the North American Breeding Bird Survey, Audubon Christmas Bird Count, U.S. Fish and Wildlife Service waterfowl population surveys, the International Shorebird Survey, Atlantic Canada Shorebird Survey, and the Ontario Shorebird Survey. This report provided not only an unprecedented amalgamation of data to determine needed conservation actions, but provides an up to date status of species and habitat health.

233 birds were identified as species most in need of conservation action and placed on the Watch List as part of the 2014 State of the Birds Report. Species were given numerical scores based on which list they were assigned to; Red Watch List (10), Yellow Watch List (5). Species designated as one of the 33 Common Birds in Steep Decline were awarded points as well (2). The Watch Lists include population size, breeding distribution, non-breeding distribution, threats to breeding season, threats to non-breeding season, and population trends.

A.3 Ranking

Species were sorted based on their aggregate score, ranging from the American woodcock (82) to the Mallard (3) and Canada goose (3), tied with the lowest scores.

A.4 Avian SGCN Selection

Ranked avian species were broken out into groups based on habitat association. From these habitat groups, those species with the highest ranking scores were selected as candidate SGCN for 2015.

Table 29 Millsap Ranking for the District's Avifauna

Common Name	Scientific Name	Biological Variables								Action Variables						State of the Birds Report	Species Total Score
		Population Size	Population Trend	Range Size	Distribution Trend	Population Concentration	Reproductive Potential	Ecological Specialization	Total	Knowledge of Distribution in DC	Concern	Population Trend in DC/MD	DC Population Trend	Ongoing Management Activities in DC	Total		
Snow Goose	<i>Chen caerulescens</i>	5,000,000 0	e 0	f 0	e 0	c 2	b,d 3	Aa, Bb, Cb 5	10	b 5			e 0	a 10	15	0	25
Cackling Goose	<i>Branta hutchinsii</i>	100,000 0		e 1			b,d 3	Ab,Bb,Cc 0	4	b 5			d 2	a 10	17	0	21
Canada Goose	<i>Branta canadensis</i>	5,200,000 0	10.1 0	f 0	e 0	d 0	b,d 3	Ab,Bb,Cc 0	3	c 0		187 0	e 0	c 0	0	0	3
Wood Duck	<i>Aix sponsa</i>	4,600,000 0	2 6	f 0		d 0	b,d 3	Ab, Ba, Cb 5	14	b 5		25 6	b 8	b 5	24	0	38
Gadwall	<i>Anas strepera</i>	3,600,000 0	2.4 2	f 0		d 0	b,d 3	Ab, BA, Cb 5	10	b 5		-24 10	d 2	a 10	27	0	37
American Wigeon	<i>Anas americana</i>	2,100,000 0	-0.8 8	f 0		d 0	b,d 3	Ab, BA, Cb 5	16	b 5			d 2	a 10	17	w 2	35
American Black Duck	<i>Anas rubripes</i>	910,000 0	-3.7 10	f 0		d 0	b,d 3	Ab, BA, Cb 5	18	b 5	Very High 10	-31 10	b 8	a 10	43	0	61
Mallard	<i>Anas platyrhynchos</i>	10,600,000 0	1.4 0	f 0		d 0	b,d 3	Ab,Bb,Cc 0	3	c 0		15 0	e 0	c 0	0	0	3
Blue-winged Teal	<i>Anas discors</i>	9,200,000 0	0 2	f 0		d 0	b,d 3	Ab, BA, Cb 5	10	b 5		-68 10	b 8	a 10	33	0	43
Northern Shoveler	<i>Anas clypeata</i>	5,000,000 0	1.2 0	f 0		d 0	b,d 3	Ab, BA, Cb 5	8	b 5			b 8	a 10	23	0	31
Northern Pintail	<i>Anas acuta</i>	3,500,000 0	-2.3 8	f 0		d 0	b,d 3	Ab, BA, Cb 5	16	b 5			b 8	a 10	23	w 2	41
Green-winged Teal	<i>Anas crecca</i>	3,500,000 0	-1.7 8	f 0		d 0	b,d 3	Ab, BA, Cb 5	16	b 5			d 2	a 10	17	0	33
Canvasback	<i>Aythya valisineria</i>	760,000 0	1.4 0	f 0		d 0	b,d 3	Ab, BA, Cb 5	8	b 5			d 2	a 10	17	0	25
Redhead	<i>Aythya americana</i>	1,300,000 0	-0.4 8	f 0		d 0	b,d 3	Ab, BA, Cb 5	16	b 5			d 2	a 10	17	0	33
Ring-necked Duck	<i>Aythya collaris</i>	2,000,000 0	5.6 0	f 0		d 0	b,d 3	Ab, BA, Cb 5	8	c 0			d 2	a 10	12	0	20

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Greater Scaup	<i>Aythya marila</i>	520,000		f		c	b,d	Ab, BA, Cb		b			d	a		w	
		0		0		2	3	5	10	5	0		2	10	17	2	29
Lesser Scaup	<i>Aythya affinis</i>	4,680,000	1.7	f		c	b,d	Ab, BA, Cb		c			e	a			
		0	0	0		2	3	5	10	0	0		0	10	10	0	20
Surf Scoter	<i>Melanitta perspicillata</i>	536,000		e		c	b,d	Ab, BA, Cb		b			d	a			
		0		1		2	3	5	11	5	0		2	10	17	0	28
White-winged Scoter	<i>Melanitta fusca</i>	500,000		f		c	b,d	Ab, BA, Cb		b			e	a			
		0		0		2	3	5	10	5	0		0	10	15	0	25
Long-tailed Duck	<i>Clangula hyemalis</i>	1,000,000		e		d	b,d	Ab, BA, Cb		b			e	a		w	
		0		1		0	3	5	9	5	0		0	10	15	2	26
Bufflehead	<i>Bucephala albeola</i>	1,400,000	1.1	f		d	b,d	Ab, BA, Cb		b			e	a			
		0	2	0		0	3	5	10	5	0		0	10	15	0	25
Common Goldeneye	<i>Bucephala clangula</i>	1,000,000	2.2	f		d	b,d	Ab, BA, Cb		b			e	a			
		0	0	0		0	3	5	8	5	0		0	10	15	0	23
Hooded Merganser	<i>Lophodytes cucullatus</i>	350,000	6.5	f		d	b,d	Ab, BA, Cb		b		525	d	a			
		0	0	0		0	3	5	8	5	0	0	2	10	17	0	25
Common Merganser	<i>Mergus merganser</i>	600,000	-1	f		d	b,d	Ab, BA, Cb		b		0	e	a			
		0	8	0		0	3	5	16	5	0	0	0	10	15	0	31
Red-breasted Merganser	<i>Mergus serrator</i>	250,000	-7.7	f		d	b,d	Ab, BA, Cb		b			e	a			
		0	10	0		0	3	5	18	5	0		0	10	15	0	33
Ruddy Duck	<i>Oxyura jamaicensis</i>	650,000	1.2	f		d	b,d	Ab, BA, Cb		b		0	d	a			
		0	0	0		2	3	5	10	5	0	0	2	10	17	0	27
Northern Bobwhite	<i>Colinus virginianus</i>	5,800,000	-4.2	f		c	c,d	Ab, BA, Cb		a	Very High	-45	a	a		w	
		0	10	0		2	1	5	18	10	10	10	10	10	50	2	70
Wild Turkey	<i>Meleagris gallopavo</i>	6,300,000	7.9	f		d	b,d	Ab, BA, Cb		c		211	d	a			
		0	0	0		0	3	5	8	0	0	0	2	10	12	0	20
Red-throated Loon	<i>Gavia stellata</i>	50000		f		d	b,d	Ab, BA, Cb		b			e	a		y	
		2		0		0	3	5	10	5	0		0	10	15	5	30

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Common Loon	<i>Gavia immer</i>	620000 0	0.9 8	f 0		d	b,d	Ab, BA, Cb	5 16	b 5	Very High 10		d 2	a 10	27 0	43	
Pied-billed Grebe	<i>Podilymbus podiceps</i>	12000 2	0.5 2	f 0		d	b,d	Ab, BA, Cb	3 12	b 5	Very High 10	36 0	e 0	a 10	25 0	37	
Horned Grebe	<i>Podiceps auritus</i>	200,000 0	0.6 2	f 0		d	b,d	Ab, BA, Cb	3 10	b 5			e 0	a 10	15 0	25	
Red-necked Grebe	<i>Podiceps grisegena</i>	45000 2	3.3 0	f 0		d	b,d	Ab, BA, Cb	3 10	b 5			d 2	a 10	17 0	27	
Double-crested Cormorant	<i>Phalacrocorax auritus</i>	1,630,000 0	4.6 0	f 0		d	b,d	Ab, BA, Cb	3 8	c 0		0 0	e 0	a 10	10 0	18	
American Bittern	<i>Botaurus lentiginosus</i>	3,000,000 0	-1.7 10	f 0		d	b,d	Ab, BA, Cb	3 18	b 5	Very High 10	-45 10	b 8	a 10	43 0	61	
Least Bittern	<i>Ixobrychus exilis</i>	130,000 0	-0.2 8	f 0		d	b,d	Ab, BA, Cb	3 16	b 5	Very High 10	-30 10	b 8	a 10	43 0	59	
Great Blue Heron	<i>Ardea herodias</i>	83,000 0	1.3 0	f 0		c	b,d	Ab, BA, Cb	3 10	c 0		96 0	a 10	a 10	20 0	30	
Great Egret	<i>Ardea alba</i>	270,000 0	2.2 0	f 0		c	b,d	Ab, BA, Cb	3 10	b 5		21 0	a 10	a 10	25 0	35	
Little Blue Heron	<i>Egretta caerulea</i>	150,000 0	-1.1 8	f 0		d	b,d	Ab, BA, Cb	3 16	b 5	Very High 10	60 0	b 8	a 10	33 0	49	
Green Heron	<i>Butorides virescens</i>	124,500 0	-1.6 8	f 0		d	b,d	Ab, BA, Cb	3 16	b 5		-2 8	b 8	a 10	31 0	47	
Black-crowned Night Heron	<i>Nycticorax nycticorax</i>	50,000 2	-0.2 6	f 0		c	b,d	Ab, BA, Cb	3 18	c 0	Very High 10	13 0	d 2	a 10	22 0	40	
Yellow-crowned Night Heron	<i>Nyctanassa violacea</i>	85,000 0	-0.4 8	f 0		d	b,d	Ab, BA, Cb	3 16	b 5	Very High 10	67 0	b 8	a 10	33 0	49	
Black Vulture	<i>Coragyps atratus</i>	3,400,000 0	4.7 0	f 0		d	b,d	Ab, BA, Cb	3 8	c 0		85 0	c 6	a 10	16 0	24	

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Turkey Vulture	<i>Cathartes aura</i>	5,100,000	2.3	f		d	b,d	Ab, BA, Cb		c		-6	c	a			
		0	0	0		0	3	5	8	0	0	10	6	10	26	0	
Osprey	<i>Pandion haliaetus</i>	200,000	2.8	f		d	b,d	Aa, Ba, Cb		c		39	c	b			
		0	6	0		0	3	8.3	17.3	0	0	6	6	5	17	0	
Bald Eagle	<i>Haliaeetus leucocephalus</i>	300,000	8.6	f		d	b, b	Ab, BA, Cb		b		168	c	b			
		0	6	0		0	6	5	17	5	0	6	6	5	22	0	
Northern Harrier	<i>Circus cyaneus</i>	700,000	-0.3	f		d	b,d	Ab, BA, Cb		b	Very High	-15	b	a			
		0	8	0		0	3	5	16	5	10	10	8	10	43	0	
Sharp-shinned Hawk	<i>Accipiter striatus</i>	500,000	0.6	f		d	b,d	Ab, BA, Cb		b		50	b	a			
		0	2	0		0	3	5	10	5	0	0	8	10	23	0	
Cooper's Hawk	<i>Accipiter cooperii</i>	700,000	2.9	f		d	b,d	Ab, BA, Cb		c		226	d	a			
		0	0	0		0	3	5	8	0	0	0	2	10	12	0	
Red-shouldered Hawk	<i>Buteo lineatus</i>	1,100,000	3	f		d	b,d	Ab, BA, Cb		c	High	26	c	a			
		0	0	0		0	3	5	8	0	8	6	6	10	30	0	
Broad-winged Hawk	<i>Buteo platypterus</i>	1,700,000	0.3	f		c	b,d	Ab, BA, Cb		b	High	-45	b	a			
		0	2	0		2	3	5	12	5	8	10	8	10	41	0	
Red-tailed Hawk	<i>Buteo jamaicensis</i>	2,000,000	1.9	f		d	b,d	Ab, BA, Cb		c		26	c	a			
		0	0	0		0	3	5	8	0	0	6	6	10	22	0	
Virginia Rail	<i>Rallus limicola</i>		0.4	f		d	b,d	Ab, BA, Ca		a		-12	b	a			
			2	0		0	3	6.6	11.6	10	0	10	8	10	38	0	
Sora	<i>Porzana carolina</i>		-0.2	f		d	b,d	Ab, BA, Ca		a	Very High	200	b	a			
			6	0		0	3	6.6	15.6	10	10	6	8	10	44	0	
American Coot	<i>Fulica americana</i>	6,000,000	-0.7	f		d	b,d	Ab, BA, Cb		c		300	d	a			
		0	2	0		0	3	5	10	0	0	0	2	10	12	0	
Killdeer	<i>Charadrius vociferus</i>	1,000,000	-0.5	f		d	b,d	Ab, BA, Cb		c		-2	d	a			
		0	2	0		0	3	5	10	0	0	8	2	10	20	0	
Solitary Sandpiper	<i>Tringa solitaria</i>	150,000	-1.1	f		d	b,d	Ab, BA, Cb		b			d	a			
		0	8	0		0	3	5	16	5	0		2	10	17	0	

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Spotted Sandpiper	<i>Actitis macularius</i>	150,000	-1	f		d	b,d	Ab, BA, Cb		b		6	b	a			
		0	8	0		0	3	5	16	5	0	2	8	10	25	0	
Greater Yellowlegs	<i>Tringa melanoleuca</i>	100,000	3.4	f		d	b,d	Ab, BA, Cb		b			b	a			
		0	0	0		0	3	5	8	5	0		8	10	23	0	
Lesser Yellowlegs	<i>Tringa flavipes</i>	500,000	-4.8	f		d	b,d	Ab, BA, Cb		b			b	a		y	
		0	10	0		0	3	5	18	5	0		8	10	23	5	
Upland Sandpiper	<i>Bartramia longicuada</i>	350,000	0.7	f		d	b,d	Ab, BA, Cb		b	Very High	-86	b	a			
		0	6	0		0	3	5	14	5	10	10	8	10	43	0	
Wilson's Snipe	<i>Gallinago delicata</i>	2,000,000	0.3	f		d	b,d	Ab, BA, Ca		b	High		b	a			
		0	6	0		0	3	6.6	15.6	5	8		8	10	31	0	
American Woodcock	<i>Scolopax minor</i>	5,000,000	-1.4	e		d	b,d	Aa, Ba, Ca		a	Very High	-48	a	a		y	
		0	8	1		0	3	10	22	10	10	10	10	10	50	5	
Bonaparte's Gull	<i>Chroicocephalus philadelphia</i>	390,000		f		d	b,d	Ab, BA, Cb		b			e	a			
		0		0		0	3	5	8	5	0		0	10	15	0	
Laughing Gull	<i>Leucophaeus atricilla</i>	538,000	3.6	e		d	b,d	Ab, BA, Cb		c		-33	d	a			
		0	0	1		0	3	5	9	0	0	10	2	10	22	0	
Ring-billed Gull	<i>Larus delawarensis</i>	1,700,000	2.4	f		d	b,d	Ab, BA, Cb		c			d	a			
		0	0	0		0	3	5	8	0	0		2	10	12	0	
Herring Gull	<i>Larus argentatus</i>	246,000	-3.2	f		d	b,d	Ab, BA, Cb		c		62	d	a		w	
		0	10	0		0	3	5	18	0	0	0	2	10	12	2	
Lesser Black-backed Gull	<i>Larus fuscus</i>	750,000		e		d	b,d	Ab, BA, Cb		b			e	a			
		0		1		0	3	5	9	5	0		0	10	15	0	
Great Black-backed Gull	<i>Larus marinus</i>	75,000	-2.7	e		d	b,d	Ab, BA, Cb		c		156	d	a			
		0	10	1		0	3	5	19	0	0	0	2	10	12	0	
Caspian Tern	<i>Hydroprogne caspia</i>	70,000	0.1	f		c	b,d	Ab, BA, Cb		b			e	a			
		0	2	0		2	3	5	12	5	0		0	10	15	0	
Forster's Tern	<i>Sterna forsteri</i>	50,000	-2	e		d	b,d	Ab, BA, Cb		b	Very High	36	d	a			
		2	10	1		0	3	5	21	5	10	0	2	10	27	0	
Rock Pigeon	<i>Columba livia</i>	12,000,000	-1	f		d	b,d	Ab, BA, Cb		c		-8	d	a			
		0	8	0		0	3	5	16	0	0	8	2	10	20	0	

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Mourning Dove	<i>Zenaida macroura</i>	100,000,000	-0.5	f		d	b,d	Ab, BA, Cb		c		2	e	a			
		0	2	0		0	3	5	10	0	0	2	0	10	12	0	
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	8,000,000	-1.8	f		d	b,d	Ab, BA, Cb		b		0	b	a		w	
		0	8	0		0	3	5	16	5	0	2	8	10	25	2	
Black-billed cuckoo	<i>Coccyzus erythrophthalmus</i>	870,000	-2	f		d	b,d	Ab, BA, Cb		a	Very High	-33	b	a			
		0	10	0		0	3	5	18	10	10	10	8	10	48	0	
Barn Owl	<i>Tyto alba</i>	150,000	1.5	f		d	b,d	Ab, BA, Cb		a	Very High	-72	b	a			
		0	2	0		0	3	5	10	10	10	10	8	10	48	0	
Eastern Screech-Owl	<i>Megascops asio</i>	800,000	-1.5	f		d	b,d	Ab, BA, Cb		b		-1	d	a			
		0	8	0		0	3	5	16	5	0	8	2	10	25	0	
Great Horned Owl	<i>Bubo virginianus</i>	4,000,000	-0.9	f		d	b,d	Ab, BA, Cb		b		11	d	a			
		0	2	0		0	3	5	10	5	0	0	2	10	17	0	
Snowy Owl	<i>Bubo scandiacus</i>	100,000		f		d	b,d	Ab, BA, Cb		b			d	a		w	
		0		0		0	3	5	8	5	0		2	10	17	2	
Barred Owl	<i>Strix varia</i>	2,600,000	1.6	f		d	b,d	Ab, BA, Cb		c		19	d	a			
		0	0	0		0	3	5	8	0	0	2	2	10	14	0	
Short-eared Owl	<i>Asio flammeus</i>	600,000	-2.5	f		c	b,d	Ab, BA, Cb		b	Very High		b	a		w	
		0	10	0		2	3	5	20	5	10		8	10	33	2	
Common Nighthawk	<i>Chordeiles minor</i>	15,000,000	-2.1	f		d	b,d	Ab, BA, Cb		b	Very High	-62	b	a		w	
		0	10	0		0	3	5	18	5	10	10	8	10	43	2	
Eastern Whip-poor-will	<i>Antrostomus vociferus</i>	2,000,000	-2.8	f		d	b,d	Ab, BA, Cb		a	Very High	-57	a	a		y	
		0	10	0		0	3	5	18	10	10	10	10	10	50	5	
Chimney Swift	<i>Chaetura pelagica</i>	7,600,000	-2.4	f		c	b,d	Ab, BA, Cb		b	High	-2	b	a		w	
		0	10	0		2	3	5	20	5	8	8	8	10	39	2	
Ruby-throated Hummingbird	<i>Archilochus colubris</i>	20,000,000	1.7	e		d	b,d	Ab, BA, Cb		c		11	d	a			
		0	2	1		0	3	5	11	0	0	0	2	10	12	0	
Belted Kingfisher	<i>Megaceryle alcyon</i>	1,700,000	-1.5	f		d	b,d	Ab, BA, Cb		c		-3	d	a			
		0	10	0		0	3	5	18	0	0	8	2	10	20	0	

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		Population Size	Population Trend	Range Size	Distribution Trend	Population Concentration	Reproductive Potential	Ecological Specialization	Total	Knowledge of Distribution in DC	Concern	Population Trend in DC/MD	DC Population Trend	Ongoing Management Activities in DC	Total		
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	1,200,000 0	-2.6 10	f 0		d 0	b,d 3	Ab, BA, Cb 5	18	a 10	Very High 10	-11 10	a 10	a 10	50 5	y	78
Red-bellied Woodpecker	<i>Melanerpes carolinus</i>	10,000,000 0	1 2	f 0		d 0	b,d 3	Ab, BA, Cb 5	10	c 0		7 0	d 2	a 10	12 0		22
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>	10,000,000 0	0.6 2	f 0		d 0	b,d 3	Ab, BA, Cb 5	10	c 0		-50 10	d 2	a 10	22 0		32
Downy Woodpecker	<i>Picoides pubescens</i>	14,000,000 0	0.3 2	f 0		d 0	b,d 3	Ab, BA, Cb 5	10	c 0		3 2	e 0	a 10	12 0		22
Hairy Woodpecker	<i>Picoides villosus</i>	8,600,000 0	0.9 2	f 0		d 0	b,d 3	Ab, BA, Cb 5	10	b 5		10 0	d 2	a 10	17 0		27
Northern Flicker	<i>Colaptes auratus</i>	8,100,000 0		f 0		d 0	b,d 3	Ab, BA, Cb 5	8	c 0		-1 2	d 2	a 10	14 0		22
Pileated Woodpecker	<i>Dryocopus pileatus</i>	1,900,000 0	1.3 0	f 0		d 0	b,d 3	Ab, BA, Cb 5	8	c 0		34 0	d 2	a 10	12 0		20
American Kestrel	<i>Falco sparverius</i>	2,200,000 0	-1 8	f 0		d 0	b,d 3	Ab, BA, Cb 5	16	b 5	High 8	-33 10	b 8	a 10	41 0		57
Merlin	<i>Falco columbarius</i>	1,300,000 0	3.4 0	f 0		d 0	b,d 3	Ab, BA, Cb 5	8	b 5			d 2	a 10	17 0		25
Peregrine Falcon	<i>Falco peregrinus</i>	140,000 0	1.9 6	f 0		d 0	b,c 4	Ab, BA, Cb 5	15	b 5	Very High 10	157 0	c 6	a 10	31 0		46
Olive-sided Flycatcher	<i>Contopus cooperi</i>	1,700,000 0	-3.6 10	f 0		d 0	b,d 3	Ab, BA, Cb 5	18	b 5	Very High 10		e 0	a 10	25 0		43
Eastern Wood-Pewee	<i>Contopus virens</i>	5,500,000 0	-1.4 8	f 0		d 0	b,d 3	Ab, BA, Cb 5	16	c 0		2 0	e 0	a 10	10 0		26
Yellow-bellied Flycatcher	<i>Empidonax flaviventris</i>	12,000,000 0	1.8 2	f 0		d 0	b,d 3	Ab, BA, Cb 5	10	b 5			d 2	a 10	17 0		27
Acadian Flycatcher	<i>Empidonax virescens</i>	4,500,000 0	-0.4 2	f 0		d 0	b,d 3	Ab, BA, Cb 5	10	c 0	High 8	2 6	d 2	a 10	26 0		36

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Alder Flycatcher	<i>Empidonax alnorum</i>	130,000,000	-1.2	f		d	b,d	Ab, BA, Cb		b		36	d	a			
		0	8	0		0	3	5	16	5	0	0	2	10	17	0	
Willow Flycatcher	<i>Empidonax traillii</i>	9,100,000	-1.6	f		d	b,d	Ab, BA, Cb		b	High	7	b	a			
		0	8	0		0	3	5	16	5	8	2	8	10	33	0	
Eastern Phoebe	<i>Sayornis phoebe</i>	32,000,000	0.5	f		d	b,d	Ab, BA, Cb		c		4	e	a			
		0	2	0		0	3	5	10	0	0	2	0	10	12	0	
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	6,700,000	-0.1	f		d	b,d	Ab, BA, Cb		b		3	e	a			
		0	2	0		0	3	5	10	5	0	2	0	10	17	0	
Eastern Kingbird	<i>Tyrannus tyrannus</i>	27,000,000	-1.2	f		d	b,d	Ab, BA, Cb		b		0	e	a			
		0	8	0		0	3	5	16	5	0	2	0	10	17	0	
White-eyed Vireo	<i>Vireo griseus</i>	18,000,000	0.4	f		d	b,d	Ab, BA, Cb		b		-7	d	a			
		0	2	0		0	3	5	10	5	0	8	2	10	25	0	
Yellow-throated Vireo	<i>Vireo flavifrons</i>	3,500,000	1	f		d	b,d	Ab, BA, Cb		b	High	1	b	a			
		0	2	0		0	3	5	10	5	8	2	8	10	33	0	
Blue-headed Vireo	<i>Vireo solitarius</i>	9,000,000	3.6	f		d	b,d	Ab, BA, Cb		b		39	b	a			
		0	0	0		0	3	5	8	5	0	0	8	10	23	0	
Warbling Vireo	<i>Vireo gilvus</i>	49,000,000	0.8	e		d	b,d	Ab, BA, Cb		b		14	d	a			
		0	2	1		0	3	5	11	5	0	0	2	10	17	0	
Red-eyed Vireo	<i>Vireo olivaceus</i>	130,000,000	0.7	f		d	b,d	Ab, BA, Cb		c		-1	e	a			
		0	2	0		0	3	5	10	0	0	2	0	10	12	0	
Blue Jay	<i>Cyanocitta cristata</i>	13,000,000	-0.7	f		d	b,d	Ab, BA, Cb		c		0	c	a			
		0	6	0		0	3	5	14	0	0	6	6	10	22	0	
American Crow	<i>Corvus brachyrhynchos</i>	27,000,000	0.2	f		d	b,d	Ab, BA, Cb		c		1	c	a			
		0	6	0		0	3	5	14	0	0	6	6	10	22	0	
Fish Crow	<i>Corvus ossifragus</i>	450,000	0.4	e		d	b,d	Ab, BA, Cb		c		8	c	a			
		0	6	1		0	3	5	15	0	0	6	6	10	22	0	
Common Raven	<i>Corvus corax</i>	6,000,000	2.3	f		d	b,d	Ab, BA, Cb		b		85	d	a			
		0	0	0		0	3	5	8	5	0	6	2	10	23	0	

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Horned Lark	<i>Eremophila alpestris</i>	80,000,000	-2.2	f		d	b,d	Ab, BA, Cb		b	High	5	b	a	w		
		0	8	0		0	3	5	16	5	8	2	8	10	2	53	
Purple Martin	<i>Progne subis</i>	6,000,000	-0.5	f		c	b,d	Ab, BA, Ca		b	Very High	-7	b	a			
		0	6	0		2	3	6.6	17.6	5	10	8	8	10	0	58.6	
Tree Swallow	<i>Tachycineta bicolor</i>	17,000,000	-1.2	f		d	b,d	Ab, BA, Cb		c		142	e	a			
		0	8	0		0	3	5	16	0	0	0	0	10	0	26	
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>	14,000,000	-0.4	f		d	b,d	Ab, BA, Cb		b		25	d	a			
		0	8	0		0	3	5	16	5	0	0	2	10	0	33	
Bank Swallow	<i>Riparia riparia</i>	6,000,000	-5.6	f		d	b,d	Ab, BA, Cb		b	High	-41	d	a	w		
		0	10	0		0	3	5	18	5	8	10	2	10	2	57	
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>	40,000,000	0.4	f		d	b,d	Ab, BA, Cb		b		2	d	a			
		0	2	0		0	3	5	10	5	0	2	2	10	0	29	
Barn Swallow	<i>Hirundo rustica</i>	33,000,000	-1.1	f		d	b,d	Ab, BA, Cb		b		0	e	a			
		0	6	0		0	3	5	14	5	0	2	0	10	0	31	
Carolina Chickadee	<i>Poecile carolinensis</i>	12,000,000	-0.2	f		d	b,d	Ab, BA, Cb		c		2	e	a			
		0	2	0		0	3	5	10	0	0	2	0	10	0	22	
Tufted Titmouse	<i>Baeolophus bicolor</i>	8,000,000	0.8	f		d	b,d	Ab, BA, Cb		c		2	e	a			
		0	2	0		0	3	5	10	0	0	2	0	10	0	22	
Red-breasted Nuthatch	<i>Sitta canadensis</i>	20,000,000	1.8	f		d	b,d	Ab, BA, Cb		b		367	e	a			
		0	0	0		0	3	5	8	5	0	0	0	10	0	23	
White-breasted Nuthatch	<i>Sitta carolinensis</i>	8,300,000	2.1	f		d	b,d	Ab, BA, Cb		c		44	e	a			
		0	0	0		0	3	5	8	0	0	0	0	10	0	18	
Brown Creeper	<i>Certhia americana</i>	8,500,000	0.6	f		d	b,d	Ab, BA, Cb		b	High	-46	d	a			
		0	2	0		0	3	5	10	5	8	10	2	10	0	45	
House Wren	<i>Troglodytes aedon</i>	42,000,000	0.1	f		d	b,d	Ab, BA, Cb		c		3	d	a			
		0	2	0		0	3	5	10	0	0	2	2	10	0	29	

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Winter Wren	<i>Troglodytes hiemalis</i>	11,000,000	1.1	f		d	b,d	Ab, BA, Cb		b		47	d	a			
		0	2	0		0	3	5	10	5	0	0	2	10	17	0	
Marsh Wren	<i>Cistothorus palustris</i>	9,000,000	2	f		d	b,d	Ab, BA, Ca		b	High	-20	b	a			
		0	2	0		0	3	6.6	11.6	5	8	10	8	10	41	0	
Carolina Wren	<i>Thryothorus ludovicianus</i>	13,000,000	1.1	f		d	b,d	Aa, BA, Cb		c		7	e	a			
		0	2	0		0	3	0	5	0	0	0	0	10	10	0	
Blue-gray Gnatcatcher	<i>Poliophtila caerulea</i>	110,000,000	0.4	f		d	b,d	Ab, BA, Cb		c		8	e	a			
		0	2	0		0	3	5	10	0	0	0	0	10	10	0	
Golden-crowned Kinglet	<i>Regulus satrapa</i>	96,000,000	-0.8	f		d	b,d	Ab, BA, Cb		b		107	d	a			
		0	2	0		0	3	5	10	5	0	0	2	10	17	0	
Ruby-crowned Kinglet	<i>Regulus calendula</i>	90,000,000	0.1	f		d	b,d	Ab, BA, Cb		b			c	a			
		0	2	0		0	3	5	10	5	0		6	10	21	0	
Eastern Bluebird	<i>Sialia sialis</i>	19,000,000	2	f		d	b,d	Ab, BA, Cb		b		14	c	a			
		0	6	0		0	3	5	14	5	0	0	6	10	21	0	
Veery	<i>Catharus fuscescens</i>	11,000,000	-1	f		d	b,d	Ab, BA, Cb		b	High	-5	b	a			
		0	8	0		0	3	5	16	5	8	8	8	10	39	0	
Swainson's Thrush	<i>Catharus ustulatus</i>	100,000,000	-1.3	f		d	b,d	Ab, BA, Cb		b			d	a			
		0	8	0		0	3	5	16	5	0		2	10	17	0	
Gray-cheeked Thrush	<i>Catharus minimus</i>	15,000,000		f		d	b,d	Ab, BA, Cb		b			d	a			
		0		0		0	3	5	8	5	0		2	10	17	0	
Hermit Thrush	<i>Catharus guttatus</i>	40,000,000	0.9	f		d	b,d	Ab, BA, Cb		b		60	e	a			
		0	2	0		0	3	5	10	5	0	0	0	10	15	0	
Wood Thrush	<i>Hylocichla mustelina</i>	11,000,000	-2.1	f		d	b,d	Ab, BA, Cb		b	Very High	0	a	a		y	
		0	10	0		0	3	5	18	5	10	2	10	10	37	5	
American Robin	<i>Turdus migratorius</i>	300,000,000	0.2	f		d	b,d	Aa, BA, Cb		c		1	e	a			
		0	2	0		0	3	0	5	0	0	0	0	10	10	0	
Gray Catbird	<i>Dumetella carolinensis</i>	27,000,000	-0.1	e		d	b,d	Ab, BA, Cb		c		-1	d	a			
		0	2	1		0	3	5	11	0	0	2	2	10	14	0	

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Northern Mockingbird	<i>Mimus polyglottos</i>	27,000,000	-0.6	f		d	b,d	Aa, BA, Cb		c		3	e	a			
		0	2	0		0	3	0	5	0	0	0	10	10	0		15
Brown Thrasher	<i>Toxostoma rufum</i>	4,900,000	-1.1	f		d	b,d	Ab, BA, Cb		b	Very High	3	c	a			
		0	8	0		0	3	5	16	5	10	2	6	10	33	0	49
European Starling	<i>Sturnus vulgaris</i>	57,000,000	-1.3	f		d	b,d	Aa, BA, Cb		c		1	a	c			
		0	8	0		0	3	0	11	0	0	2	10	0	12	0	33
American Pipit	<i>Anthus rubescens</i>	18,000,000		f		d	b,d	Ab, BA, Cb		b			d	a			
		0		0		0	3	5	8	5	0		2	10	17	0	25
Cedar Waxwing	<i>Bombycilla cedrorum</i>	52,000,000	0.4	f		d	b,d	Ab, BA, Cb		b		46	d	a			
		0	0	0		0	3	5	8	5	0	0	2	10	17	0	25
Ovenbird	<i>Seiurus aurocapilla</i>	22,000,000	0	e		d	b,d	Ab, BA, Cb		b		7	b	a			
		0	2	1		0	3	5	11	5	0	0	8	10	23	0	34
Worm-eating Warbler	<i>Helmitheros vermivorum</i>	830,000	0.6	e		d	b,d	Ab, BA, Cb		b	Very High	11	b	a			
		0	2	1		0	3	5	11	5	10	0	8	10	33	0	44
Louisiana Waterthrush	<i>Parkesia motacilla</i>	360,000	0.4	f		d	b,d	Ab, BA, Cb		b	Very High	2	b	a			
		0	2	0		0	3	5	10	5	10	0	8	10	33	0	43
Northern Waterthrush	<i>Parkesia noveboracensis</i>	19,000,000	0.5	f		d	b,d	Ab, BA, Cb		b		-58	b	a			
		0	2	0		0	3	5	10	5	0	10	8	10	33	0	43
Golden-winged Warbler	<i>Vermivora chrysoptera</i>	410,000	-2.6	e		d	b,d	Ab, BA, Cb		b	Very High	-65	a	a			
		0	10	1		0	3	5	19	5	10	10	10	10	45	0	64
Blue-winged Warbler	<i>Vermivora cyanoptera</i>	810,000	-0.6	e		d	b,d	Ab, BA, Cb		b	Very High		b	a			
		0	8	1		0	3	5	17	5	10		8	10	33	0	50
Black-and-white Warbler	<i>Mniotilta varia</i>	20,000,000	-0.7	f		d	b,d	Ab, BA, Cb		b	High	-16	b	a			
		0	8	0		0	3	5	16	5	8	10	8	10	41	0	57
Prothonotary Warbler	<i>Protonotaria citrea</i>	1,600,000	-1.1	f		d	b,d	Ab, BA, Cb		b	Very High	-8	a	a		y	
		0	10	0		0	3	5	18	5	10	8	10	10	43	5	71
Tennessee Warbler	<i>Oreothlypis peregrina</i>	70,000,000	-0.9	e		d	b,d	Ab, BA, Cb		b		0	b	a			
		0	8	1		0	3	5	17	5	0	2	8	10	25	0	42

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Orange-crowned Warbler	<i>Oreothlypis celata</i>	80,000,000	-1.1	f		d	b,d	Ab, BA, Cb		b			b	a			
		0	8	0		0	3	5	16	5	0	8	10	23	0		39
Nashville Warbler	<i>Oreothlypis ruficapilla</i>	32,000,000	0.3	f		d	b,d	Ab, BA, Cb		b		-89	b	a			
		0	2	0		0	3	5	10	5	0	10	8	10	33	0	43
Connecticut Warbler	<i>Oporornis agilis</i>	1,700,000	-1.9	e		d	b,d	Ab, BA, Cb		b			b	a		y	
		0	10	1		0	3	5	19	5	0	8	10	23	5		52
Mourning Warbler	<i>Geothlypis philadelphia</i>	17,000,000	-1.4	f		d	b,d	Ab, BA, Cb		b		-43	b	a			
		0	8	0		0	3	5	16	5	0	10	8	10	33	0	49
Kentucky Warbler	<i>Geothlypis formosa</i>	2,800,000	-1.1	e		d	b,d	Ab, BA, Cb		b	Very High	-38	a	a		y	
		0	10	1		0	3	5	19	5	10	10	10	10	45	5	74
Common Yellowthroat	<i>Geothlypis trichas</i>	83,000,000	-1	f		d	b,d	Ab, BA, Cb		c		1	d	a			
		0	8	0		0	3	5	16	0	0	2	2	10	14	0	30
Hooded Warbler	<i>Setophaga citrina</i>	4,600,000	1.5	e		d	b,d	Ab, BA, Cb		b	High	-10	a	a			
		0	6	1		0	3	5	15	5	8	10	10	10	43	0	58
American Redstart	<i>Setophaga ruticilla</i>	39,000,000	-0.5	f		d	b,d	Ab, BA, Cb		b		-3	d	a			
		0	2	0		0	3	5	10	5	0	8	2	10	25	0	35
Cape May Warbler	<i>Setophaga tigrina</i>	7,000,000	-4	f		d	b,d	Ab, BA, Cb		b	High		b	a		w	
		0	10	0		0	3	5	18	5	8		8	10	31	2	53
Cerulean Warbler	<i>Setophaga cerulea</i>	600,000	-3	e		d	b,d	Ab, BA, Ca		b	Very High	-40	a	a		y	
		0	10	1		0	3	6.6	20.6	5	10	10	10	10	45	5	75.6
Northern Parula	<i>Setophaga americana</i>	13,000,000	1.1	f		d	b,d	Ab, BA, Cb		b	High	26	d	a			
		0	2	0		0	3	5	10	5	8	0	2	10	25	0	35
Magnolia Warbler	<i>Setophaga magnolia</i>	40,000,000	0.9	e		d	b,d	Ab, BA, Cb		b		10	d	a			
		0	2	1		0	3	5	11	5	0	0	2	10	17	0	28
Bay-breasted Warbler	<i>Setophaga castanea</i>	9,000,000	-4	f		d	b,d	Ab, BA, Cb		b	Very High		b	a			
		0	10	0		0	3	5	18	5	10		8	10	33	0	51
Blackburnian Warbler	<i>Setophaga fusca</i>	10,000,000	0.1	f		d	b,d	Ab, BA, Cb		b	High	6	b	a			
		0	2	0		0	3	5	10	5	8	2	8	10	33	0	43

Common Name	Scientific Name	Biological Variables								Action Variables						State of the Birds Report	Species Total Score
		Population Size	Population Trend	Range Size	Distribution Trend	Population Concentration	Reproductive Potential	Ecological Specialization	Total	Knowledge of Distribution in DC	Concern	Population Trend in DC/MD	DC Population Trend	Ongoing Management Activities in DC	Total		
Yellow Warbler	<i>Setophaga petechia</i>	90,000,000 0	-0.6 2	f 0		d 0	b,d 3	Ab, BA, Cb 5	10	b 5		-10 10	d 2	a 10	27	0	37
Chestnut-sided Warbler	<i>Setophaga pensylvanica</i>	19,000,000 0	-1.4 10	f 0		d 0	b,d 3	Ab, BA, Cb 5	18	b 5		-5 8	d 2	a 10	25	0	43
Blackpoll Warbler	<i>Setophaga striata</i>	60,000,000 0	-6.6 10	f 0		d 0	b,d 3	Ab, BA, Cb 5	18	b 5			d 2	a 10	17	w 2	37
Black-throated Blue Warbler	<i>Setophaga caerulescens</i>	2,100,000 0	2.3 0	e 1		d 0	b,d 3	Ab, BA, Cb 5	9	b 5	High 8	17 0	b 8	a 10	31	0	40
Palm Warbler	<i>Setophaga palmarum</i>	13,000,000 0	-2.1 10	f 0		d 0	b,d 3	Ab, BA, Cb 5	18	b 5			d 2	a 10	17	0	35
Pine Warbler	<i>Setophaga pinus</i>	12,000,000 0	0.9 2	f 0		d 0	b,d 3	Ab, BA, Cb 5	10	b 5		7 0	d 2	a 10	17	0	27
Yellow-rumped Warbler	<i>Setophaga coronata</i>	130,000,000 0	-0.1 2	f 0		d 0	b,d 3	Ab, BA, Cb 5	10	b 5		650 0	d 2	a 10	17	0	27
Yellow-throated Warbler	<i>Setophaga dominica</i>	1,800,000 0	0.8 2	e 1		d 0	b,d 3	Ab, BA, Cb 5	11	b 5		7 0	b 8	a 10	23	0	34
Prairie Warbler	<i>Setophaga discolor</i>	3,500,000 0	-2.1 10	e 1		d 0	b,d 3	Ab, BA, Cb 5	19	b 5	Very High 10	-23 10	a 10	a 10	45	y 5	69
Black-throated Green Warbler	<i>Setophaga virens</i>	10,000,000 0	0.6 2	f 0		d 0	b,d 3	Ab, BA, Cb 5	10	b 5	High 8	6 0	b 8	a 10	31	0	41
Canada Warbler	<i>Cardellina canadensis</i>	4,000,000 0	-2.3 10	f 0		d 0	b,d 3	Ab, BA, Cb 5	18	b 5	Very High 10	-22 10	b 8	a 10	43	y 5	66
Wilson's Warbler	<i>Cardellina pusilla</i>	60,000,000 0	-1.9 10	e 1		d 0	b,d 3	Ab, BA, Cb 5	19	b 5			b 8	a 10	23	w 2	44
Yellow-breasted Chat	<i>Icteria virens</i>	11,000,000 0	-0.6 8	f 0		d 0	b,d 3	Ab, BA, Cb 5	16	b 5	High 8	-19 10	b 8	a 10	41	0	57

Common Name	Scientific Name	Biological Variables								Action Variables						State of the Birds Report	Species Total Score
		Population Size	Population Trend	Range Size	Distribution Trend	Population Concentration	Reproductive Potential	Ecological Specialization	Total	Knowledge of Distribution in DC	Concern	Population Trend in DC/MD	DC Population Trend	Ongoing Management Activities in DC	Total		
Eastern Towhee	<i>Pipilo erythrophthalmus</i>	28,000,000 0	-1.4 10	f 0		d 0	b,d 3	Ab, BA, Cb 5	18	c 0	Very High 10	0 2	d 2	a 10	24	0	42
American Tree Sparrow	<i>Spizella arborea</i>	20,000,000 0		f 0		d 0	b,d 3	Ab, BA, Cb 5	8	a 10			d 2	a 10	22	0	30
Chipping Sparrow	<i>Spizella passerina</i>	210,000,000 0	-0.6 2	f 0		d 0	b,d 3	Ab, BA, Cb 5	10	c 0		3 2	a 10	a 10	22	0	32
Field Sparrow	<i>Spizella pusilla</i>	7,600,000 0	-2.4 10	f 0		d 0	b,d 3	Ab, BA, Cb 5	18	b 5	Very High 10	-4 8	a 10	a 10	43	w 2	63
Vesper Sparrow	<i>Poocetes gramineus</i>	28,000,000 0	-0.9 8	f 0		d 0	b,d 3	Ab, BA, Cb 5	16	b 5	Very High 10	-39 10	d 2	a 10	37	0	53
Savannah Sparrow	<i>Passerculus sandwichensis</i>	170,000,000 0	-1.3 8	f 0		d 0	b,d 3	Ab, BA, Cb 5	16	a 10		30 0	b 8	a 10	28	0	44
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	30,000,000 0	-2.9 10	f 0		d 0	b,d 3	Ab, BA, Cb 5	18	a 10	Very High 10	7 6	a 10	a 10	46	w 2	66
Fox Sparrow	<i>Passerella iliaca</i>	20,000,000 0	-0.7 8	f 0		d 0	b,d 3	Ab, BA, Cb 5	16	b 5			d 2	a 10	17	0	33
Song Sparrow	<i>Melospiza melodia</i>	130,000,000 0	-0.7 2	f 0		d 0	b,d 3	Ab, BA, Cb 5	10	c 0		-1 2	e 0	a 10	12	0	32
Swamp Sparrow	<i>Melospiza georgiana</i>	30,000,000 0	1 2	f 0		d 0	b,d 3	Ab, BA, Cb 5	10	b 5		-10 10	e 0	a 10	25	0	35
White-throated Sparrow	<i>Zonotrichia albicollis</i>	140,000,000 0	-0.5 2	f 0		d 0	b,d 3	Ab, BA, Cb 5	10	c 0			e 0	a 10	10	0	20
Dark-eyed Junco	<i>Junco hyemalis</i>	200,000,000 0	-1.2 2	f 0		d 0	b,d 3	Ab, BA, Cb 5	10	c 0		87 0	d 2	a 10	12	0	22
Summer Tanager	<i>Piranga rubra</i>	10,000,000 0	0.2 2	f 0		d 0	b,d 3	Ab, BA, Cb 5	10	b 5	High 8	15 0	d 2	a 10	25	0	35
Scarlet Tanager	<i>Piranga olivacea</i>	2,200,000 0	-0.1 2	f 0		d 0	b,d 3	Ab, BA, Cb 5	10	b 5	Very High 10	0 2	d 2	a 10	29	0	39

Common Name	Scientific Name	Biological Variables								Action Variables						State of the Birds Report	Species Total Score
		Population Size	Population Trend	Range Size	Distribution Trend	Population Concentration	Reproductive Potential	Ecological Specialization	Total	Knowledge of Distribution in DC	Concern	Population Trend in DC/MD	DC Population Trend	Ongoing Management Activities in DC	Total		
Northern Cardinal	<i>Cardinalis cardinalis</i>	91,000,000 0	0.3 2	f 0		d 0	b,d 3	Aa, BA, Cb 0	5	c 0		2 0	e 0	a 10	10	0	15
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	4,100,000 0	-0.8 8	f 0		d 0	b,d 3	Ab, BA, Cb 5	16	b 5		2 2	d 2	a 10	19	0	35
Blue Grosbeak	<i>Passerina caerulea</i>	18,000,000 0	0.9 2	f 0		d 0	b,d 3	Ab, BA, Cb 5	10	b 5		-1 2	d 2	a 10	19	0	29
Indigo Bunting	<i>Passerina cyanea</i>	78,000,000 0	-0.6 2	e 1		d 0	b,d 3	Ab, BA, Cb 5	11	c 0		1 2	e 0	a 10	12	0	23
Dickcissel	<i>Spiza americana</i>	20,000,000 0	-0.6 8	e 1		c 2	b,d 3	Ab, BA, Cb 5	19	a 10	High 8	154 6	a 10	a 10	44	0	63
Bobolink	<i>Dolichonyx oryzivorus</i>	8,000,000 0	-2.2 10	f 0		d 0	b,d 3	Ab, BA, Cb 5	18	a 10	Very High 10	22 6	a 10	a 10	46	y 5	69
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	120,000,000 0	-1 8	f 0		d 0	b,d 3	Ab, BA, Cb 5	16	c 0		2 2	a 10	a 10	22	0	38
Eastern Meadowlark	<i>Sturnella magna</i>	22,000,000 0	-3.4 10	f 0		d 0	b,d 3	Ab, BA, Ca 6.6	21.6	a 10	Very High 10	-23 10	a 10	a 10	50	w 2	73.6
Rusty Blackbird	<i>Euphagus carolinus</i>	5,000,000 0	-5.6 10	f 0		d 0	b,d 3	Ab, BA, Cb 5	18	b 5	Very High 10		b 8	a 10	33	w 2	53
Common Grackle	<i>Quiscalus quiscula</i>	61,000,000 0	-1.7 8	f 0		d 0	b,d 3	Ab, BA, Cb 5	16	c 0		1 2	b 8	a 10	20	w 2	38
Brown-headed Cowbird	<i>Molothrus ater</i>	110,000,000 0	-0.7 2	f 0		d 0	b,d 3	Aa, BA, Cb 0	5	c 0		1 2	e 0	a 10	12	0	17
Orchard Oriole	<i>Icterus spurius</i>	9,200,000 0	-0.8 8	f 0		d 0	b,d 3	Ab, BA, Cb 5	16	b 5		13 0	c 6	a 10	21	0	37
Baltimore Oriole	<i>Icterus galbula</i>	12,000,000 0	-1.4 10	f 0		d 0	b,d 3	Ab, BA, Cb 5	18	b 5		0 2	c 6	a 10	23	0	41
Purple Finch	<i>Haemorhous purpureus</i>	6,300,000 0	-1.3 10	f 0		d 0	b,d 3	Ab, BA, Cb 5	18	b 5		29 0	d 2	a 10	17	0	35

Common Name	Scientific Name	Biological Variables								Action Variables						State of the Birds Report	Species Total Score
		Population Size	Population Trend	Range Size	Distribution Trend	Population Concentration	Reproductive Potential	Ecological Specialization	Total	Knowledge of Distribution in DC	Concern	Population Trend in DC/MD	DC Population Trend	Ongoing Management Activities in DC	Total		
House Finch	<i>Haemorhous mexicanus</i>	35,000,000	0.1	f		d	b,d	Ab, BA, Cb		c		28	d	a			
		0	2	0		0	3	5	10	0	0	0	2	10	12	0	
American Goldfinch	<i>Spinus tristis</i>	42,000,000	0	f		d	b,d	Ab, BA, Cb		c		4	e	a			
		0	2	0		0	3	5	10	0	0	2	0	10	12	0	
House Sparrow	<i>Passer domesticus</i>	82,000,000	-3.7	f		d	b,d	Aa, BA, Cb		c		-1	e	a			
		0	8	0		0	3	0	11	0	0	2	0	10	12	0	

Appendix B Millsap Mammal Ranking

B.1 Ranking Mammals of the District for selection of SGCN

The main framework for the mammal ranking process comes from the Millsap paper, with supplemental variables developed based solely on data for this taxon in the District. DDOE prioritized conservation efforts for District mammals utilizing national, regional, and local aspects of several other ranking systems. These aspects include population status, vulnerability, population trends, current knowledge, specialization, and ongoing management.

Since the District is severely limited in geographic size, using only national or regional data would not adequately reflect the impact conservation efforts would have for some species. To attempt a balance that would more accurately assess conservation needs, species were scored on a number of biological variables for North America and the region, as well as District-only aspects to attempt a balance that would more accurately assess conservation need.

B.2 Scoring

B.2.1 Biological Variables

Population Size – Estimated number of adults throughout North America

0–500 individuals	10
501–1,000 individuals, or population suspected to be small	8
1,001–3000 individuals	6
3,001–10,000 individuals	4
10,001–50,000 individuals, or population suspected to be large	2
> 50,000 individuals	0

Population Trend – Overall trend in number of individuals throughout taxon's range over the last two decades (or other appropriate time interval considering taxon's generation time)

If population trend is unknown, consider trends in the availability and condition of the taxon's habitat as indicative of the population.

Appendix B Millsap Mammal Ranking

Population size known to be decreasing	10
Trend unknown, but population suspected to be decreasing	8
Population formerly experienced serious declines, but stable or increasing	6
Population size stable or suspected to be increasing	2
Population size known to be increasing	0

Range Size – The size of areas over which species is distributed when most restricted

<100 km ²	10
101–1,000 km ²	9
1,001–40,000 km ²	7
40,001–100,000 km ²	4
100,001–2,000,000 km ²	1
>2,000,000 km ²	0

Distribution Trend – Percent change (since European settlement) in area occupied by the taxon

This is an estimate of change in the portion of the total range that is occupied or utilized it may not be equal to the change in total range.

Area occupied has declined by 90%–100%	10
Area occupied has declined by 75%–89%	8
Area occupied has declined by 25%–74%	5
Area occupied has declined by 1%–24%	2
Area occupied is stable or has increased	0

Population Concentration - Degree to which populations congregate at specific locations

Majority concentrates in single location	10
Concentrates at 1–25 locations	6
Concentrates at >25 locations	2
Does not concentrate	0

Reproductive Potential for Recovery – Ability of species to recover from serious population declines

(a) Average number of eggs or young produced per adult female per year

<1 offspring/female/year	5
1–9 offspring/female/year	3
10–100 offspring/female/year	1
>100 offspring/female/year	0

(b) Minimum age at which females typically reproduce

>8 years	5
4–8 years	3
2–3 years	1
<2 years	0

Ecological specialization – degree to which the species is dependent upon environmental factors

(a) Dietary specialization – primary response to decrease in availability of primary food source

Number of individuals declines, no substantial shift in diet	3.3
Little change in number of individuals, shift in diet	0

(b) Reproductive specialization – primary response of local populations to decrease in preferred breeding sites

Number of individuals or breeding attempts decline, no substantial shift to alternate breeding sites	3.3
Substantial shift to alternate breeding sites with little change in number of individuals	0

(c) Other specialization – ecological or behavioral specializations (roosting, hibernacula, etc.)

Highly specialized	3.3
Moderately specialized	1.7
Not specialized	0

B.2.2 Action Variables

Knowledge of distribution in the District

Distribution is extrapolated from a few locations or knowledge is limited to general range maps	10
Broad range limits or habitat associations are known, but local occurrence cannot be predicted accurately	5
Distribution is well known and occurrence can be predicted accurately throughout the range	0

Knowledge of population trend in the District

Not currently monitored	10
Monitored locally	6
Statewide monitoring, but not with statistical sensitivity	4
Statewide monitoring with statistical sensitivity	0

Knowledge of District population limits

Factors affecting population size and distribution are unknown or unsustainable	10
Some factors affecting population size and distribution are known, but one or more major factors are unknown	5
All major factors affecting population size and distribution are known	0

Ongoing management activities in the District

None directed primarily at the taxon	10
Management mostly related to enforcement of conservation laws	5
Some direct management activities in addition to enforcement of conservation laws	0

Supplemental Variables –Population trend/POA of taxon in the District

Known decrease	6
Population trend unknown or suspected decline	5
Known stable or increasing, but declining in areas	4
Former serious decline, but presently stable/increasing	3
Population is stable or suspected to be stable/increasing	2
No current data/potentially extirpated	1

Last documented

Present–5 years	10
5–10 years	5
>10 years	0

Range size/concentration throughout the District/POA

0%–24%	10
25%–50%	8
>50%	6
No current species data/possibly extirpated	2

Impacted by known emerging disease

Known	10
Potentially	5
None	0

Habitat specialization within the District

Highly specialized	10
Moderately specialized	8
Not specialized	6
No known habitat/possibly extirpated	2

B.3 Ranking

Species were sorted based on their aggregate scores ranging from the Northern Long-eared Bat (85) to the Southern Bog Lemming (32.7).

B.4 Mammal SGCN Selection

Species with the highest ranking scores were selected as SGCN for 2015, with the lowest score for selection being set at 40.

Table 30 Millsap Ranking for the District's Mammals

Scientific Name	Common Name	Biological Variables														Action Variables					Biological + Action Total Score	Supplemental Variables					Species Total Score			
		G-Rank	N-Rank	S-Rank	IUCN	ESA listing status	Population Size	Population Trend	Range Size	Distribution Trend	Population Concentration	Reproductive Potential for Recovery (Variable A)	Reproductive Potential for Recovery (Variable B)	Ecological Specialization (Variable A)	Ecological Specialization (Variable B)	Ecological Specialization (Variable C)	Total	DC Distribution	DC Trend	DC Population Limitations		Ongoing Management Activities	Action Total	Taxonomic Significance	Population/POA	Last Documented		Range Size/Concentration	Impact of Emerging Diseases	Total
<i>Acantharchus pomotis</i>	Mud Sunfish						0	2	0	5	0	0	0	0	0	0	7	10	6	5	10	31	38	4	1	5	4	3	17	55
<i>Acipenser brevirostrum</i>	Shortnose Sturgeon	G3*	N3	SX	VU	E	0	10	1	8	2	0	5	0	0	0	26	10	0	0	0	10	36	3	1	5	3	1	13	49
<i>Acipenser oxyrinchus</i>	Atlantic Sturgeon	G3*	N3	SX	CR	T	10	10	1	5	2	0	5	3.3	3.3	1.7	41.3	10	0	0	0	10	51.3	2	1	5	3	1	12	63.3
<i>Alosa aestivalis</i>	Blueback Herring	G3G4	N3N4	S5	VU		0	10	1	5	2	0	3	0	0	1.7	22.7	0	0	0	0	0	22.7	3	1	6	3	1	14	36.7
<i>Alosa mediocris</i>	Hickory Shad	G4	N4	S2B	LC		2	0	0	5	2	0	1	0	0	0	10	0	0	0	0	0	10	3	1	3	3	1	11	21
<i>Alosa pseudoharengus</i>	Alewife	G5	N5	S5	LC		0	8	1	5	2	0	3	0	0	1.7	20.7	0	0	5	0	5	25.7	3	1	6	3	1	14	39.7
<i>Alosa sapidissima</i>	American Shad	G5	N5	S2B	LC		0	2	1	5	2	0	1	0	0	0	11	0	0	0	0	0	11	3	1	3	3	1	11	22
<i>Ambloplites rupestris</i>	Rock Bass				LC		0	2	0	0	0	0	0	0	0	0	2	0	0	0	10	10	12	3	1	3	4	3	14	26
<i>Ameiurus catus</i>	White Catfish				LC		0	2	0	0	0	0	0	0	0	0	2	0	0	0	5	5	7	3	1	2	4	4	14	21
<i>Ameiurus natalis</i>	Yellow Bullhead				LC		0	2	0	0	0	0	0	0	0	0	2	0	0	0	5	5	7	3	1	2	4	3	13	20
<i>Ameiurus nebulosus</i>	Brown Bullhead	G5	N5	S5	LC		0	2	0	0	0	0	1	0	0	0	3	0	0	0	5	5	8	3	1	6	4	4	18	26
<i>Amia calva</i>	Bowfin	G5			LC		0	2	0	0	0	0	1	0	3.3	6.3	10	6	0	10	26	32.3	5	1	2	1	3	12	44.3	
<i>Anchoa mitchilli</i>	Bay Anchovy				LC		0	2	0	0	0	0	0	0	0	0	2	0	0	0	10	10	12	3	1	5	1	3	13	25
<i>Anguilla rostrata</i>	American Eel	G4		S4	EN		2	10	0	2	2	0	1	0	0	0	17	5	0	5	5	15	32	3	1	5	4	3	16	48
<i>Apeltes quadracus</i>	Fourspine Sickleback						0	2	0	0	0	0	0	0	0	0	2	10	6	5	10	31	33	3	1	5	4	3	16	49
<i>Aphredoderus sayanus</i>	Pirate Perch						0	2	0	0	0	0	0	0	0	0	2	10	6	5	10	31	33	3	1	5	4	3	16	49
<i>Bairdiella chrysoura</i>	Silver Perch						0	2	0	0	0	0	0	0	0	0	2	5	6	0	10	21	23	3	1	5	1	3	13	36
<i>Brevoortia tyrannus</i>	Atlantic Menhaden						2	2	1	2	2	0	0	0	0	0	9	0	0	0	0	0	9	3	1	4	3	1	12	21
<i>Campostoma anomalum</i>	Central Stoneroller				LC		2	2	0	0	0	0	0	0	0	0	4	5	4	0	10	19	23	2	1	2	4	3	12	35
<i>Carassius auratus</i>	Goldfish				LC		2	2	0	0	0	0	0	0	0	0	4	0	0	0	5	5	9	4	1	2	4	3	14	23
<i>Carpiodes cyprinus</i>	Quillback				LC		2	2	0	0	0	0	0	0	0	0	4	0	0	0	5	5	9	3	1	2	4	3	13	22
<i>Catostomus commersonii</i>	White Sucker				LC		0	2	0	0	0	0	0	0	0	0	2	0	0	0	10	10	12	3	1	2	4	3	13	25
<i>Centrarchus macropterus</i>	Flier				LC		2	2	0	0	0	0	0	0	0	0	4	5	4	0	10	19	23	4	1	2	4	3	14	37
<i>Channa argus argus</i>	Northern Snakehead						2	2	0	0	2	0	0	0	0	0	6	0	0	0	5	5	11	3	1	1	4	4	13	24
<i>Clinostomus funduloides</i>	Rosyside Dace						0	2	0	0	0	0	0	0	0	0	2	10	6	5	10	31	33	3	1	4	4	3	15	48
<i>Cottus bairdii</i>	Mottled Sculpin						0	2	0	0	0	0	0	0	0	0	2	10	6	5	10	31	33	3	1	5	4	3	16	49
<i>Cottus caeruleomentum</i>	Blue Ridge Sculpin						2	2	1	0	0	0	0	0	0	0	5	10	6	5	10	31	36	3	1	5	4	3	16	52
<i>Cottus cognatus</i>	Slimy Sculpin						0	2	0	0	0	0	0	0	0	0	2	10	6	5	10	31	33	3	1	5	4	3	16	49
<i>Cottus girardi</i>	Potomac Sculpin				LC		0	2	4	0	0	0	0	0	0	0	6	10	6	5	10	31	37	3	4	5	4	3	19	56
<i>Ctenopharyngodon idella</i>	Grass Carp						2	2	0	0	0	0	0	0	0	0	4	0	0	0	5	5	9	4	1	2	4	3	14	23

Appendix B Millsap Mammal Ranking

Scientific Name	Common Name	Biological Variables															Action Variables					Biological + Action Total Score	Supplemental Variables					Species Total Score		
		G-Rank	N-Rank	S-Rank	IUCN	ESA listing status	Population Size	Population Trend	Range Size	Distribution Trend	Population Concentration	Reproductive Potential for Recovery (Variable A)	Reproductive Potential for Recovery (Variable B)	Ecological Specialization (Variable A)	Ecological Specialization (Variable B)	Ecological Specialization (Variable C)	Total	DC Distribution	DC Trend	DC Population Limitations	Ongoing Management Activities		Action Total	Taxonomic Significance	Population/POA	Last Documented	Range Size/ Concentration		Impact of Emerging Diseases	Total
<i>Cynoscion nebulosus</i>	Spotted Sea Trout						2	2	0	0	0	0	0	0	0	0	4	5	6	0	10	21	25	3	1	5	1	3	13	38
<i>Cynoscion regalis</i>	Weakfish						2	10	0	0	0	0	1	0	0	0	13	5	6	0	10	21	34	3	1	5	1	3	13	47
<i>Cyprinella analostana</i>	Satinfin Shiner				LC		0	2	0	0	0	0	0	0	0	0	2	0	0	0	10	10	12	3	1	2	4	3	13	25
<i>Cyprinus carpio</i>	Common Carp (Koi)				LC		2	2	0	0	0	0	0	0	0	0	4	0	0	0	5	5	9	4	1	2	4	3	14	23
<i>Cyrinodon variegatus</i>	Sheepshead Minnow						0	2	0	0	0	0	0	0	0	0	2	10	6	5	10	31	33	3	1	5	4	3	16	49
<i>Dorosoma cepedianum</i>	Gizzard Shad				LC		0	2	0	0	2	0	0	0	0	0	4	0	0	0	5	5	9	3	1	2	4	4	14	23
<i>Dorosoma petenense</i>	Threadfin Shad				LC		2	2	0	0	2	0	0	0	0	0	6	0	0	0	5	5	11	3	1	1	3	3	11	22
<i>Enneacanthus gloriosus</i>	Bluespotted Sunfish				LC		0	2	0	0	0	0	0	0	0	0	2	10	6	0	5	21	23	3	1	5	4	3	16	39
<i>Enneacanthus obesus</i>	Banded Sunfish						0	2	0	2	0	0	0	0	0	0	4	10	6	5	10	31	35	3	1	5	4	3	16	51
<i>Erimyzon oblongus</i>	Eastern Creek Chubsucker				LC		2	2	0	0	0	0	0	0	0	0	4	0	0	0	10	10	14	4	1	3	4	3	15	29
<i>Esox masquinongy</i>	Muskellunge (Tiger)				LC		0	2	0	0	0	0	0	0	0	0	2	5	4	0	5	14	16	2	1	2	4	3	12	28
<i>Esox niger</i>	Chain Pickerel				LC		2	2	0	0	0	0	0	0	0	0	4	5	4	0	5	14	18	3	1	2	1	3	10	28
<i>Esox vermiculatus</i>	Grass Pickerel						0	2	0	0	0	0	0	0	0	0	2	5	4	0	5	14	16	3	1	4	4	1	13	29
<i>Etheostoma blennioides</i>	Greenside Darter				LC		2	2	0	0	0	0	0	0	0	0	4	0	0	0	10	10	14	2	1	2	4	3	12	26
<i>Etheostoma flabellare</i>	Fantail Darter						0	2	0	0	0	0	0	0	0	0	2	10	6	5	10	31	33	2	1	1	4	3	11	44
<i>Etheostoma fusiforme</i>	Swamp Darter						0	2	0	0	0	0	0	0	0	0	2	10	6	5	10	31	33	3	1	5	4	3	16	49
<i>Etheostoma olmstedi</i>	Tessellated Darter				LC		2	2	0	0	0	0	0	0	0	0	4	0	0	0	10	10	14	3	1	5	4	3	16	30
<i>Etheostoma vitreum</i>	Glassy Darter						0	2	1	0	0	0	0	0	0	0	3	10	6	5	10	31	34	2	1	6	4	3	16	50
<i>Exoglossum maxillingua</i>	Cutlips Minnow						2	2	0	0	0	0	0	0	0	0	4	0	0	0	10	10	14	3	1	5	4	3	16	30
<i>Fundulus heteroclitus</i>	Mummichog				LC		2	2	0	0	0	0	0	0	0	0	4	0	0	0	10	10	14	3	1	2	4	3	13	27
<i>Fundulus diaphanus</i>	Banded Killifish				LC		2	2	0	0	0	0	0	0	0	0	4	0	0	0	10	10	14	2	1	3	4	3	13	27
<i>Fundulus luciae</i>	Spottin Killifish						0	2	0	0	0	0	0	0	0	0	2	10	6	5	10	31	33	2	1	2	4	3	12	45
<i>Gambusia affinis</i>	Western Mosquitofish				LC		0	2	0	0	0	0	0	0	0	0	2	0	0	0	10	10	12	3	1	5	4	3	16	28
<i>Hybognathus regius</i>	Eastern Silvery Minnow				LC		2	2	0	0	0	0	0	0	0	0	4	0	0	0	10	10	14	2	1	1	4	3	11	25
<i>Hypentelium nigricans</i>	Northern Hog Sucker				LC		2	2	0	0	0	0	0	0	0	0	4	5	0	0	10	15	19	3	1	2	4	3	13	32
<i>Ictalurus furcatus</i>	Blue Catfish				LC		2	2	0	0	2	0	0	0	0	0	6	0	0	0	0	0	6	3	1	2	4	3	13	19
<i>Ictalurus punctatus</i>	Channel Catfish				LC		2	0	0	0	0	0	0	0	0	0	2	0	0	0	5	5	7	3	1	1	4	4	13	20
<i>Lampetra aepyptera</i>	Least Brook Lamprey						0	0	0	0	2	0	3	0	0	0	5	10	6	5	10	31	36	3	1	5	4	2	15	51

Scientific Name	Common Name	Biological Variables															Action Variables					Biological + Action Total Score	Supplemental Variables					Species Total Score		
		G-Rank	N-Rank	S-Rank	IUCN	ESA listing status	Population Size	Population Trend	Range Size	Distribution Trend	Population Concentration	Reproductive Potential for Recovery (Variable A)	Reproductive Potential for Recovery (Variable B)	Ecological Specialization (Variable A)	Ecological Specialization (Variable B)	Ecological Specialization (Variable C)	Total	DC Distribution	DC Trend	DC Population Limitations	Ongoing Management Activities		Action Total	Taxonomic Significance	Population/POA	Last Documented	Range Size/ Concentration		Impact of Emerging Diseases	Total
<i>Lamprologus appendix</i>	American Brook Lamprey				LC		2	2	0	0	0	0	3	0	0	0	7	10	6	5	10	31	38	3	1	5	4	3	16	54
<i>Leiostomus xanthurus</i>	Spot						2	2	0	0	2	0	1	0	0	0	7	0	0	0	5	5	12	2	1	3	3	3	12	24
<i>Lepisosteus osseus</i>	Longnose Gar				LC		0	2	0	0	2	0	1	0	0	0	5	5	0	0	5	10	15	3	1	4	1	3	12	27
<i>Lepomis auritus</i>	Redbreast Sunfish				LC		0	2	0	0	0	0	0	0	0	0	2	0	0	0	5	5	7	3	1	2	4	3	13	20
<i>Lepomis cyanellus</i>	Green Sunfish				LC		2	2	0	0	0	0	0	0	0	0	4	0	0	0	5	5	9	3	1	2	4	4	14	23
<i>Lepomis gibbosus</i>	Pumpkinseed				LC		2	2	0	0	0	0	0	0	0	0	4	0	0	0	5	5	9	3	1	2	4	4	14	23
<i>Lepomis gulosus</i>	Warmouth				LC		2	2	0	0	0	0	0	0	0	0	4	5	4	0	5	14	18	3	1	2	4	4	14	32
<i>Lepomis macrochirus</i>	Bluegill				LC		2	2	0	0	0	0	0	0	0	0	4	0	0	0	5	5	9	3	1	3	4	3	14	23
<i>Lepomis megalotis</i>	Longear Sunfish				LC		2	2	0	0	0	0	0	0	0	0	4	5	0	0	0	5	9	2	1	2	4	4	13	22
<i>Lepomis microlophus</i>	Redear Sunfish				LC		2	2	0	0	0	0	0	0	0	0	4	0	0	0	5	5	9	2	1	2	4	4	13	22
<i>Luxilus amoeneus</i>	Comely Shiner				LC		2	2	0	0	0	0	0	0	0	0	4	0	0	0	10	10	14	2	1	2	4	4	13	27
<i>Margariscus margarita</i>	Pearl Dace	G4	N4	S2	LC		2	10	1	5	0	0	0	0	1.7	19.7	10	6	5	10	31	50.7	3	1	4	4	3	15	65.7	
<i>Membras martinica</i>	Rough Silverside						0	2	0	0	0	0	0	0	0	0	2	5	6	0	10	21	23	4	1	5	4	3	17	40
<i>Menidia beryllina</i>	Inland Silverside				LC		2	2	0	0	0	0	0	0	0	0	4	0	0	0	10	10	14	4	1	5	1	3	14	28
<i>Menidia menidia</i>	Atlantic Silverside						0	2	0	0	0	0	0	0	0	0	2	5	6	0	10	21	23	3	1	3	4	3	14	37
<i>Micropogonias undulatus</i>	Atlantic Croaker						2	2	0	0	0	0	0	0	0	0	4	5	6	0	10	21	25	3	1	5	1	3	13	38
<i>Micropterus dolomieu</i>	Smallmouth Bass				LC		2	2	0	0	0	0	1	0	0	0	5	0	0	0	0	0	5	4	1	5	1	3	14	19
<i>Micropterus salmoides</i>	Largemouth Bass				LC		2	2	0	0	0	0	1	0	0	0	5	0	0	0	0	0	5	2	1	4	4	2	13	18
<i>Morone americana</i>	White Perch				LC		0	2	0	0	0	0	0	0	0	0	2	0	0	0	5	5	7	2	1	4	4	2	13	20
<i>Morone saxatilis</i>	Striped Bass	G5		S4	LC		2	8	0	2	2	0	3	0	0	1.7	18.7	0	0	0	0	0	18.7	2	1	4	4	4	15	33.7
<i>Moxostoma erythrum</i>	Golden Redhorse				LC		2	2	0	0	0	0	0	0	0	0	4	0	0	0	5	5	9	1	1	4	4	2	12	21
<i>Moxostoma macrolepidotum</i>	Shorthead Redhorse				LC		2	2	0	0	0	0	0	0	0	0	4	0	0	0	10	10	14	3	1	2	4	3	13	27
<i>Mugil cephalus</i>	Mullet				LC		2	2	0	0	0	0	1	0	0	0	5	5	4	0	10	19	24	2	1	2	4	3	12	36
<i>Mugil curema</i>	White Mullet						0	2	0	0	0	0	0	0	0	0	2	5	6	0	10	21	23	3	1	2	1	3	10	33
<i>Nocomis micropogon</i>	River Chub						2	2	0	0	0	0	0	0	1.7	5.7	10	6	5	10	31	36.7	3	1	5	1	3	13	49.7	
<i>Notropis bifrenatus</i>	Bridle Shiner	G3		SH	LC		2	10	1	5	0	0	0	0	1.7	19.7	10	6	5	10	31	50.7	3	1	5	4	3	16	66.7	
<i>Notropis buccatus</i>	Silverjaw Minnow				LC		2	2	1	0	0	0	0	0	0	0	5	0	0	0	10	10	15	3	1	6	4	3	17	32
<i>Notropis chalybaeus</i>	Ironcolor shiner						0	8	0	0	0	0	0	0	0	0	8	10	6	5	10	31	39	3	1	5	4	3	16	55
<i>Notropis cornutus</i>	Common Shiner				LC		0	2	0	0	0	0	0	0	0	0	2	0	0	0	10	10	12	1	1	3	4	3	12	24
<i>Notropis hudsonius</i>	Spottail Shiner				LC		2	2	0	0	0	0	0	0	0	0	4	0	0	0	10	10	14	3	1	2	4	3	13	27

Appendix B Millsap Mammal Ranking

Scientific Name	Common Name	Biological Variables															Action Variables					Biological + Action Total Score	Supplemental Variables					Species Total Score		
		G-Rank	N-Rank	S-Rank	IUCN	ESA listing status	Population Size	Population Trend	Range Size	Distribution Trend	Population Concentration	Reproductive Potential for Recovery (Variable A)	Reproductive Potential for Recovery (Variable B)	Ecological Specialization (Variable A)	Ecological Specialization (Variable B)	Ecological Specialization (Variable C)	Total	DC Distribution	DC Trend	DC Population Limitations	Ongoing Management Activities		Action Total	Taxonomic Significance	Population/POA	Last Documented	Range Size/ Concentration		Impact of Emerging Diseases	Total
<i>Notropis procne</i>	Swallowtail Shiner				LC		2	2	0	0	0	0	0	0	0	0	4	0	0	0	10	10	14	3	1	2	4	3	13	27
<i>Notropis rubellus</i>	Rosyface Shiner				LC		2	2	0	0	0	0	0	0	0	4	10	4	5	10	29	33	3	1	3	4	3	14	47	
<i>Notropis spilopterus</i>	Spottin Shiner				LC		2	2	0	0	0	0	0	0	0	4	0	0	0	10	10	14	3	1	2	4	3	13	27	
<i>Notropis volucellus</i>	Mimic Shiner				LC		2	2	0	0	0	0	0	0	0	4	0	0	0	10	10	14	3	1	3	4	3	14	28	
<i>Noturus gyrinus</i>	Tadpole Madtom						2	2	0	0	0	0	0	0	0	4	10	6	5	10	31	35	3	1	5	4	3	16	51	
<i>Noturus insignis</i>	Margined Madtom				LC		2	2	1	0	0	0	0	0	0	5	5	0	0	10	15	20	3	1	3	4	3	14	34	
<i>Oncorhynchus mykiss</i>	Rainbow Trout						2	2	0	0	0	0	0	0	0	4	5	4	0	5	14	18	3	1	3	1	3	11	29	
<i>Paralichthys dentatus</i>	Summer Flounder				LC		2	10	0	0	2	0	1	0	1.7	16.7	5	4	0	5	14	30.7	3	1	5	1	3	13	43.7	
<i>Perca flavescens</i>	Yellow Perch				LC		2	2	0	0	0	0	0	0	0	4	0	0	0	5	5	9	4	1	5	4	2	16	25	
<i>Percina peltata</i>	Shield Darter				LC		2	2	4	0	0	0	0	0	0	8	0	0	0	10	10	18	3	1	2	4	3	13	31	
<i>Petromyzon marinus</i>	Sea Lamprey				LC		2	2	0	0	2	0	3	0	0	9	5	0	0	10	15	24	4	1	2	3	3	13	37	
<i>Pimephales notatus</i>	Bluntnose Minnow				LC		2	2	0	0	0	0	0	0	0	4	0	0	0	10	10	14	3	1	2	4	3	13	27	
<i>Pimephales promelas</i>	Fathead Minnow				LC		0	2	0	0	0	0	0	0	0	2	0	0	0	10	10	12	3	1	3	4	3	14	26	
<i>Pogonias cromis</i>	Black Drum						2	2	0	0	0	0	1	0	0	5	5	6	0	10	21	26	4	1	5	1	3	14	40	
<i>Pomoxis annularis</i>	White Crappie				LC		2	2	0	0	0	0	0	0	0	4	0	0	0	5	5	9	3	1	4	4	4	16	25	
<i>Pomoxis nigromaculatus</i>	Black Crappie				LC		2	2	0	0	0	0	1	0	0	5	0	0	0	10	10	15	3	1	3	4	4	15	30	
<i>Pylodictis olivaris</i>	Flathead Catfish				LC		2	2	0	0	0	0	3	0	0	7	0	0	0	5	5	12	3	1	1	4	3	12	24	
<i>Rhinichthys atratulus</i>	Eastern Blacknose Dace				LC		2	2	0	0	0	0	0	0	0	4	0	0	0	10	10	14	2	1	2	4	3	12	26	
<i>Rhinichthys cataractae</i>	Longnose Dace				LC		2	2	0	0	0	0	0	0	0	4	0	0	0	10	10	14	2	1	2	4	3	12	26	
<i>Salmo trutta</i>	Brown Trout				LC		0	2	0	0	2	0	1	0	0	5	5	4	0	5	14	19	3	1	3	1	3	11	30	
<i>Salvelinus fontinalis</i>	Brook Trout						2	2	0	0	2	0	0	0	0	6	5	4	0	5	14	20	3	1	5	1	3	13	33	
<i>Sander vitreum</i>	Walleye				LC		2	2	0	0	0	0	1	0	0	6.7	5	6	0	10	21	27.7	4	1	5	1	3	14	41.7	
<i>Sciaenops ocellatus</i>	Red Drum						2	2	0	0	0	0	1	0	0	5	5	4	0	10	19	24	3	1	2	4	3	13	37	
<i>Semotilus corporalis</i>	Fallfish				LC		2	2	0	0	0	0	0	0	0	4	0	4	0	5	9	13	3	1	4	4	2	14	27	
<i>Strongylura marina</i>	Atlantic Needlefish				LC		2	2	0	0	0	0	0	0	0	4	5	0	0	10	15	19	3	1	3	1	3	11	30	
<i>Umbra pygmaea</i>	Eastern Mudminnow				LC		2	2	0	0	0	0	0	0	1.7	5.7	0	0	0	10	10	15.7	3	1	1	4	3	12	27.7	

Appendix C Millsap Herpetofauna Ranking

C.1 Ranking Herpetofauna of the District for selection of SGCN

The main framework for the herpetofauna ranking process comes from the Millsap paper, with supplemental variables developed based solely on data for this taxon in the District. DDOE prioritized conservation efforts for District herpetofauna utilizing national, regional, and local aspects of several other ranking systems. These aspects include population status, vulnerability, population trends, current knowledge, specialization, and ongoing management.

Since the District is severely limited in geographic size, using only national or regional data would not adequately reflect the impact conservation efforts would have for some species. To attempt a balance that would more accurately assess conservation needs, species were scored on a number of biological variables for North America and the region, as well as District-only aspects to attempt a balance that would more accurately assess conservation need.

C.2 Scoring

C.2.1 Biological Variables

Population Size – Estimated number of adults throughout North America

0–500 individuals	10
501–1,000 individuals or population suspected to be small	8
1,001–3000 individuals	6
3,001–10,000 individuals	4
10,001–50,000 individuals, or population suspected to be large	2
> 50,000 individuals	0

Population Trend – Overall trend in number of individuals throughout taxon’s range over last two decades (or other appropriate time interval considering taxon’s generation time)

If population trend is unknown, consider trends in the availability and condition of the taxon's habitat as indicative of the population.

Population size known to be decreasing	10
Trend unknown, but population suspected to be decreasing	8
Population formerly experienced serious declines, but is stable or increasing	6
Population size stable or suspected to be increasing	2
Population size known to be increasing	0

Range Size – The size of areas over which species is distributed when most restricted

<100 km ²	10
101–1,000 km ²	9
1,001–40,000 km ²	7
40,001–100,000 km ²	4
100,001–2,000,000 km ²	1
>2,000,000 km ²	0

Distribution Trend – Percent change (since European settlement) in area occupied by the taxon

This is an estimate of change in the portion of the total range that is occupied or utilized it may not be equal to the change in total range.

Area occupied has declined by 90%–100%	10
Area occupied has declined by 75%–89%	8
Area occupied has declined by 25%–74%	5
Area occupied has declined by 1%–24%	2
Area occupied is stable or has increased	0

Population Concentration – Degree to which populations congregate at specific locations

Majority concentrates in single location	10
Concentrates at 1–25 locations	6
Concentrates at >25 locations	2
Does not concentrate	0

Reproductive Potential for Recovery – Ability of species to recover from serious population declines

(a) Average number of eggs or young produced per adult female per year

<1 offspring/female/year	5
1–9 offspring/female/year	3
10–100 offspring/female/year	1
>100 offspring/female/year	0

(b) Minimum age at which females typically reproduce

>8 years	5
4–8 years	3
2–3 years	1
<2 years	0

Ecological specialization – degree to which the species is dependent upon environmental factors

(a) Dietary specialization – primary response to decrease in availability of primary food source

Number of individuals declines, no substantial shift in diet	3.3
Little change in number of individuals, shift in diet	0

(b) Reproductive specialization – primary response of local populations to decrease in preferred breeding sites

Number of individuals or breeding attempts decline, no substantial shift to alternate breeding sites	3.3
Substantial shift to alternate breeding sites with little change in number of individuals	0
(c) Other specialization – ecological or behavioral specializations (roosting, hibernacula, etc.)	
Highly specialized	3.3
Moderately specialized	1.7
Not specialized	0

C.2.2 Action Variables

Knowledge of distribution in the District

Distribution is extrapolated from a few locations or knowledge is limited to general range maps	10
Broad range limits or habitat associations are known, but local occurrence cannot be predicted accurately	5
Distribution is well known and occurrence can be predicted accurately throughout the range	0

Knowledge of population trend in the District

Not currently monitored	10
Monitored locally	6
Statewide monitoring, but not with statistical sensitivity	4
Statewide monitoring with statistical sensitivity	0

Knowledge of District population limits

Factors affecting population size and distribution are unknown or unsustainable	10
Some factors affecting population size and distribution are known, but one or more major factors are unknown	5
All major factors affecting population size and distribution are known	0

Ongoing management activities in the District

None directed primarily at the taxon	10
Management mostly related to enforcement of conservation laws	5
Some direct management activities in addition to enforcement of conservation laws	0

Supplemental Variables –Population trend/POA of taxon in the District

Known decrease	6
Population trend unknown or suspected decline	5
Known stable or increasing, but declining in areas	4
Former serious decline, but presently stable/increasing	3
Population is stable or suspected to be stable/increasing	2
No current data/potentially extirpated	1

Last documented

Present–5 years	10
5–10 years	5
>10 years	0

Range size/concentration throughout the District/POA

0%–24%	10
25%–50%	8
>50%	6
No current species data/possibly extirpated	2

Impacted by known emerging disease

Known	10
Potentially	5
None	0

Habitat specialization within the District

Highly specialized	10
Moderately specialized	8
Not specialized	6
No known habitat/possibly extirpated	2

C.2.3 Ranking

Species were sorted based on their aggregate scores ranging from the Queen Snake (89.9) to the Eastern Hognose Snake (29).

Herpetofauna SGCN Selection

Species with the highest ranking scores were selected as SGCN for 2015, with the lowest score for selection for reptiles and amphibians being set at 40 and 50, respectively.

Table 31 Millsap Herpetofauna Ranking

Common Name	Biological Variables													Action Variables					Biological + Action Total Score	Supplemental Variables (specific to DC)					Species Total Score		
	Current SGCN	MD SGCN	VA SGCN	G-Rank	S-Rank	IUCN	Population Size	Population Trend	Range Size	Distribution Trend	Population Concentration	Reproductive Potential for Recovery	Ecological Specialization	Biological Total	DC Distribution	Trend in DC	DC Population Limitations	Ongoing DC Management Activities		Action Total	Population/POA	Last documented	Range Size/ Concentration	Impact of Emerging Diseases		DC Habitat Specialization	Supp. Total
Southern Leopard Frog				G5	S2S3		e	b	f	d	c	Ad, Bd	Ab, Ba, Cb	19	c	c	c	a	14	33	c	a	c	a	b	38	71
Green Treefrog				G5	SH		e	b	f	d	c	Ad, Bd	Ab, Ba, Cb	19	a?	b?	b?	a	10	29	d	a	a	a	b	41	70
Gray Treefrog				G5	S4		e	b	f	d	c	Ad, Bd	Ab, Ba, Cb	19	c	c	c	a	14	33	c	a	c	a	b	38	71
Cope's Gray Treefrog				G5	S4		e	b	f	d	c	Ad, Bd	Ab, Ba, Cb	19	c	c	c	a	14	33	c	a	c	a	b	38	71
American Toad	X			G5	S5		e	b	f	d	c	Ad, Bd	Ab, Ba, Cb	19	c	c	c	a	14	33	c	a	c	a	c	36	69
Bullfrog	X			G5	S5		f	e	f	e	c	Ad, Bc	Ab, Ba, Cb	8	c	c	c	a	14	22	e	a	c	b	c	29	51
Fowler's Toad	X			G5	S5		e	b	f	d	c	Ad, Bd	Ab, Ba, Cb	19	c	c	c	a	14	33	c	a	c	a	c	36	69
Northern Dusky Salamander	X			G5	S5		f	d	f	d	c	Ac, Bc	Ab, Ba, Cb	13	a?	b?	b?	a	10	23	c	a	a	a	a	44	67
Marbled Salamander	X			G5	S3		e	b	f	c	c	Ad, Bd	Aa, Ba, Ca	26.9	a?	b?	b?	a	10	26.9	b	a	a	a	a	45	71.9
Mud Salamander	X			G5	S3		f	d	f	d	c	Ac, Bc	Ab, Ba, Cb	13	c?	c?	c?	a	14	27	f	c	d	b	d	10	37
Northern Cricket Frog	X			G5	S3		0	2	0	2	2	2	5	13	c?	c?	c?	a	14	27	f	c	d	b	d	10	37
Northern Two-lined Salamander	X			G5	S5		f	d	f	d	c	Ac, Bc	Ab, Ba, Cb	13	c	c	c	a	14	23	e	a	c	a	b	36	59
Pickerel Frog	X			G5	S5		e	b	f	d	c	Ad, Bd	Ab, Ba, Cb	19	c	c	c	a	14	33	b	a	c	a	b	39	72
Northern Red Salamander	X			G5	S3		f	d	f	d	c	Ac, Bc	Ab, Ba, Cb	13	a?	b?	b?	a	10	23	b	a	a	a	a	45	68
Redback Salamander	X			G5	S5		f	b	f	c	c	Ac, Bc	Ab, Ba, Cb	22	c	c	c	a	14	36	e	a	c	b	c	29	65
Eastern Newt	X			G5	S3		f	d	f	e	c	Ad, Bb	Ab, Ba, Cb	12	a?	b?	b?	a	10	22	b	a	a	b	b	38	60
Northern Spring Peeper	X			G5	S4		e	b	f	d	c	Ad, Bd	Ab, Ba, Cb	19	c	c	c	a	14	33	e	a	c	a	c	34	67
Upland Chorus Frog	X			G5	S3		e	b	f	d	c	Ad, Bd	Ab, Ba, Cb	19	a?	b?	b?	a	10	29	b	a	b	a	c	39	68
Spotted Salamander	X			G5	S4		e	b	f	c	c	Ad, Bd	Aa, Ba, Ca	26.9	c	c	c	a	14	40.9	b	a	a	a	a	45	85.9
Wood Frog	X			G5	S2?		e	b	f	d	c	Ad, Bd	Aa, Ba, Ca	23.9	c	c	c	a	14	37.9	b	a	a	a	a	45	82.9
Spring Salamander				G5			e	b	f	c	c	Ad, Bd	Aa, Ba, Ca	26.9	a?	b?	b?	a	10	36.9	f	c	d	b	d	10	46.9
Green Frog				G5	S5		e	b	f	d	c	Ad, Bd	Ab, Ba, Cb	19	c	c	c	a	14	33	e	a	c	a	c	34	67

Appendix D Millsap Fish Ranking

D.1 Fish SGCN Selection

The updated SGCN ranking is based on District data and historical maps and lists 114 fish species that occur in the District commonly, rarely, or never. DDOE prioritized conservation efforts for District fish utilizing national, regional, and local aspects of several other ranking systems. These aspects include population status, vulnerability, population trends, current knowledge, specialization, and ongoing management.

Since many fish species that occur in the District are considered migratory, it is necessary to utilize both national, regional, and District data for the SGCN scoring and selection process. Basis for inclusion or exclusion of a species was based on using all three variables listed in the Millsap document: biological, action, and supplemental.

D.2 Scoring

D.2.1 Biological Variables

Population Size – Estimated number of adults throughout North America

0–500 individuals	10
501–1,000 individuals or population suspected to be small	8
1,001–3000 individuals	6
3,001–10,000 individuals	4
10,001–50,0000 individuals, or population suspected to be large	2
> 50,000 individuals	0

Population Trend – Overall trend in number of individuals throughout taxon’s range over last two decades (or other appropriate time interval considering taxon’s generation time)

If population trend is unknown, consider trends in the availability and condition of the taxon's habitat as indicative of the population.

Population size known to be decreasing	10
Trend unknown, but population suspected to be decreasing	8
Population formerly experienced serious declines, but is stable or increasing	6
Population size stable or suspected to be increasing	2
Population size known to be increasing	0

Range Size – The size of areas over which species is distributed when most restricted

<100 km ²	10
101–1,000 km ²	9
1,001–40,000 km ²	7
40,001–100,000 km ²	4
100,001–2,000,000 km ²	1
>2,000,000 km ²	0

Distribution Trend – Percent change (since European settlement) in area occupied by the taxon

This is an estimate of change in the portion of the total range that is occupied or utilized it may not be equal to the change in total range.

Area occupied has declined by 90%–100%	10
Area occupied has declined by 75%–89%	8
Area occupied has declined by 25%–74%	5
Area occupied has declined by 1%–24%	2
Area occupied is stable or has increased	0

Population Concentration – Degree to which populations congregate at specific locations

Majority concentrates in single location	10
Concentrates at 1–25 locations	6
Concentrates at >25 locations	2
Does not concentrate	0

Reproductive Potential for Recovery – Ability of species to recover from serious pop. declines

(a) Average number of eggs or young produced per adult female per year

<1 offspring/female/year	5
1–9 offspring/female/year	3
10–100 offspring/female/year	1
>100 offspring/female/year	0

(b) Minimum age at which females typically reproduce

>8 years	5
4–8 years	3
2–3 years	1
<2 years	0

Ecological specialization – degree to which the species is dependent upon environmental factors

(a) Dietary specialization – primary response to decrease in availability of primary food source

Number of individuals declines, no substantial shift in diet	3.3
Little change in number of individuals, shift in diet	0

(b) Reproductive specialization – primary response of local populations to decrease in preferred breeding sites

Number of individuals or breeding attempts decline, no substantial shift to alternate breeding sites	3.3
Substantial shift to alternate breeding sites with little change in number of individuals	0

(c) Other specialization – ecological or behavioral specializations (roosting, hibernacula, etc.)

Highly specialized	3.3
Moderately specialized	1.7
Not specialized	0

D.2.2 Action Variables

Knowledge of distribution in the District

Distribution is extrapolated from a few locations or knowledge is limited to general range maps	10
Broad range limits or habitat associations are known, but local occurrence cannot be predicted accurately	5
Distribution is well known and occurrence can be predicted accurately throughout the range	0

Knowledge of population trend in the District

Not currently monitored	10
Monitored locally	6
Statewide monitoring, but not with statistical sensitivity	4
Statewide monitoring with statistical sensitivity	0

Knowledge of District population limits

Factors affecting population size and distribution are unknown or unsustainable	10
Some factors affecting population size and distribution are known, but one or more major factors are unknown	5
All major factors affecting population size and distribution are known	0

Ongoing management activities in the District

None directed primarily at the taxon	10
Management mostly related to enforcement of conservation laws	5
Some direct management activities in addition to enforcement of conservation laws	0

D.2.3 Supplemental Variables**Systematic significance of the taxon**

Monotypic family	5
Monotypic genus	4
Monotypic species	3
Disjunct population below the species level	2
Intergrading subspecies	1

Percent of taxon's total range that occurs in the District

90%–100% of total range in the District	5
75%–89% of total range in the District	4
50%–74% of total range in the District	3
25%–49% of total range in the District	2
<25% of total range in the District	1

Period of occurrence in the District

Permanent resident	4
Resident during breeding season	3
Resident during winter or non-breeding season	2
Transient	1

Harvest of the taxon in the District

Harvested, with no legal protection	4
No substantial harvest other than accidental take or harvest of nuisance animals; no legal protection	3
Harvested, but harvest regulated	2
Harvest prohibited by regulation	1

D.3 Ranking

Species were scored individually by biological, action, and supplemental variables. Biological scores ranged from 2 to 41.3 with a median of 4, action scores ranged from 0 to 31 with a median of 10, and supplemental scores ranged from 10 to 19 with a median of 13.

D.4 Fish SGCN Selection

While the median biological score (4) would have caused many more species to be added to the SGCN listing, DDOE utilized the action and supplemental variables to exclude or include certain species that either have a good historical record of or are considered to be stable within the District of Columbia. Conversely, DDOE included species that were considered highly vulnerable, such as bowfin. DDOE also consulted multiple conservation assessments (IUCN Red List, federal listings, ranks) to further identify SGCNs.

Table 32 Millsap Ranking for the District's Fish

Scientific Name	Common Name	Biological Variables														Action Variables					Supplemental Variables					Species Total Score				
		G-Rank	N-Rank	S-Rank	IUCN	ESA listing status	Population Size	Population Trend	Range Size	Distribution Trend	Population Concentration	Reproductive Potential for Recovery (Variable A)	Reproductive Potential for Recovery (Variable B)	Ecological Specialization (Variable A)	Ecological Specialization (Variable B)	Ecological Specialization (Variable C)	Total	DC Distribution	DC Trend	DC Population Limitations	Ongoing Management Activities	Action Total	Biological + Action Total Score	Taxonomic significance	Population/POA		Last Documented	Range Size/Concentration	Impact of Emerging Diseases	Total
<i>Acantharchus pomotis</i>	Mud Sunfish						0	2	0	5	0	0	0	0	0	0	7	10	6	5	10	31	38	4	1	5	4	3	17	55
<i>Acipenser brevirostrum</i>	Shortnose Sturgeon	G3*	N3	SX	VU	E	0	10	1	8	2	0	5	0	0	26	10	0	0	0	10	36	3	1	5	3	1	13	49	
<i>Acipenser oxyrinchus</i>	Atlantic Sturgeon	G3*	N3	SX	CR	T	10	10	1	5	2	0	5	3.3	3.3	1.7	41.3	10	0	0	0	10	51.3	2	1	5	3	1	12	63.3
<i>Alosa aestivalis</i>	Blueback Herring	G3G4	N3N4	S5	VU		0	10	1	5	2	0	3	0	0	1.7	22.7	0	0	0	0	0	22.7	3	1	6	3	1	14	36.7
<i>Alosa mediocris</i>	Hickory Shad	G4	N4	S2B	LC		2	0	0	5	2	0	1	0	0	0	10	0	0	0	0	0	10	3	1	3	3	1	11	21
<i>Alosa pseudoharengus</i>	Alewife	G5	N5	S5	LC		0	8	1	5	2	0	3	0	0	1.7	20.7	0	0	5	0	5	25.7	3	1	6	3	1	14	39.7
<i>Alosa sapidissima</i>	American Shad	G5	N5	S2B	LC		0	2	1	5	2	0	1	0	0	0	11	0	0	0	0	0	11	3	1	3	3	1	11	22
<i>Ambloplites rupestris</i>	Rock Bass				LC		0	2	0	0	0	0	0	0	0	2	0	0	0	10	10	12	3	1	3	4	3	14	26	
<i>Ameiurus catus</i>	White Catfish				LC		0	2	0	0	0	0	0	0	0	2	0	0	0	5	5	7	3	1	2	4	4	14	21	
<i>Ameiurus natalis</i>	Yellow Bullhead				LC		0	2	0	0	0	0	0	0	0	2	0	0	0	5	5	7	3	1	2	4	3	13	20	
<i>Ameiurus nebulosus</i>	Brown Bullhead	G5	N5	S5	LC		0	2	0	0	0	0	1	0	0	3	0	0	0	5	5	8	3	1	6	4	4	18	26	
<i>Amia calva</i>	Bowfin	G5			LC		0	2	0	0	0	0	1	0	3.3	6.3	10	6	0	10	26	32.3	5	1	2	1	3	12	44.3	
<i>Anchoa mitchilli</i>	Bay Anchovy				LC		0	2	0	0	0	0	0	0	0	2	0	0	0	10	10	12	3	1	5	1	3	13	25	
<i>Anguilla rostrata</i>	American Eel	G4		S4	EN		2	10	0	2	2	0	1	0	0	17	5	0	5	5	15	32	3	1	5	4	3	16	48	
<i>Apeltes quadracus</i>	Fourspine Stickleback						0	2	0	0	0	0	0	0	0	2	10	6	5	10	31	33	3	1	5	4	3	16	49	
<i>Aphredoderus sayanus</i>	Pirate Perch						0	2	0	0	0	0	0	0	0	2	10	6	5	10	31	33	3	1	5	4	3	16	49	
<i>Bairdiella chrysoura</i>	Silver Perch						0	2	0	0	0	0	0	0	0	2	5	6	0	10	21	23	3	1	5	1	3	13	36	
<i>Brevoortia tyrannus</i>	Atlantic Menhaden						2	2	1	2	2	0	0	0	0	9	0	0	0	0	0	9	3	1	4	3	1	12	21	
<i>Campostoma anomalum</i>	Central Stoneroller				LC		2	2	0	0	0	0	0	0	0	4	5	4	0	10	19	23	2	1	2	4	3	12	35	
<i>Carassius auratus</i>	Goldfish				LC		2	2	0	0	0	0	0	0	0	4	0	0	0	5	5	9	4	1	2	4	3	14	23	
<i>Carpoides cyprinus</i>	Quillback				LC		2	2	0	0	0	0	0	0	0	4	0	0	0	5	5	9	3	1	2	4	3	13	22	
<i>Catostomus commersonii</i>	White Sucker				LC		0	2	0	0	0	0	0	0	0	2	0	0	0	10	10	12	3	1	2	4	3	13	25	
<i>Centrarchus macropterus</i>	Flier				LC		2	2	0	0	0	0	0	0	0	4	5	4	0	10	19	23	4	1	2	4	3	14	37	
<i>Channa argus argus</i>	Northern Snakehead						2	2	0	0	2	0	0	0	0	6	0	0	0	5	5	11	3	1	1	4	4	13	24	
<i>Clinostomus funduloides</i>	Rosyside Dace						0	2	0	0	0	0	0	0	0	2	10	6	5	10	31	33	3	1	4	4	3	15	48	
<i>Cottus bairdii</i>	Mottled Sculpin						0	2	0	0	0	0	0	0	0	2	10	6	5	10	31	33	3	1	5	4	3	16	49	
<i>Cottus caeruleomentum</i>	Blue Ridge Sculpin						2	2	1	0	0	0	0	0	0	5	10	6	5	10	31	36	3	1	5	4	3	16	52	
<i>Cottus cognatus</i>	Slimy Sculpin						0	2	0	0	0	0	0	0	0	2	10	6	5	10	31	33	3	1	5	4	3	16	49	
<i>Cottus girardi</i>	Potomac Sculpin				LC		0	2	4	0	0	0	0	0	0	6	10	6	5	10	31	37	3	4	5	4	3	19	56	
<i>Ctenopharyngodon idella</i>	Grass Carp						2	2	0	0	0	0	0	0	0	4	0	0	0	5	5	9	4	1	2	4	3	14	23	

Appendix D Millsap Fish Ranking

Scientific Name	Common Name	Biological Variables															Action Variables					Biological + Action Total Score	Supplemental Variables					Species Total Score		
		G-Rank	N-Rank	S-Rank	IUCN	ESA listing status	Population Size	Population Trend	Range Size	Distribution Trend	Population Concentration	Reproductive Potential for Recovery (Variable A)	Reproductive Potential for Recovery (Variable B)	Ecological Specialization (Variable A)	Ecological Specialization (Variable B)	Ecological Specialization (Variable C)	Total	DC Distribution	DC Trend	DC Population Limitations	Ongoing Management Activities		Action Total	Taxonomic significance	Population/POA	Last Documented	Range Size/ Concentration		Impact of Emerging Diseases	Total
<i>Cynoscion nebulosus</i>	Spotted Sea Trout						2	2	0	0	0	0	0	0	0	0	4	5	6	0	10	21	25	3	1	5	1	3	13	38
<i>Cynoscion regalis</i>	Weakfish						2	10	0	0	0	0	1	0	0	0	13	5	6	0	10	21	34	3	1	5	1	3	13	47
<i>Cyprinella analostana</i>	Satfinn Shiner				LC		0	2	0	0	0	0	0	0	0	2	0	0	0	10	10	12	3	1	2	4	3	13	25	
<i>Cyprinus carpio</i>	Common Carp (Koi)				LC		2	2	0	0	0	0	0	0	0	4	0	0	0	5	5	9	4	1	2	4	3	14	23	
<i>Cyrinodon variegatus</i>	Sheepshead Minnow						0	2	0	0	0	0	0	0	0	2	10	6	5	10	31	33	3	1	5	4	3	16	49	
<i>Dorosoma cepedianum</i>	Gizzard Shad				LC		0	2	0	0	2	0	0	0	0	4	0	0	0	5	5	9	3	1	2	4	4	14	23	
<i>Dorosoma petenense</i>	Threadfin Shad				LC		2	2	0	0	2	0	0	0	0	6	0	0	0	5	5	11	3	1	1	3	3	11	22	
<i>Enneacanthus gloriosus</i>	Bluespotted Sunfish				LC		0	2	0	0	0	0	0	0	0	2	10	6	0	5	21	23	3	1	5	4	3	16	39	
<i>Enneacanthus obesus</i>	Banded Sunfish						0	2	0	2	0	0	0	0	0	4	10	6	5	10	31	35	3	1	5	4	3	16	51	
<i>Erimyzon oblongus</i>	Eastern Creek Chubsucker				LC		2	2	0	0	0	0	0	0	0	4	0	0	0	10	10	14	4	1	3	4	3	15	29	
<i>Esox masquinongy</i>	Muskellunge (Tiger)				LC		0	2	0	0	0	0	0	0	0	2	5	4	0	5	14	16	2	1	2	4	3	12	28	
<i>Esox niger</i>	Chain Pickerel				LC		2	2	0	0	0	0	0	0	0	4	5	4	0	5	14	18	3	1	2	1	3	10	28	
<i>Esox vermiculatus</i>	Grass Pickerel						0	2	0	0	0	0	0	0	0	2	5	4	0	5	14	16	3	1	4	4	1	13	29	
<i>Etheostoma blennioides</i>	Greenside Darter				LC		2	2	0	0	0	0	0	0	0	4	0	0	0	10	10	14	2	1	2	4	3	12	26	
<i>Etheostoma flabellare</i>	Fantail Darter						0	2	0	0	0	0	0	0	0	2	10	6	5	10	31	33	2	1	1	4	3	11	44	
<i>Etheostoma fusiforme</i>	Swamp Darter						0	2	0	0	0	0	0	0	0	2	10	6	5	10	31	33	3	1	5	4	3	16	49	
<i>Etheostoma olmstedi</i>	Tessellated Darter				LC		2	2	0	0	0	0	0	0	0	4	0	0	0	10	10	14	3	1	5	4	3	16	30	
<i>Etheostoma vitreum</i>	Glassy Darter						0	2	1	0	0	0	0	0	0	3	10	6	5	10	31	34	2	1	6	4	3	16	50	
<i>Exoglossum maxillingua</i>	Cutlips Minnow						2	2	0	0	0	0	0	0	0	4	0	0	0	10	10	14	3	1	5	4	3	16	30	
<i>Fundulus heteroclitus heteroclitus</i>	Mummichog				LC		2	2	0	0	0	0	0	0	0	4	0	0	0	10	10	14	3	1	2	4	3	13	27	
<i>Fundulus diaphanus diaphanus</i>	Banded Killifish				LC		2	2	0	0	0	0	0	0	0	4	0	0	0	10	10	14	2	1	3	4	3	13	27	
<i>Fundulus luciae</i>	Spottfin Killifish						0	2	0	0	0	0	0	0	0	2	10	6	5	10	31	33	2	1	2	4	3	12	45	
<i>Gambusia affinis</i>	Western Mosquitofish				LC		0	2	0	0	0	0	0	0	0	2	0	0	0	10	10	12	3	1	5	4	3	16	28	
<i>Hybognathus regius</i>	Eastern Silvery Minnow				LC		2	2	0	0	0	0	0	0	0	4	0	0	0	10	10	14	2	1	1	4	3	11	25	
<i>Hypentelium nigricans</i>	Northern Hog Sucker				LC		2	2	0	0	0	0	0	0	0	4	5	0	0	10	15	19	3	1	2	4	3	13	32	
<i>Ictalurus furcatus</i>	Blue Catfish				LC		2	2	0	0	2	0	0	0	0	6	0	0	0	0	0	6	3	1	2	4	3	13	19	
<i>Ictalurus punctatus</i>	Channel Catfish				LC		2	0	0	0	0	0	0	0	0	2	0	0	0	5	5	7	3	1	1	4	4	13	20	
<i>Lampetra aepyptera</i>	Least Brook Lamprey						0	0	0	0	2	0	3	0	0	5	10	6	5	10	31	36	3	1	5	4	2	15	51	

Scientific Name	Common Name	Biological Variables															Action Variables					Biological + Action Total Score	Supplemental Variables					Species Total Score		
		G-Rank	N-Rank	S-Rank	IUCN	ESA listing status	Population Size	Population Trend	Range Size	Distribution Trend	Population Concentration	Reproductive Potential for Recovery (Variable A)	Reproductive Potential for Recovery (Variable B)	Ecological Specialization (Variable A)	Ecological Specialization (Variable B)	Ecological Specialization (Variable C)	Total	DC Distribution	DC Trend	DC Population Limitations	Ongoing Management Activities		Action Total	Taxonomic significance	Population/POA	Last Documented	Range Size/ Concentration		Impact of Emerging Diseases	Total
<i>Lamprologina appendix</i>	American Brook Lamprey				LC		2	2	0	0	0	0	3	0	0	0	7	10	6	5	10	31	38	3	1	5	4	3	16	54
<i>Leiostomus xanthurus</i>	Spot						2	2	0	0	2	0	1	0	0	0	7	0	0	0	5	5	12	2	1	3	3	3	12	24
<i>Lepisosteus osseus</i>	Longnose Gar				LC		0	2	0	0	2	0	1	0	0	0	5	5	0	0	5	10	15	3	1	4	1	3	12	27
<i>Lepomis auritus</i>	Redbreast Sunfish				LC		0	2	0	0	0	0	0	0	0	0	2	0	0	0	5	5	7	3	1	2	4	3	13	20
<i>Lepomis cyanellus</i>	Green Sunfish				LC		2	2	0	0	0	0	0	0	0	0	4	0	0	0	5	5	9	3	1	2	4	4	14	23
<i>Lepomis gibbosus</i>	Pumpkinseed				LC		2	2	0	0	0	0	0	0	0	0	4	0	0	0	5	5	9	3	1	2	4	4	14	23
<i>Lepomis gulosus</i>	Warmouth				LC		2	2	0	0	0	0	0	0	0	0	4	5	4	0	5	14	18	3	1	2	4	4	14	32
<i>Lepomis macrochirus</i>	Bluegill				LC		2	2	0	0	0	0	0	0	0	0	4	0	0	0	5	5	9	3	1	3	4	3	14	23
<i>Lepomis megalotis</i>	Longear Sunfish				LC		2	2	0	0	0	0	0	0	0	0	4	5	0	0	0	5	9	2	1	2	4	4	13	22
<i>Lepomis microlophus</i>	Redear Sunfish				LC		2	2	0	0	0	0	0	0	0	0	4	0	0	0	5	5	9	2	1	2	4	4	13	22
<i>Luxilus amoenus</i>	Comely Shiner				LC		2	2	0	0	0	0	0	0	0	0	4	0	0	0	10	10	14	2	1	2	4	4	13	27
<i>Margariscus margarita</i>	Pearl Dace	G4	N4	S2	LC		2	10	1	5	0	0	0	0	1.7	19.7	10	6	5	10	31	50.7	3	1	4	4	3	15	65.7	
<i>Membras martinica</i>	Rough Silverside						0	2	0	0	0	0	0	0	0	0	2	5	6	0	10	21	23	4	1	5	4	3	17	40
<i>Menidia beryllina</i>	Inland Silverside				LC		2	2	0	0	0	0	0	0	0	0	4	0	0	0	10	10	14	4	1	5	1	3	14	28
<i>Menidia menidia</i>	Atlantic Silverside						0	2	0	0	0	0	0	0	0	0	2	5	6	0	10	21	23	3	1	3	4	3	14	37
<i>Micropogonias undulatus</i>	Atlantic Croaker						2	2	0	0	0	0	0	0	0	0	4	5	6	0	10	21	25	3	1	5	1	3	13	38
<i>Micropterus dolomieu</i>	Smallmouth Bass				LC		2	2	0	0	0	0	1	0	0	0	5	0	0	0	0	0	5	4	1	5	1	3	14	19
<i>Micropterus salmoides</i>	Largemouth Bass				LC		2	2	0	0	0	0	1	0	0	0	5	0	0	0	0	0	5	2	1	4	4	2	13	18
<i>Morone americana</i>	White Perch				LC		0	2	0	0	0	0	0	0	0	0	2	0	0	0	5	5	7	2	1	4	4	2	13	20
<i>Morone saxatilis</i>	Striped Bass	G5		S4	LC		2	8	0	2	2	0	3	0	0	1.7	18.7	0	0	0	0	0	18.7	2	1	4	4	4	15	33.7
<i>Moxostoma erythrum</i>	Golden Redhorse				LC		2	2	0	0	0	0	0	0	0	0	4	0	0	0	5	5	9	1	1	4	4	2	12	21
<i>Moxostoma macrolepidotum</i>	Shorthead Redhorse				LC		2	2	0	0	0	0	0	0	0	0	4	0	0	0	10	10	14	3	1	2	4	3	13	27
<i>Mugil cephalus</i>	Mullet				LC		2	2	0	0	0	0	1	0	0	0	5	5	4	0	10	19	24	2	1	2	4	3	12	36
<i>Mugil curema</i>	White Mullet						0	2	0	0	0	0	0	0	0	0	2	5	6	0	10	21	23	3	1	2	1	3	10	33
<i>Nocomis micropogon</i>	River Chub						2	2	0	0	0	0	0	0	0	1.7	5.7	10	6	5	10	31	36.7	3	1	5	1	3	13	49.7
<i>Notropis bifrenatus</i>	Bridle Shiner	G3		SH	LC		2	10	1	5	0	0	0	0	0	1.7	19.7	10	6	5	10	31	50.7	3	1	5	4	3	16	66.7
<i>Notropis buccatus</i>	Silverjaw Minnow				LC		2	2	1	0	0	0	0	0	0	0	5	0	0	0	10	10	15	3	1	6	4	3	17	32
<i>Notropis chalybaeus</i>	Ironcolor shiner						0	8	0	0	0	0	0	0	0	0	8	10	6	5	10	31	39	3	1	5	4	3	16	55
<i>Notropis cornutus</i>	Common Shiner				LC		0	2	0	0	0	0	0	0	0	0	2	0	0	0	10	10	12	1	1	3	4	3	12	24
<i>Notropis hudsonius</i>	Spottail Shiner				LC		2	2	0	0	0	0	0	0	0	0	4	0	0	0	10	10	14	3	1	2	4	3	13	27

Appendix D Millsap Fish Ranking

Scientific Name	Common Name	Biological Variables															Action Variables					Biological + Action Total Score	Supplemental Variables					Species Total Score		
		G-Rank	N-Rank	S-Rank	IUCN	ESA listing status	Population Size	Population Trend	Range Size	Distribution Trend	Population Concentration	Reproductive Potential for Recovery (Variable A)	Reproductive Potential for Recovery (Variable B)	Ecological Specialization (Variable A)	Ecological Specialization (Variable B)	Ecological Specialization (Variable C)	Total	DC Distribution	DC Trend	DC Population Limitations	Ongoing Management Activities		Action Total	Taxonomic significance	Population/POA	Last Documented	Range Size/ Concentration		Impact of Emerging Diseases	Total
<i>Notropis procne</i>	Swallowtail Shiner				LC		2	2	0	0	0	0	0	0	0	0	4	0	0	0	10	10	14	3	1	2	4	3	13	27
<i>Notropis rubellus</i>	Rosyface Shiner				LC		2	2	0	0	0	0	0	0	0	4	10	4	5	10	29	33	3	1	3	4	3	14	47	
<i>Notropis spilopterus</i>	Spottfin Shiner				LC		2	2	0	0	0	0	0	0	0	4	0	0	0	10	10	14	3	1	2	4	3	13	27	
<i>Notropis volucellus</i>	Mimic Shiner				LC		2	2	0	0	0	0	0	0	0	4	0	0	0	10	10	14	3	1	3	4	3	14	28	
<i>Noturus gyrinus</i>	Tadpole Madtom						2	2	0	0	0	0	0	0	0	4	10	6	5	10	31	35	3	1	5	4	3	16	51	
<i>Noturus insignis</i>	Margined Madtom				LC		2	2	1	0	0	0	0	0	0	5	5	0	0	10	15	20	3	1	3	4	3	14	34	
<i>Oncorhynchus mykiss</i>	Rainbow Trout						2	2	0	0	0	0	0	0	0	4	5	4	0	5	14	18	3	1	3	1	3	11	29	
<i>Paralichthys dentatus</i>	Summer Flounder				LC		2	10	0	0	2	0	1	0	0	16.7	5	4	0	5	14	30.7	3	1	5	1	3	13	43.7	
<i>Perca flavescens</i>	Yellow Perch				LC		2	2	0	0	0	0	0	0	0	4	0	0	0	5	5	9	4	1	5	4	2	16	25	
<i>Percina peltata</i>	Shield Darter				LC		2	2	4	0	0	0	0	0	0	8	0	0	0	10	10	18	3	1	2	4	3	13	31	
<i>Petromyzon marinus</i>	Sea Lamprey				LC		2	2	0	0	2	0	3	0	0	9	5	0	0	10	15	24	4	1	2	3	3	13	37	
<i>Pimephales notatus</i>	Bluntnose Minnow				LC		2	2	0	0	0	0	0	0	0	4	0	0	0	10	10	14	3	1	2	4	3	13	27	
<i>Pimephales promelas</i>	Fathead Minnow				LC		0	2	0	0	0	0	0	0	0	2	0	0	0	10	10	12	3	1	3	4	3	14	26	
<i>Pogonias cromis</i>	Black Drum						2	2	0	0	0	0	1	0	0	5	5	6	0	10	21	26	4	1	5	1	3	14	40	
<i>Pomoxis annularis</i>	White Crappie				LC		2	2	0	0	0	0	0	0	0	4	0	0	0	5	5	9	3	1	4	4	4	16	25	
<i>Pomoxis nigromaculatus</i>	Black Crappie				LC		2	2	0	0	0	0	1	0	0	5	0	0	0	10	10	15	3	1	3	4	4	15	30	
<i>Pylodictis olivaris</i>	Flathead Catfish				LC		2	2	0	0	0	0	3	0	0	7	0	0	0	5	5	12	3	1	1	4	3	12	24	
<i>Rhinichthys atratulus</i>	Eastern Blacknose Dace				LC		2	2	0	0	0	0	0	0	0	4	0	0	0	10	10	14	2	1	2	4	3	12	26	
<i>Rhinichthys cataractae</i>	Longnose Dace				LC		2	2	0	0	0	0	0	0	0	4	0	0	0	10	10	14	2	1	2	4	3	12	26	
<i>Salmo trutta</i>	Brown Trout				LC		0	2	0	0	2	0	1	0	0	5	5	4	0	5	14	19	3	1	3	1	3	11	30	
<i>Salvelinus fontinalis</i>	Brook Trout						2	2	0	0	2	0	0	0	0	6	5	4	0	5	14	20	3	1	5	1	3	13	33	
<i>Sander vitreum</i>	Walleye				LC		2	2	0	0	0	0	1	0	0	6.7	5	6	0	10	21	27.7	4	1	5	1	3	14	41.7	
<i>Sciaenops ocellatus</i>	Red Drum						2	2	0	0	0	0	1	0	0	5	5	4	0	10	19	24	3	1	2	4	3	13	37	
<i>Semotilus corporalis</i>	Fallfish				LC		2	2	0	0	0	0	0	0	0	4	0	4	0	5	9	13	3	1	4	4	2	14	27	
<i>Strongylura marina</i>	Atlantic Needlefish				LC		2	2	0	0	0	0	0	0	0	4	5	0	0	10	15	19	3	1	3	1	3	11	30	
<i>Umbra pygmaea</i>	Eastern Mudminnow				LC		2	2	0	0	0	0	0	0	0	5.7	0	0	0	10	10	15.7	3	1	1	4	3	12	27.7	

Appendix E Invertebrate SGCN Ranking

E.1 Odonata (dragonflies and damselflies)

Odonates are one of the most studied insects in the District. DDOE has six years of survey data from six regions in the District. Contemporary data are from a total of 18 transects. To select odonate SGCN, species were listed if they met three or more of these five criteria:

1. Element occurrence in three or fewer locations in contemporary survey data from DDOE FWD and Richard Orr, Mid-Atlantic Invertebrate Field Studies Inc.
2. State rank S3–S1 (Nature Serve, adjusted with estimates from R. Orr)
3. RSGCN Rank R3–R1 (Regional Conservation Needs grant report: Regional Odonate SGCN)
4. Listed as an SGCN in Maryland's 2015 SWAP update
5. Listed as SGCN by DDOE in SWAP 2005

Some few species were included as SGCN if they met only two of the above criteria. These were included on recommendation by R. Orr as species who's populations are declining locally or are locally but not regionally rare (*Gomphus exilis* and *Nasiaeschna pentacantha*), and species tied to rare endemic habitats with historical records in the District (*Nehalennia gracilis* and *Nehalennia irene*).

E.2 Butterflies

Butterflies are well studied in the District. DDOE has four years of survey data from six regions in the district. Contemporary data are from a total of 18 transects. To select butterfly SGCN, species were listed if they met two or more of these four criteria:

1. Element occurrence in three or fewer locations in contemporary survey data from DDOE FWD and species inventories from the US National Arboretum and NPS National Capital Parks-East.
2. DC State rank S3–S1 (Nature Serve)
3. MD State rank S3–S1 (Nature Serve)
4. Listed as an SGCN in Maryland's 2015 SWAP update
5. Listed as SGCN by DDOE in SWAP 2005

Some few species were included as SGCN based on regional or national rarity or decline. *Euphydryas phaeton* and *Lycaena hyllus* are species that use groundwater-fed wetlands and are targeted for conservation by the Mid-Atlantic states. *Danaus plexippus* has shown massive population declines nationally.

E.3 Hymenoptera (bees)

Four bee species are listed as SGCN. Bees are a well-studied group of insects in the region. Contemporary data exist from the USGS (Sam Droege). To select bee SGCN, species were listed if they met all three criteria:

1. Contemporary element occurrence in the District
2. Estimated state rank S3–S1 (Nature Serve adjusted with estimates from S. Droege)
3. Proposed for listing as SGCN in Maryland in 2015 (only species whose range includes the District)

E.4 Crustaceans

E.4.1 Amphipods

Amphipods were listed based on their global rank, state rank in the District and Maryland, the Maryland state endangered species list, species to be listed as SGCN by Maryland in 2015, species listed as SGCN by the District in 2005.

E.4.2 Copepods

FWD has removed the majority of the copepod species due to inadequacy of listing data from 2005. Species that remain are globally ranked G1–G3, DC state ranked S1–S3, candidate species for listing under the Endangered Species Act, or are listed as SGCN by Maryland in 2015.

E.4.3 Crayfish

Three crayfish are listed as SGCN. Species were included based on range maps from the *Maryland Key to the Crayfish of Maryland* (MD DNR, Citation). One species, *Cambarus acuminatus*, is also listed as an SGCN in Maryland.

E.5 Mussels

E.5.1 Freshwater mussels

No change from DC SWAP 2005. No recent data exists.

E.6 Gastropods

E.6.1 Snails

Four terrestrial snails were added as SGCN. These were included based on recent discovery in the District (published contemporary data, Steury et al 2014), state rank in Maryland or Virginia, and proposed listing in Maryland in 2015. One aquatic snail, *Fontigens bottimeri*, remains listed.

Table 33 Invertebrate SGCN Ranking

Taxonomic Classification			2015 Status		Listing Criteria																	
					State Statuses		Contemporary Occurrence Records										Global, National, Regional or State Rank					Other Criteria or Comments
							Record Summaries		Record Locations													
Group	Species	Common Name	District SGCN 2015	Tier (Priority)	DC SGCN 2006 WAP	MD SGCN 2015 draft WAP	District Record 2007-2014	No. Recent District Record Locations	Aquatic Gardens	National Arboretum	Rock Creek Park	C&O Canal	Nat Cap Pks East	Oxon Run Seeps	Other District Record Locations	Tech. Comm. Sug. St. Rank	State Rank DC	State Rank Md	State Rank VA	RSGCN Rank	N- or G-Rank	Comments
	<i>Amphiagrion saucium</i>	Eastern Red Damsel				x					H					SH	S4	S3S4	S3S4	R4-R5	N5	Historical; pre-1970
	<i>Archilestes grandis</i>	Great Spreadwing	X	I		x	Y	2		X			X			S1	SNR	S3	S2S4	R1-R2	N5	
	<i>Argia apicalis</i>	Blue-fronted Dancer					Y	5	X	X	X	X	X			S5	S4	S4	S4	R4-R5	N5	
	<i>Argia bipuntulata</i>	Seepage Dancer				x										SH	SH	S3	S3	R1-R2	N4	Historical; pre-1899
	<i>Argia fumipennis violacea</i>	Violet Dancer					Y	5	X	X	X	X	X			S5	S4	S5	S5	R4-R5	N5	
	<i>Argia moesta</i>	Powdered Dancer					Y	2			X	X				S5	S4	S5	S4	R4-R5	N5	
	<i>Argia sedula</i>	Blue-ringed Dancer	X	II		x		1				X				S1	SNR	S3	S4	R3	N5	
	<i>Argia tibialis</i>	Blue-tipped Dancer					Y	4	X		X	X	X			S5	SNR	S4	S4	R4-R5	N5	
	<i>Argia translata</i>	Dusky Dancer					Y	2			X	X				S4	S3	S4	S3S4	R4-R5	N5	
	<i>Calopteryx dimidiata</i>	Sparkling Jewelwing				x										SH	SNR	S2	S3S4	R1-R2	N5	Historical; Westfall & May, Dragonflies of North America
	<i>Calopteryx maculata</i>	Ebony Jewelwing					Y	5	X	X	X	X	X			S4	S4	S5	S5	R4-R5	N5	
	<i>Chromagrion conditum</i>	Aurora Damsel				x										SH	SNR	S3S4	S4	R4-R5	N5	Historical; Westfall & May, Dragonflies of North America
	<i>Enallagma aspersum</i>	Azure Bluet	X	II			Y	2		X	X					S3	SNR	S4	S4	R4-R5	N5	
	<i>Enallagma basidens</i>	Double-striped Bluet	X	II				1			X					S3	SNR	S4	S3	R3	N5	
	<i>Enallagma civile</i>	Familiar Bluet					Y	4	X	X	X	X				S5	S4	S5	S5	R4-R5	N5	
	<i>Enallagma divagans</i>	Turquoise Bluet	X	I		x	Y	2	X			X				S3	S3	S3S4	S4	R4-R5	N5	
	<i>Enallagma durum</i>	Big Bluet				x	Y	3	X	X	H	X				S4	S3	S3	S4	R4-R5	N5	
	<i>Enallagma exsulans</i>	Stream Bluet					Y	4	X		X	X	X			S5	S4	S5	S4	R4-R5	N5	
	<i>Enallagma geminatum</i>	Skimming Bluet					Y	3	X	X		X				S4	SNR	S5	S4	R4-R5	N5	
	<i>Enallagma signatum</i>	Orange Bluet					Y	5	X	X	X	X	X			S4	S4	S4	S5	R4-R5	N5	
	<i>Enallagma traviatum</i>	Slender Bluet	X	II		x	Y	1	X							S2	S3	S3	S3S4	R4-R5	N5	
	<i>Hetaerina americana</i>	American Rubyspot						1			H	X				S5	S4	S4	S4	R4-R5	N5	
	<i>Hetaerina titia</i>	Smoky Rubyspot				x						H				SH	SH	SH	S3S4	R1-R2	N5	Historical; pre-1970
	<i>Ischnura hastata</i>	Citrine Forktail		I			Y	3			X	X	X			S3	S4	S4S5	S5	R4-R5	N5	

Taxonomic Classification			2015 Status		Listing Criteria																	
					State Statuses		Contemporary Occurrence Records										Global, National, Regional or State Rank					Other Criteria or Comments
							Record Summaries		Record Locations													
Group	Species	Common Name	District SGCN 2015	Tier (Priority)	DC SGCN 2006 WAP	MD SGCN 2015 draft WAP	District Record 2007-2014	No. Recent District Record Locations	Aquatic Gardens	National Arboretum	Rock Creek Park	C&O Canal	Nat Cap Pks East	Oxon Run Seeps	Other District Record Locations	Tech. Comm. Sug. St. Rank	State Rank DC	State Rank Md	State Rank VA	RSGCN Rank	N- or G-Rank	Comments
	<i>Ischnura kellicotti</i>	Lilypad Forktail	X	I	x		Y	2	X	X						S5	SNR	S3S4	S3S4	R4-R5	N5	Ranked as demonstrably secure, but only seen at 2 sites.
	<i>Ischnura posita</i>	Fragile Forktail					Y	5	X	X	X	X	X			S5	S4	S5	S5	R4-R5	N5	
	<i>Ischnura ramburii</i>	Rambur's Forktail	X	II			Y	2				X	X			S3	SNR	S4	S4	R4-R5	N5	
	<i>Ischnura verticalis</i>	Eastern Forktail					Y	5	X	X	X	X	X			S5	S4	S5	S5	R4-R5	N5	
	<i>Lestes australis</i>	Southern Spreadwing					Y	3			X	X	X			S2	SNR	SNR	S5	R4-R5	N5	
	<i>Lestes dryas</i>	Emerald Spreadwing			x											SH	SNR	SH	SH	R4-R5	N5	Historical; Westfall & May, Dragonflies of North America
	<i>Lestes forcipatus</i>	Sweetflag Spreadwing	X	II		x		1				X				S2	S3	S3	S3	R4-R5	N5	
	<i>Lestes inaequalis</i>	Elegant Spreadwing	X	II				1				X				S1	S3	S4	S3S4	R4-R5	N5	
	<i>Lestes rectangularis</i>	Slender Spreadwing					Y	3	X	X		X				S3	S4	S4S5	S5	R4-R5	N5	
	<i>Lestes unguiculatus</i>	Lyre-tipped Spreadwing														SH	SNR	SH		R3	N5	Historical; pre-1899
		<i>Nehalennia gracilis</i>	Sphagnum Sprite	X	III	x	x									SH	SNR	S2	S2	R4-R5	N5	
	<i>Nehalennia irene</i>	Sedge Sprite	X	III	x	x									SH	SNR	S3	S1S2	R4-R5	N5		
Dragonflies	<i>Aeshna umbrosa</i>	Shadow Darner						3	X	X	H	X			S3	S4	S4	S5	R4-R5	N5		
	<i>Anax junius</i>	Common Green Darner					Y	4	X	X	X	X	Y		S5	S5	S5	S5	R4-R5	N5		
	<i>Anax longipes</i>	Comet Darner	X	II		x		1				X			S1	SNR	S3	S3	R4-R5	N5		
	<i>Arigomphus villosipes</i>	Unicorn Clubtail	X	I	x		Y	2	X	X					S1	SNR	S4	S4	R4-R5	N5		
	<i>Boyeria vinosa</i>	Fawn Darner						3	X		X	X			S3	S3	S5	S5	R4-R5	N5		
	<i>Celithemis eponina</i>	Halloween Pennant					Y	3	X	X		X			S3	S3	S4S5	S5	R4-R5	N5		
	<i>Cordulegaster bilineata</i>	Brown Spiketail				x									SH	SNR	S3	S4	R1-R2	N5		
	<i>Cordulegaster erronea</i>	Tiger Spiketail	X	I	x	x	Y	2			X		X		S1	S1	S3	S3	R1-R2	N4		
	<i>Cordulegaster maculata</i>	Twin-spotted Spiketail													SH	S2	S4	S4	R4-R5	N5	Historical; pre-1905 (Donnelly)	
	<i>Cordulegaster obliqua</i>	Arrowhead Spiketail				x									SH	SH	S2	S3S4	R3	N4	Historical; pre-1921 (Donnelly)	

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	<i>Didymops transversa</i>	Stream Cruiser					1				X					S4	SNR	S5	S4	R4-R5	N5	
	<i>Dromogomphus spinosus</i>	Black-shouldered Spinyleg					Y	2			X	X				S4	S4	S5	S4	R4-R5	N5	
	<i>Epiaeschna heros</i>	Swamp Darner					Y	4	X	X	X	X				S4	S4	S5	S5	R4-R5	N5	
	<i>Epitheca cynosura</i>	Common Baskettail					Y	3	X	X		X				S5	SNR	S5	S5	R4-R5	N5	
	<i>Epitheca princeps</i>	Prince Baskettail					Y	4	X	X	X	X				S5	S3	S4	S5	R4-R5	N5	
	<i>Erpetogomphus designatus</i>	Eastern Ringtail	X	II		x		1				X				S1	S1S2	S2	S4	R3	N5	
	<i>Erythemis simplicicollis</i>	Common Pondhawk					Y	5	X	X	X	X	X			S5	S4	S5	S5	R4-R5	N5	
	<i>Erythrodiplax berenice</i>	Seaside Dragonlet														SH	SNR	S4	S5	R3	N5	Historical; pre-1899
	<i>Gomphaeschna antilope</i>	Taper-tailed Darner				x										SH	SH	S2	S3	R1-R2	N4	Historical; pre-1920
	<i>Gomphus exilis</i>	Lancet Clubtail	X	II				1				X				S2	S4	S5	S5	R4-R5	N5	Extent limited in DC - CHOH
	<i>Gomphus vastus</i>	Cobra Clubtail	X	II			Y	1			H	X				S3	S2S3	S4	S3S4	R4-R5	N5	Extent limited in DC - CHOH
	<i>Hagenius brevistylus</i>	Dragonhunter	X	II			Y	1			X					S3	S3	S4	S4	R4-R5	N5	Extent limited in DC - ROCR
	<i>Libellula auripennis</i>	Golden-winged Skimmer				x										SH	SNR	S3	S4	R4-R5	N5	Historical
	<i>Libellula cyanea</i>	Spangled Skimmer					Y	3	X	X	X					S4	S4	S5	S5	R4-R5	N5	
	<i>Libellula flavida</i>	Yellow-sided Skimmer				x										SH	SH	S2S3	S3	R1-R2	N5	Historical; pre-1899 (Donnelly)
	<i>Libellula incesta</i>	Slaty Skimmer					Y	5	X	X	X	X	X			S4	SNR	S5	S5	R4-R5	N5	
	<i>Libellula luctuosa</i>	Widow Skimmer					Y	5	X	X	X	X	X			S4	S4	S5	S5	R4-R5	N5	
	<i>Libellula needhami</i>	Needham's Skimmer					Y	4	X	X		X	X			S4	S4	S5	S5	R3	N5	
	<i>Libellula pulchella</i>	Twelve-spotted Skimmer					Y	5	X	X	X	X	X			S4	S4	S5	S5	R4-R5	N5	
	<i>Libellula semifasciata</i>	Painted Skimmer						1				X				S2	S4	S5	S4	R4-R5	N5	
	<i>Libellula vibrans</i>	Great Blue Skimmer					Y	5	X	X	X	X	X			S4	SNR	S5	S4	R4-R5	N5	
	<i>Macromia illinoensis</i>	Swift River Cruiser						2			X	X				S3	SNR	S4	S5	R4-R5	N5	
	<i>Macromia taeniolata</i>	Royal River Cruiser				x						H				SH	SH	S3	S3	R3	N5	Historical; pre-1907

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	<i>Nasiaeschna pentacantha</i>	Cyrano Darner	X	I		x		2			X	X				S3	SNR	S3	S4	R4-R5	N5	
	<i>Neurocordulia obsoleta</i>	Umber Shadowdragon	X	II		x		1			H	X				S3	S3	S3	S3S4	R4-R5	N5	
	<i>Pachydiplax longipennis</i>	Blue Dasher					Y	5	X	X	X	X	X			S5	S4	S5	S5	R4-R5	N5	
	<i>Pantala flavescens</i>	Wandering Glider					Y	5	X	X	X	X	X			S4	S4	S5	S5	R4-R5	N5	
	<i>Pantala hymenaea</i>	Spot-winged Glider					Y	5	X	X	X	X	X			S4	S4	S5	S5	R4-R5	N5	
	<i>Perithemis tenera</i>	Eastern Amberwing					Y	5	X	X	X	X	X			S5	S4	S5	S5	R4-R5	N5	
	<i>Plathemis lydia</i>	Common Whitetail					Y	5	X	X	X	X	X			S5	S4	S5	S5	R4-R5	N5	
	<i>Somatochlora filosa</i>	Fine-lined Emerald	X	III	x	x	Y									SH	SH	S2	S2	R3	N5	Historical; pre-1921
	<i>Somatochlora linearis</i>	Mocha Emerald	X	II	x	x		2			X		X			S1	SNR	S3S4	S3S4	R3	N5	Kenilworth Marsh
	<i>Somatochlora tenebrosa</i>	Clamp-tipped Emerald	X	I				2		X	X					S1	SNR	S4	S4	R4-R5	N5	
	<i>Stylogomphus albistylus</i>	Eastern Least Clubtail	X	II				1				X				S1	S1S2	S4	S3S4	R4-R5	N5	
	<i>Stylurus plagiatus</i>	Russet-tipped Clubtail	X	I		x	Y	3		X		X	X			S4	S4	S3	S3S4	R3	N5	could possibly list since it's ranked R3 in the northeast region
	<i>Sympetrum internum</i>	Cherry-faced Meadowhawk														SH	SNR			R4-R5		Historical
	<i>Sympetrum rubicundulum</i>	Ruby Meadowhawk						2	X		H		X			S1	S4	S4	S5	R4-R5	N5	
	<i>Sympetrum semicinctum</i>	Band-winged Meadowhawk				x										SH	SNR	S3	S5	R4-R5	N5	Historical; pre-1924
	<i>Sympetrum vicinum</i>	Autumn Meadowhawk						3	X	X		X				S5	S4	S5	S5	R4-R5	N5	
	<i>Tachopteryx thoreyi</i>	Gray Petaltail			x	x					H					SH	SX	S3	S4	R3	N4	Historical; pre-1898
	<i>Tramea carolina</i>	Carolina Saddlebags					Y	3	X	X			X			S3	SNR	S4S5	S5	R4-R5	N5	
	<i>Tramea lacerata</i>	Black Saddlebags					Y	5	X	X	X	X	X			S5	S4	S5	S5	R4-R5	N5	
	<i>Abaeis nicippe</i>	Sleepy Orange					Y	1					X					SNA	SNR		N5	
	<i>Achalarus lyciades</i>	Hoary Edge															SNR	S5	S5		N4N5	

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	<i>Amblyscirtes vialis</i>	Common Roadside-skipper															SH	S4	S5		N4	
	<i>Ancyloxypha numitor</i>	Common Least Skipper					Y	4	X	X		X	X				SNR	S5	S5		N5	
	<i>Anthocharis midea</i>	Falcate Orangetip															SNR	S5	S4		N4N5	
	<i>Asterocampa celtis</i>	Hackberry Emperor					Y	1				X					SNR	S5	S5		N5	
	<i>Asterocampa clyton</i>	Tawny Emperor															S2S4	S4	S5		N5	
	<i>Atalopedes campestris</i>	Sachem					Y	4	X	X		X	X				SNR	S5B	S5		N5	
	<i>Atrytonopsis hianna</i>	Dusted Skipper															SH	S4	S4?		N4	
	<i>Autochton cellus</i>	Gold-banded Skipper															SH	SH	SU		N4	
	<i>Battus philenor</i>	Pipevine Swallowtail					Y	2		X			X				SNR	S4	S5		N5	
	<i>Boloria bellona</i>	Meadow Fritillary															SNR	S4	S5		N5	
	<i>Boloria selene</i>	Silver-bordered Fritillary															SH	S3	S2		N5	
	<i>Callophrys augustinus</i>	Brown Elfin															SH	S4	S4		N5	
	<i>Callophrys gryneus</i>	Juniper Hairstreak															SNR	S4	S4		N5	
	<i>Callophrys henrici</i>	Henry's Elfin															SH	S4	S4		N5	
	<i>Callophrys/Incisalia irus</i>	Frosted Elfin	X	III	Y	Y											SH	S1	S2?		N3	
	<i>Calpododes ethlius</i>	Brazilian Skipper																				
	<i>Calycopis cecrops</i>	Red-banded Hairstreak					Y	4		X	X	X	X				SNR	S4	S5		N5	
	<i>Celastrina ladon</i>	Spring Azure, Edwards' Azure															SNR	S5	S5		N4	
	<i>Celastrina neglecta</i>	Summer Azure															SNR	SNR	S5		N5	
	<i>Cercyonis pegala</i>	Common Wood-nymph															SNR	S5	S5		N5	
	<i>Chlosyne nycteis</i>	Silvery Checkerspot															SH	S4	S4		N5	
	<i>Colias eurytheme</i>	Orange Sulphur					Y	2		X			X				SNR	S5	S5		N5	
	<i>Colias philodice</i>	Clouded Sulphur					Y	5	X	X	X	X	X				SNR	S5	S5		N5	
	<i>Cupido comyntas</i>	Eastern Tailed-blue					Y	5	X	X	X	X	X				SNR	S5	S5		N5	

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	<i>Danaus plexippus</i>	Monarch	X	I	Y	Y	Y	3		X	X		X				S4B	S5B	S4		N5B,N2N3N	
	<i>Epargyreus clarus</i>	Silver-spotted Skipper					Y	5	X	X	X	X	X				SNR	S5	S5		N5	
	<i>Erynnis b. brizo</i>	Sleepy Duskywing															SNR	S5	S5		N5	
	<i>Erynnis baptisiae</i>	Wild Indigo Duskywing																S4	S5		N5	
	<i>Erynnis horatius</i>	Horace's Duskywing					Y	2		X			X				SNR	S5	S5		N5	
	<i>Erynnis icelus</i>	Dreamy Duskywing															SNR	S5	S5		N5	
	<i>Erynnis juvenalis</i>	Juvenal's Duskywing															SNR	S5	S5		N5	
	<i>Erynnis martialis</i>	Mottled Duskywing			Y												SNR	S1	S1S3		N3	
	<i>Erynnis zarucco</i>	Zarucco Duskywing																				
	<i>Euphydryas phaeton</i>	Baltimore Checkerspot	X	I		Y	Y	1		X							SH	S2	SU		N4	
	<i>Euphyes bimacula</i>	Two-spotted Skipper																				
	<i>Euphyes vestris</i>	Dun Skipper															SNR	S5	S5		N5	
	<i>Euptoieta claudia</i>	Variiegated Fritillary			Y		Y	2		X			X					S5B	S5		N5	
	<i>Eurema daira</i>	Barred Yellow																			N5	
	<i>Eurytides marcellus</i>	Zebra Swallowtail					Y	2			X	X						S4	S5		N5	
	<i>Feniseca tarquinius</i>	Harvester															SNR	S4	S4		N4	
	<i>Hesperia leonardus</i>	Leonard's Skipper	X	I		Y	Y	2	X		X		X				SH	S2	S3?		N4	
	<i>Hesperia metea</i>	Cobweb Skipper				Y												S3	S4		N4N5	
	<i>Hylephila phyleus</i>	Fiery Skipper					Y	2		X			X					S5B	S5		N5	
	<i>Junonia coenia</i>	Common Buckeye					Y	5	X	X	X	X	X					S5B	S5		N5	
	<i>Lerema accius</i>	Clouded Skipper																				
	<i>Lerodea eufala</i>	Eufala Skipper																				
	<i>Lethe anhedon</i>	Northern Pearly-eye					Y	3			X	X	X				SNR	S4	S4		N4	
	<i>Lethe appalachia</i>	Appalachian Eyed Brown					Y	2		X		X					SNR	S4	S4		N4	

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	<i>Libytheana carinenta</i>	American Snout Butterfly															SNR	S5B	S5		N5	
	<i>Limenitis archippus</i>	Viceroy					Y	1		X							SNR	S5	S5		N5	
	<i>Limenitis arthemis</i>	Red-spotted Purple					Y	3		X		X	X				SNR	S5	S5		N5	
	<i>Limenitis arthemis</i>	White Admiral																			N5	
	<i>Lycaena epixanthe</i>	Bog Copper				Y																
	<i>Lycaena hyllus</i>	Bronze Copper	X	II		Y											SNR	S4	S1		N4N5	
	<i>Lycaena phlaeas</i>	Little Copper															SNR	S5	S5		N5	
	<i>Megisto cymela</i>	Little Wood Satyr					Y	3			X	X	X				SNR	S5	S5		N5	
	<i>Nastra lherminier</i>	Swarthy Skipper															SNR	S5	S5		N5	
	<i>Nymphalis antiopa</i>	Mourning Cloak					Y	1			X						SNR	S5B	S5		N5	
	<i>Panoquina ocola</i>	Ocola Skipper															SNR	S5	S5		N5	
	<i>Papilio cresphontes</i>	Giant Swallowtail				Y											SH	S2	S4?		N5	
	<i>Papilio glaucus</i>	Eastern Tiger Swallowtail					Y	5	X	X	X	X	X				SNR	S5	S5		N5	
	<i>Papilio palamedes</i>	Palamedes Swallowtail				Y											SNR	S1	S4		N4N5	
	<i>Papilio polyxenes</i>	Black Swallowtail					Y	4	X	X		X	X				SNR	S5	S5		N5	
	<i>Papilio polyxenes asterius</i>	Parsnip Swallowtail																				
	<i>Papilio troilus</i>	Spicebush Swallowtail					Y	1		X							SNR	S5	S5		N4?	
	<i>Parrhasius M-album</i>	White-m Hairstreak																S4	S4		N5	
	<i>Phoebis sennae</i>	Cloudless Sulphur					Y	1		X								SNA	SNR		N5	
	<i>Pholisora catullus</i>	Common Sootywing					Y	2		X			X				SNR	S5	S5		N5	
	<i>Phyciodes tharos</i>	Pearl Crescent					Y	5	X	X	X	X	X				SNR	S5	S5		N5	
	<i>Pieris rapae</i>	Cabbage White					Y	5	X	X	X	X	X								N5	
	<i>Poanes aaroni</i>	Aaron's Skipper															SNR	S4	S3		N4	
	<i>Poanes hobomok</i>	Hobomok Skipper															SNR	S5	S4S5		N5	
	<i>Poanes viator</i>	Broad-winged Skipper																S4	S5		N5	
	<i>Poanes zabulon</i>	Zabulon Skipper					Y	4		X	X	X	X				SNR	S5	S5		N5	
	<i>Polites origenes</i>	Crossline Skipper	X	I	Y		Y	2	X	X							SNR	S5	S5		N4N5	
	<i>Polites peckius</i>	Peck's Skipper															SNR	S5	S5		N5	

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	<i>Polites themistocles</i>	Tawny-edged Skipper															SNR	S5	S5		N5	
	<i>Polygonia comma</i>	Eastern Comma			Y		Y	3		X		X	X				SNR	S5	S5		N5	
	<i>Polygonia interrogationis</i>	Question Mark Butterfly			Y		Y	3		X		X	X				SNR	S5	S5		N5	
	<i>Polygonia progne</i>	Gray Comma				Y												S1S3	S4		N4N5	
	<i>Pompeius verna</i>	Little Glassywing	X	III	Y												SNR	S5	S5		N5	
	<i>Pontia protodice</i>	Checkered White					Y	1				X						S4	S4		N4	
	<i>Pyrgus centaureae wyandot</i>	Appalachian grizzled skipper			Y												SH	S1	S1		N1N2	
	<i>Pyrgus communis</i>	Common Checkered-skipper					Y	2		X			X				S4B	S5	S5		N5	
	<i>Pyrgus malvae</i>	Grizzled Skipper																				
	<i>Pyrisitia lisa</i>	Little Yellow															S4B	SNA	S5		N5	
	<i>Satyrium calanus</i>	Banded Hairstreak															SNR	S5	S5		N5	
	<i>Satyrium calanus falacer</i>	Falacer Hairstreak																				
	<i>Satyrium edwardsii</i>	Edwards' Hairstreak	X	III	Y	Y											SNR	S1	S3S4		N4	
	<i>Satyrium favonius</i>	Oak Hairstreak															SH	SNR	S3		N4	
	<i>Satyrium favonius ontario</i>	Northern Oak Hairstreak															SNR	S1S2	S3		N4	
	<i>Satyrium liparops</i>	Striped Hairstreak																S4	S4		N5	
	<i>Satyrium titus</i>	Coral Hairstreak															SNR	S4	S4		N4N5	
	<i>Speyeria aphrodite</i>	Aphrodite Fritillary																S4	S5		N5	
	<i>Speyeria cybele cybele</i>	Great Spangled Fritillary	X	II	Y		Y	1					X				SNR	S5	S5		N5	
	<i>Speyeria idalia</i>	Regal Fritillary	X	II		Y											SX	SH	S1		N3	
	<i>Staphylus hayhurstii</i>	Hayhurst's Scallopwing					Y	3			X	X	X				SNR	S4	S4		N5	
	<i>Strymon melinus</i>	Gray Hairstreak					Y	3		X		X	X				S4S5	S5	S5		N5	
	<i>Thorybes bathyllus</i>	Southern Cloudywing															SNR	S4	S4		N5	
	<i>Thorybes confusus</i>	Confused Cloudywing																				

Taxonomic Classification			2015 Status		Listing Criteria																	
					State Statuses		Contemporary Occurrence Records										Global, National, Regional or State Rank					Other Criteria or Comments
							Record Summaries		Record Locations													
Group	Species	Common Name	District SGCN 2015	Tier (Priority)	DC SGCN 2006 WAP	MD SGCN 2015 draft WAP	District Record 2007-2014	No. Recent District Record Locations	Aquatic Gardens	National Arboretum	Rock Creek Park	C&O Canal	Nat Cap Pks East	Oxon Run Seeps	Other District Record Locations	Tech. Comm. Sug. St. Rank	State Rank DC	State Rank Md	State Rank VA	RSGCN Rank	N- or G-Rank	Comments
	<i>Thorybes pylades</i>	Northern Cloudywing															SNR	S5	S5		N5	
	<i>Thymelicus lineola</i>	European Skipper					Y	2		X		X										
	<i>Urbanus proteus</i>	Long-tailed Skipper					Y	1					X									
	<i>Vanessa atalanta</i>	Red Admiral Butterfly			Y		Y	5	X	X	X	X	X				S4B	S5B	S5		N5	
	<i>Vanessa cardui</i>	Painted Lady					Y	2	X				X				S4B	S5B	S5		N5	
	<i>Vanessa virginiensis</i>	American Lady					Y	2		X			X				S4B	S5B	S5		N5	
	<i>Wallengrenia egeremet</i>	Northern Broken-dash															SNR	S5	S5		N5	
Amphipod	<i>Crangonyx shoemakerii</i>	Shoemaker Crangonyctid																				
	<i>Crangonyx stagnicolous</i>	An amphipod															SNR				G2	
	<i>Stygobromus hayi</i>	Hay's Spring Amphipod	X	I	X												N1					Fed Endangered
	<i>Stygobromus kenki</i>	Kenk's Amphipod	X	I	X	X											S1				G2	MD Endangered
	<i>Stygobromus pizzinii</i>	Pizzini's Cave Amphipod	X	II	X	X											S1				G3G4	
	<i>Stygobromus sextarius</i>	Capital Area groundwater amphipod	X	II		X											S1				G1	MD endangered
	<i>Stygobromus tenuis potomacus</i>	Potomac Groundwater Amphipod	X	I	X	X											S3				G4T4	
Copepod	<i>Acanthocyclops brevispinosus</i>								X								S1					
	<i>Acanthocyclops columbiensis</i>		X	I	X	X			X								S1				G1	
	<i>Acanthocyclops exilis</i>										4											
	<i>Acanthocyclops robustus</i>								X													

Taxonomic Classification			2015 Status		Listing Criteria																	
					State Statuses		Contemporary Occurrence Records										Global, National, Regional or State Rank					Other Criteria or Comments
							Record Summaries		Record Locations													
Group	Species	Common Name	District SGCN 2015	Tier (Priority)	DC SGCN 2006 WAP	MD SGCN 2015 draft WAP	District Record 2007-2014	No. Recent District Record Locations	Aquatic Gardens	National Arboretum	Rock Creek Park	C&O Canal	Nat Cap Pks East	Oxon Run Seeps	Other District Record Locations	Tech. Comm. Sug. St. Rank	State Rank DC	State Rank Md	State Rank VA	RSGCN Rank	N- or G-Rank	Comments
	<i>Acanthocyclops</i> sp.				X						1											species is villosipes? Can't find record of this species existing
	<i>Acanthocyclops vernalis</i>										1				2							
	<i>Arctodiaptomus dorsalis</i>								X													
	<i>Attheyella (Mrazekiella) carolinensis</i>		X	II							2											
	<i>Attheyella (Mrazekiella) illinoisensis</i>				X						3			1	2							
	<i>Attheyella (Mrazekiella) obotogamensis</i>		X	II	X									1								
	<i>Attheyella (Mrazekiella) spinipe</i>	A harpacticoid copepod	X	II	X										1		SU				GNR	
	<i>Bryocamptus (B.) zschokkei</i>		X	II							1											
	<i>Bryocamptus (Bryocamptus) calvus</i>																					
	<i>Bryocamptus (Bryocamptus) hutchinsoni</i>		X	II	X									1								
	<i>Bryocamptus (Bryocamptus) minutus</i>		X	II	X									1								
	<i>Bryocamptus (Bryocamptus) zschokkei</i>										4			1	1							
	<i>Bryocamptus (Limocamptus) hiemalis</i>										1											
	<i>Bryocamptus (Limocamptus) nivalis</i>		X	II	X									1								
	<i>Canthocamptus vagus</i>								X													
	<i>Diacyclops harryi</i>		X	II	X									1								
	<i>Diacyclops navus</i>		X	II	X				X													
	<i>Diacyclops thomasi</i>								X													

Taxonomic Classification			2015 Status		Listing Criteria																		
					State Statuses		Contemporary Occurrence Records										Global, National, Regional or State Rank					Other Criteria or Comments	
							Record Summaries		Record Locations														
Group	Species	Common Name	District SGCN 2015	Tier (Priority)	DC SGCN 2006 WAP	MD SGCN 2015 draft WAP	District Record 2007-2014	No. Recent District Record Locations	Aquatic Gardens	National Arboretum	Rock Creek Park	C&O Canal	Nat Cap Pks East	Oxon Run Seeps	Other District Record Locations	Tech. Comm. Sug. St. Rank	State Rank DC	State Rank Md	State Rank VA	RSGCN Rank	N- or G-Rank	Comments	
	<i>Ectocyclops phaleratus</i>																						
	<i>Elaphoidella bidens</i>								X		1												
	<i>Ergasilus cerastes</i>																						
	<i>Ergasilus labracis</i>																						
	<i>Eucyclops agilis</i>				X				X						3								
	<i>Eucyclops elegans</i>		X	II					X		1												
	<i>Eurytemora affinis</i>								X														
	<i>Halicyclops reidae</i>														1								
	<i>Lernaea cruciata</i>																						
	<i>Macrocyclus albidus</i>		X	II	X																		
	<i>Mesocyclops americanus</i>								X														
	<i>Mesocyclops edax</i>								X														
	<i>Mesocyclops ruttneri</i>								X														
	<i>Microcyclops rubellus</i>								X														
	<i>Moraria cristata</i>										1												
	<i>Moraria laurentica</i>																						
	<i>Onychodiptomus birgei</i>								X														
	<i>Orthocyclops modestus</i>								X														
	<i>Osphranticum labronectum</i>								X														
	<i>Paracyclops chiltoni</i>				X				X		3			2	1								
	<i>Paracyclops poppei</i>		X	II					X														
	<i>Phyllognathopus viguieri</i>										1												
	<i>Skistodiptomus pallidus</i>	A calanoid copepod	X	II					X													N1N2	
	<i>Tropocyclops prasinus</i>										1												
	<i>Tropocyclops prasinus mexicanus</i>																						
Crayfish	<i>Cambarus acuminatus</i>	Acuminate crayfish	X	II	y	X											S2					G4Q	MD Endangered

Taxonomic Classification			2015 Status		Listing Criteria																		
					State Statuses		Contemporary Occurrence Records										Global, National, Regional or State Rank					Other Criteria or Comments	
							Record Summaries		Record Locations														
Group	Species	Common Name	District SGCN 2015	Tier (Priority)	DC SGCN 2006 WAP	MD SGCN 2015 draft WAP	District Record 2007-2014	No. Recent District Record Locations	Aquatic Gardens	National Arboretum	Rock Creek Park	C&O Canal	Nat Cap Pks East	Oxon Run Seeps	Other District Record Locations	Tech. Comm. Sug. St. Rank	State Rank DC	State Rank Md	State Rank VA	RSGCN Rank	N- or G-Rank	Comments	
	<i>Cambarus bartonii bartonii</i>	Common Crayfish																					
	<i>Cambarus diogenes</i>	Devil Crawfish	X	II																			
	<i>Cambarus dubius</i>	Upland Burrowing Crayfish	X	II																			
	<i>Fallicambarus fodiens</i>	Digger crayfish				X											SNR					G5	
	<i>Orconectes limosus</i>	Spinycheek Crayfish																					
	<i>Procambarus acutus</i>	White River Crayfish															SNR						
Bees	<i>Bombus affinis</i>	Rusty-patched bumble bee	X	II		X	Y																Ranked as rare by S. Dreoge, USGS. Suggested for listing
	<i>Bombus auricomus</i>	Black and gold bumble bee				X	Y																
	<i>Bombus pensylvanicus</i>	American bumble bee				X	Y																
	<i>Bombus vagans</i>	Half-black bumble bee				X	Y																
	<i>Lasioglossum michiganense</i>	A Sweat Bee	X	II			Y																Ranked as rare by S. Dreoge, USGS. Suggested for listing
	<i>Protandrena abdominalis</i>	A Mining Bee	X	II		X	Y																Ranked as rare by S. Dreoge, USGS. Suggested for listing
	<i>Pseudopanurgus virginicus</i>	a slender tri-color mining bee	X	II			Y																Ranked as rare by S. Dreoge, USGS. Suggested for listing
Freshwater Mussels	<i>Alasmidonta heterodon</i>	Dwarf Wedgemussel	X	III	x																		
	<i>Alasmidonta marginata</i>	Elktoe																					
	<i>Alasmidonta undulata</i>	Triangle Floater	X	II	x																		
	<i>Alasmidonta varicosa</i>	Brook Floater	X	II	x																		
	<i>Anodonta implicata</i>	Alewife Floater	X	II	x																		
	<i>Aplexa elongata</i>	Lance Aplexa																					

Taxonomic Classification			2015 Status		Listing Criteria																		
					State Statuses		Contemporary Occurrence Records										Global, National, Regional or State Rank					Other Criteria or Comments	
							Record Summaries		Record Locations								Tech. Comm. Sug. St. Rank	State Rank DC	State Rank Md	State Rank VA	RSGCN Rank	N- or G-Rank	Comments
Group	Species	Common Name	District SGCN 2015	Tier (Priority)	DC SGCN 2006 WAP	MD SGCN 2015 draft WAP	District Record 2007-2014	No. Recent District Record Locations	Aquatic Gardens	National Arboretum	Rock Creek Park	C&O Canal	Nat Cap Pks East	Oxon Run Seeps	Other District Record Locations	Tech. Comm. Sug. St. Rank	State Rank DC	State Rank Md	State Rank VA	RSGCN Rank	N- or G-Rank	Comments	
	<i>Elliptio angustata</i>	Carolina Lance Mussel																					
	<i>Elliptio complanata</i>	Eastern Elliptio																					
	<i>Fontigens bottimeri</i>	Appalachian Springsnail	X	II	x																		
	<i>Lampsilis cariosa</i>	Yellow Lampmussel	X	II	x																		
	<i>Lampsilis radiata</i>	Eastern Lampmussel																					
	<i>Lasmigona subviridis</i>	Green Floater	X	II	x																		
	<i>Leptodea ochracea</i>	Tidewater Mucket	X	II	x																		
	<i>Ligumia nasuta</i>	Eastern Pondmussel	X	II	x																		
	<i>Lyogyrus pupoidea</i>	Pupa Dusksnail																					
	<i>Pyganodon cataracta</i>	Eastern Floater																					
	<i>Strophitus undulatus</i>	Creepers / Squawfoot																					
	<i>Utterbackia imbecillis</i>	Paper Pondshell																					
Snails	<i>Anguispira fergusonii</i>	Coastal-plain Tigersnail	X	II				1							1				VA S3				Record on Theodore Roosevelt Island from Steury et al, 2014)
	<i>Fontigens bottimeri</i>	Appalachian Springsnail	X	II		X											MD S1						
	<i>Oxyloma effusum</i>	Coastal-plain ambersnail	X	II		X		1							1				SNR				Record on Theodore Roosevelt Island from Steury et al, 2014)
	<i>Oxyloma subeffusum</i>	Chesapeake Ambersnail	X	II		X		1							1				VA S1				Record on Theodore Roosevelt Island from Steury et al, 2014)
	<i>Stenotrema barbatum</i>	Bristled Slitmouth	X	II				1											VA S3				Record in Arlington, VA from Seury et al, 2014

Appendix F Habitat Threat Ranking

Habitat System	Exemplary SGCN	Threats IUCN 1	Threats IUCN 2	Threats IUCN 3	Severity	Reversibility	Immediacy	Spatial Index	Certainty	Likelihood		Action level 2	Action Level 3
Freshwater Marsh (Formation) / Emergent Marsh (Macrogroup)													
Northern Atlantic Coastal Plain Fresh and Oligohaline Tidal Marsh Example: Kenilworth marshes	Virginia rail, unicorn clubtail, spotted turtle, blueback herring	Invasive and Other Problematic Species, Genes and Diseases	Invasive Non-native/Alien Species/Diseases	Invasive plants	Moderate	Reversible with difficulty	Near-Term	Dispersed/Patchy	High	Occurring	15	Invasive species control	Inventory, mechanical, biological, chemical, partnerships
				Invasive fish and turtles	Moderate	Irreversible	Immediate	Pervasive	High	Occurring	17	Invasive species control	Biological or mechanical
			Problematic Native Species/Diseases	Canada goose overabundance/ overbrowse	Severe	Reversible with difficulty	Immediate	Pervasive	High	Occurring	17	Wildlife Damage Management	Deer and goose management, SAV restoration
		Residential and Commercial Development	Tourism and Recreational Areas	Pressures from tourism and recreational infrastructure	Slight	Reversible	Long-term	Localized	Low	Unlikely	6	Education and Outreach	Education and Outreach
		Human Intrusions and Disturbance	Recreational Activities	Pressures from tourism and recreational activities	Slight	Reversible	Long-term	Localized	Low	Unlikely	6	Education and Outreach	Education and Outreach
		Natural Systems Modifications	Other Ecosystem Modifications	hydrological alterations, stormwater	Slight	Reversible with difficulty	Near-Term	Localized	Moderate	Likely	10	Instream Modification	Restoration of Natural Stream Channel
		Pollution	Domestic and Urban Waste Water	Sewage	Moderate	Reversible with difficulty	Immediate	Localized	Moderate	Occurring	13	Water Management	Drainage
				Run-off	Severe	Reversible with difficulty	Immediate	Dispersed/Patchy	Moderate	Occurring	15	Water Management	Drainage
				Garbage and solid waste	Moderate	Reversible with difficulty	Immediate	Localized	Moderate	Occurring	13		
				Agricultural and Forestry Effluents	Soil Erosion and Sedimentation	Severe	Reversible with difficulty	Immediate	Dispersed/Patchy	Moderate	Occurring	15	Instream Modification

Habitat System	Exemplary SGCN	Threats IUCN 1	Threats IUCN 2	Threats IUCN 3	Severity	Reversibility	Immediacy	Spatial Index	Certainty	Likelihood		Action level 2	Action Level 3		
Freshwater Marsh (Formation) / Emergent Marsh - Modified/Managed Marsh (Macrogroup)															
Modified/Managed Marsh Example: Restored wetlands of Kingman Lake, Anacostia River fringe marshes	marsh wren, eastern worm snake, American beaver	Invasive and Other Problematic Species, Genes and Diseases	Invasive Non-native/Alien Species/Diseases	Invasive plants	Moderate	Reversible with difficulty	Near-Term	Dispersed/Patchy	High	Occurring	15	Invasive species control	Inventory, mechanical, biological, chemical, partnerships		
				Invasive fish and turtles	Moderate	Irreversible	Immediate	Pervasive	High	Occurring	17	Invasive species control	Biological or mechanical		
		Human Intrusions and Disturbance	Recreational Activities	Pressures from tourism and recreational activities	Problematic Native Species/Diseases	Canada goose overabundance/overbrowse	Severe	Reversible with difficulty	Immediate	Pervasive	High	Occurring	17	Wildlife Damage Management	Deer and goose management, SAV restoration
					Other Ecosystem Modifications	hydrological alterations, stormwater	Slight	Reversible with difficulty	Near-Term	Localized	Moderate	Likely	10	Instream Modification	Restoration of Natural Stream Channel
		Pollution	Domestic and Urban Waste Water	Sewage	Run-off	Soil Erosion and Sedimentation	Severe	Reversible with difficulty	Immediate	Dispersed/Patchy	Moderate	Occurring	15	Water Management	Drainage
						Severe	Reversible with difficulty	Immediate	Dispersed/Patchy	Moderate	Occurring	15	Water Management	Drainage	
						Moderate	Reversible with difficulty	Immediate	Localized	Moderate	Occurring	13	Water Management	Drainage	
		Agricultural and Forestry Effluents	Soil Erosion and Sedimentation	Severe	Reversible with difficulty	Immediate	Dispersed/Patchy	Moderate	Occurring	15	Instream Modification	Streambank Stabilization			
Freshwater Marsh (Formation) / Modified/Managed Marsh (Macrogroup)															
Introduced Wetland and Riparian Vegetation Example: Gateway wetlands, north Kingman marshes	garter snake, Virginia opossum, American bitern, unicorn clubtail	Invasive and Other Problematic Species, Genes and Diseases	Invasive Non-native/Alien Species/Diseases	Invasive plants	Moderate	Reversible with difficulty	Near-Term	Dispersed/Patchy	High	Occurring	15	Invasive species control	Inventory, mechanical, biological, chemical, partnerships		
				Invasive fish and turtles	Moderate	Irreversible	Immediate	Pervasive	High	Occurring	17	Invasive species control	Biological or mechanical		
		Residential and Commercial Development	Tourism and Recreational Areas	Pressures from tourism and recreational infrastructure	Slight	Reversible	Long-term	Localized	Low	Unlikely	6	Education and Outreach	Education and Outreach		
		Human Intrusions and Disturbance	Recreational Activities	Pressures from tourism and recreational activities	Slight	Reversible	Long-term	Localized	Low	Unlikely	6	Education and Outreach	Education and Outreach		
		Natural Systems Modifications	Other Ecosystem Modifications	hydrological alterations, stormwater	Slight	Reversible with difficulty	Near-Term	Localized	Moderate	Likely	10	Instream Modification	Restoration of Natural Stream Channel		

Habitat System	Exemplary SGCN	Threats IUCN 1	Threats IUCN 2	Threats IUCN 3	Severity	Reversibility	Immediacy	Spatial Index	Certainty	Likelihood		Action level 2	Action Level 3
Grassland & Shrubland (Formation) / Ruderal Shrubland & Grassland (Macrogroup)													
Introduced Shrubland	yellow-breasted chat, eastern worm snake, prairie warbler	Invasive and Other Problematic Species, Genes and Diseases	Invasive Non-native/Alien Species/Diseases	Invasive plants	Severe	Reversible with difficulty	Immediate	Pervasive	High	Occurring	17	Invasive species control	Inventory, mechanical, biological, chemical, partnerships
		Residential and Commercial Development	Tourism and Recreational Areas	Pressures from tourism and recreational infrastructure	Slight	Reversible with difficulty	Near-Term	Localized	Moderate	Likely	10	Education and Outreach	Education and Outreach
		Human Intrusions and Disturbance	Recreational Activities	Pressures from tourism and recreational activities	Slight	Reversible with difficulty	Near-Term	Localized	Moderate	Likely	10	Education and Outreach	Education and Outreach
		Pollution	Garbage and Solid Waste	trash dumping - historic and contemporary	Moderate	Reversible	Near-Term	Localized	High	Likely	11	Hazard or Infrastructure Removal	Solid Waste Removal
Ruderal Upland - Old Field	northern ringneck snake, big brown Bat, bobolink, grasshopper sparrow	Invasive and Other Problematic Species, Genes and Diseases	Invasive Non-native/Alien Species/Diseases	Invasive plants	Severe	Reversible with difficulty	Immediate	Pervasive	High	Occurring	17	Invasive species control	Inventory, mechanical, biological, chemical, partnerships
		Residential and Commercial Development	Tourism and Recreational Areas	Pressures from tourism and recreational infrastructure	Moderate	Reversible with difficulty	Near-Term	Localized	Moderate	Likely	11	Education and Outreach	Education and Outreach
		Human Intrusions and Disturbance	Recreational Activities	Pressures from tourism and recreational activities	Moderate	Reversible with difficulty	Immediate	Localized	Moderate	Likely	11	Education and Outreach	Education and Outreach
		Natural Systems Modifications	Other ecosystem modifications	landfill remediation	Slight	Reversible with difficulty	Near-Term	Localized	Moderate	Likely	10	Plantings/Seedings	Meadow Restoration

Habitat System	Exemplary SGCN	Threats IUCN 1	Threats IUCN 2	Threats IUCN 3	Severity	Reversibility	Immediacy	Spatial Index	Certainty	Likelihood		Action level 2	Action Level 3
Northeastern Upland Forest (Formation) / Central Oak-Pine (Macrogroup)													
Central Appalachian Dry Oak-Pine Forest Example: Fort DuPont, Pope Branch Park, steep slopes in Rock Creek Park	wood thrush, ovenbird, eastern chipmunk	Invasive and Other Problematic Species, Genes and Diseases	Invasive Non-native/Alien Species/Diseases	Invasive plants	Severe	Reversible with difficulty	Immediate	Dispersed/Patchy	High	Occurring	16	Invasive species control	Inventory, mechanical, biological, chemical, partnerships
			Problematic Native Species/Diseases	Whitetail deer overabundance/overbrowse	Slight	Reversible with difficulty	Immediate	Dispersed/Patchy	High	Likely	13	Invasive species control	Inventory, mechanical, biological, chemical, partnerships
		Residential and Commercial Development	Housing and Urban Areas	Human cities, towns and settlements	Slight	Reversible with difficulty	Near-Term	Dispersed/Patchy	Low	Unlikely	9	Wildlife Management Areas	Partnerships, Administrative, Land Acquisition, Translocation, Best Management Practices
			Commercial and Industrial Areas	Industrial and other commercial development	Slight	Reversible with difficulty	Near-Term	Dispersed/Patchy	Low	Unlikely	9	Wildlife Management Areas	Partnerships, Administrative, Land Acquisition, Translocation, Best Management Practices
			Tourism and Recreational Areas	Pressures from tourism and recreational infrastructure	Moderate	Irreversible	Immediate	Localized	High	Occurring	12	Education and Outreach	Education and Outreach
			Human Intrusions and Disturbance	Recreational Activities	Pressures from tourism and recreational activities	Moderate	Reversible with difficulty	Immediate	Localized	High	Occurring	14	Education and Outreach

Habitat System	Exemplary SGCN	Threats IUCN 1	Threats IUCN 2	Threats IUCN 3	Severity	Reversibility	Immediacy	Spatial Index	Certainty	Likelihood		Action level 2	Action Level 3
Northeastern Upland Forest (Formation) / Central Oak-Pine (Macrogroup)													
Northern Atlantic Coastal Plain Hardwood Forest Example: Kingman and many Fort Circle parks; Shepherd parkway, Poplar Point	bald eagle, scarlet tanager, Virginia opossum	Invasive and Other Problematic Species, Genes and Diseases	Invasive Non-native/Alien Species/Diseases	Invasive plants	Severe	Reversible with difficulty	Immediate	Dispersed/Patchy	High	Occurring	16	Invasive species control	Inventory, mechanical, biological, chemical, partnerships
			Problematic Native Species/Diseases	Whitetail deer overabundance/overbrowse	Slight	Reversible with difficulty	Immediate	Dispersed/Patchy	High	Likely	14	Wildlife Damage Management	Inventory, mechanical, biological, chemical, partnerships
		Residential and Commercial Development	Housing and Urban Areas	Human cities, towns and settlements	Slight	Irreversible	Long-term	Dispersed/Patchy	Low	Likely	10	Wildlife Management Areas	Partnerships, Administrative, Land Acquisition, Translocation, Best Management Practices
			Commercial and Industrial Areas	Industrial and other commercial development	Moderate	Irreversible	Long-term	Dispersed/Patchy	Moderate	Likely	12	Wildlife Management Areas	Partnerships, Administrative, Land Acquisition, Translocation, Best Management Practices
			Tourism and Recreational Areas	Pressures from tourism and recreational infrastructure	Slight	Reversible with difficulty	Near-Term	Localized	High	Occurring	12	Education and Outreach	Education and Outreach
		Human Intrusions and Disturbance	Recreational Activities	Pressures from tourism and recreational activities	Moderate	Reversible with difficulty	Immediate	Localized	High	Occurring	14	Education and Outreach	Education and Outreach

Habitat System	Exemplary SGCN	Threats IUCN 1	Threats IUCN 2	Threats IUCN 3	Severity	Reversibility	Immediacy	Spatial Index	Certainty	Likelihood		Action level 2	Action Level 3
Northeastern Upland Forest (Formation) / Central Oak-Pine (Macrogroup)													
Southern Interior Low Plateau Dry - Mesic Oak Forest Example: Rock Creek Park 16th street area	redback salamander, Wood thrush, Virginia opossum	Invasive and Other Problematic Species, Genes and Diseases	Invasive Non-native/Alien Species/Diseases	Invasive plants	Severe	Reversible with difficulty	Immediate	Dispersed/Patchy	High	Occurring	16	Invasive species control	Inventory, mechanical, biological, chemical, partnerships
			Problematic Native Species/Diseases	Whitetail deer overabundance/overbrowse	Slight	Reversible	Immediate	Localized	High	Likely	11	Invasive species control	Inventory, mechanical, biological, chemical, partnerships
		Residential and Commercial Development	Tourism and Recreational Areas	Pressures from tourism and recreational infrastructure	Slight	Reversible with difficulty	Near-Term	Localized	High	Occurring	12	Education and Outreach	Education and Outreach
		Human Intrusions and Disturbance	Recreational Activities	Pressures from tourism and recreational activities	Moderate	Reversible with difficulty	Immediate	Localized	High	Occurring	14	Education and Outreach	Education and Outreach
Northeastern Upland Forest (Formation) / Northern Hardwood & Conifer (Macrogroup)													
Southern Atlantic Coastal Plain Mesic Hardwood Forest		Invasive and Other Problematic Species, Genes and Diseases	Invasive Non-native/Alien Species/Diseases	Invasive plants - forest interior	Severe	Reversible with difficulty	Immediate	Dispersed/Patchy	High	Occurring	16	Invasive species control	Inventory, mechanical, biological, chemical, partnerships
			Problematic Native Species/Diseases	Whitetail deer overabundance/overbrowse	Severe	Reversible with difficulty	Immediate	Pervasive	High	Occurring	17	Invasive species control	Inventory, mechanical, biological, chemical, partnerships
		Residential and Commercial Development	Housing and Urban Areas	Human cities, towns and settlements	Slight	Reversible with difficulty	Near-Term	Dispersed/Patchy	Low	Unlikely	9	Wildlife Management Areas	Partnerships, Administrative, Land Acquisition, Translocation, Best Management Practices
			Commercial and Industrial Areas	Industrial and other commercial development	Slight	Reversible with difficulty	Near-Term	Dispersed/Patchy	Low	Unlikely	9	Wildlife Management Areas	Partnerships, Administrative, Land Acquisition, Translocation, Best Management Practices
		Tourism and Recreational Areas	Pressures from tourism and recreational activities	Moderate	Irreversible	Immediate	Dispersed/Patchy	High	Occurring	16	Education and Outreach	Education and Outreach	
		Human Intrusions and Disturbance	Recreational Activities		Moderate	Irreversible	Immediate	Dispersed/Patchy	High	Occurring	16	Education and Outreach	Education and Outreach

Habitat System	Exemplary SGCN	Threats IUCN 1	Threats IUCN 2	Threats IUCN 3	Severity	Reversibility	Immediacy	Spatial Index	Certainty	Likelihood		Action level 2	Action Level 3
Northeastern Wetland Forest (Formation) / Coastal Plain Swamp (Macrogroup)													
Northern Atlantic Coastal Plain Tidal Swamp Example: Theodore Roosevelt Island forested wetlands, Kenilworth forested wetlands	green frog, river otter, least bittern, black-crowned night-heron	Invasive and Other Problematic Species, Genes and Diseases	Invasive Non-native/Alien Species/Diseases	Invasive plants	Moderate	Reversible with difficulty	Immediate	Dispersed/Patchy	Moderate	Occurring	14	Invasive species control	Inventory, mechanical, biological, chemical, partnerships
			Invasive Non-native/Alien Species/Diseases	Emerald ash borer	Severe	Irreversible	Immediate	Pervasive	High	Occurring	18	Invasive species control	Inventory, mechanical, biological, chemical, partnerships
		Residential and Commercial Development	Tourism and Recreational Areas	Pressures from tourism and recreational infrastructure	Slight	Reversible	Long-term	Localized	Moderate	Likely	8	Education and Outreach	Education and Outreach
		Human Intrusions and Disturbance	Recreational Activities	Pressures from tourism and recreational activities	Slight	Reversible	Long-term	Localized	Moderate	Likely	8	Education and Outreach	Education and Outreach
		Pollution	Domestic and Urban Waste Water	Sewage	Moderate	Reversible with difficulty	Immediate	Localized	Moderate	Occurring	13	Water Management	Drainage
				Run-off	Moderate	Reversible with difficulty	Immediate	Dispersed/Patchy	Moderate	Occurring	14	Water Management	Drainage
			Agricultural and Forestry Effluents	Soil Erosion and Sedimentation	Severe	Reversible with difficulty	Immediate	Pervasive	Moderate	Occurring	16	Instream Modification	Streambank Stabilization
Successional Woody Wetland Example: Oxon Run	five-lined skink, Louisiana waterthrush, muskrat, eastern comma butterfly	Invasive and Other Problematic Species, Genes and Diseases	Invasive Non-native/Alien Species/Diseases	Invasive plants	Moderate	Reversible with difficulty	Immediate	Dispersed/Patchy	Moderate	Occurring	14	Invasive species control	Inventory, mechanical, biological, chemical, partnerships
			Invasive Non-native/Alien Species/Diseases	Emerald ash borer	Severe	Irreversible	Immediate	Pervasive	High	Occurring	18	Invasive species control	Inventory, mechanical, biological, chemical, partnerships
		Problematic Native Species	Whitetail Deer	Moderate	Reversible	Near-Term	Dispersed/Patchy	Moderate	Occurring	12	Wildlife Damage Management		
		Natural Systems Modifications	Dams and Water Management/Use	Abstraction of groundwater (unknown use)	Moderate	Reversible with difficulty	Immediate	Dispersed/Patchy	High	Occurring	15	Damn and Barrier Removal	Culvert Work

Habitat System	Exemplary SGCN	Threats IUCN 1	Threats IUCN 2	Threats IUCN 3	Severity	Reversibility	Immediacy	Spatial Index	Certainty	Likelihood		Action level 2	Action Level 3
Northeastern Wetland Forest (Formation) / Northeastern Floodplain Forest (Macrogroup)													
Central Appalachian River Floodplain Example: Potomac River floodplain forest, Chesapeake and Ohio Canal Historic Park	rough green snake, Virginia opossum, scarlet tanager, prothonotary warbler	Invasive and Other Problematic Species, Genes and Diseases	Invasive Non-native/Alien Species/Diseases	Invasive plants	Severe	Irreversible	Immediate	Pervasive	High	Occurring	18	Invasive species control	Inventory, mechanical, biological, chemical, partnerships
			Invasive Non-native/Alien Species/Diseases	Emerald ash borer	Severe	Irreversible	Near-Term	Dispersed/Patchy	High	Likely	16	Invasive species control	Inventory, mechanical, biological, chemical, partnerships
			Problematic Native Species/Diseases	Whitetail deer overabundance/overbrowse	Severe	Reversible with difficulty	Immediate	Pervasive	High	Occurring	17	Wildlife Damage Management	Inventory, mechanical, biological, chemical, partnerships
		Residential and Commercial Development	Tourism and Recreational Areas	Pressures from tourism and recreational activities, trails, etc.	Moderate	Reversible with difficulty	Immediate	Dispersed/Patchy	High	Occurring	15	Education and Outreach	Education and Outreach
		Human Intrusions and Disturbance	Recreational Activities		Moderate	Reversible with difficulty	Immediate	Dispersed/Patchy	High	Occurring	15	Education and Outreach	Education and Outreach
		Pollution	Domestic and Urban Waste Water	Run-off	Slight	Reversible with difficulty	Immediate	Dispersed/Patchy	Moderate	Likely	12	Water Treatment	Runoff Management, Erosion Control, Vegetation Buffers, Outreach and Education, Data Collection
Northeastern Wetland Forest (Formation) / Northeastern Floodplain Forest (Macrogroup)													
Northern Atlantic Coastal Plain Stream and River Example: Oxon Run Forest, streams east of the Anacostia River	eastern worm snake, two-lined salamander, hooded warbler, red-shouldered hawk, silver-haired bat	Invasive and Other Problematic Species, Genes and Diseases	Invasive Non-native/Alien Species/Diseases	Invasive plants	Moderate	Reversible with difficulty	Immediate	Dispersed/Patchy	Moderate	Occurring	14	Invasive species control	Inventory, mechanical, biological, chemical, partnerships
			Invasive Non-native/Alien Species/Diseases	Emerald ash borer	Severe	Irreversible	Immediate	Pervasive	High	Occurring	18	Invasive species control	Inventory, mechanical, biological, chemical, partnerships
		Pollution	Domestic and Urban Waste Water	Sewage	Moderate	Reversible with difficulty	Immediate	Localized	Moderate	Occurring	13	Water Management	Drainage
				Run-off	Moderate	Reversible with difficulty	Immediate	Dispersed/Patchy	Moderate	Occurring	14	Water Management	Drainage
			Agricultural and Forestry Effluents	Soil Erosion and Sedimentation	Severe	Reversible with difficulty	Immediate	Pervasive	Moderate	Occurring	16	Instream Modification	Streambank Stabilization
Natural Systems Modifications	Other Ecosystem Modifications	Stream channelization (concrete)	Moderate	Reversible with difficulty	Immediate	Localized	Moderate	Occurring	13	Instream Modification	Channel Reconfiguration		

Habitat System	Exemplary SGCN	Threats IUCN 1	Threats IUCN 2	Threats IUCN 3	Severity	Reversibility	Immediacy	Spatial Index	Certainty	Likelihood		Action level 2	Action Level 3
Northeastern Wetland Forest (Formation) / Northeastern Floodplain Forest (Macrogroup)													
Central Appalachian Stream and Riparian Example: Rock Creek Park northern floodplain	wood frog, eastern painted Turtle, rusty blackbird, American beaver	Invasive and Other Problematic Species, Genes and Diseases	Invasive Non-native/Alien Species/Diseases	Invasive plants	Severe	Irreversible	Immediate	Pervasive	High	Occurring	18	Invasive species control	Inventory, mechanical, biological, chemical, partnerships
				Free-range cats	Moderate	Reversible with difficulty	Immediate	Pervasive	High	Occurring	16	Invasive species control	Inventory, mechanical, biological, chemical, partnerships
			Problematic Native Species/Diseases	Whitetail deer overabundance/overbrowse	Severe	Reversible with difficulty	Immediate	Pervasive	High	Occurring	17	Wildlife Damage Management	Inventory, mechanical, biological, chemical, partnerships
		Residential and Commercial Development	Housing and Urban Areas	Human cities, towns and settlements, encroachment	Slight	Reversible with difficulty	Long-term	Localized	Low	Unlikely	7	Wildlife Management Areas	Partnerships, Administrative, Land Acquisition, Translocation, Best Management Practices
					Slight	Reversible with difficulty	Long-term	Localized	Low	Unlikely	7	Wildlife Management Areas	Partnerships, Administrative, Land Acquisition, Translocation, Best Management Practices
					Moderate	Irreversible	Immediate	Dispersed/Patchy	High	Occurring	16	Education and Outreach	Education and Outreach
					Moderate	Irreversible	Immediate	Dispersed/Patchy	High	Occurring	16	Education and Outreach	Education and Outreach

Habitat System	Exemplary SGCN	Threats IUCN 1	Threats IUCN 2	Threats IUCN 3	Severity	Reversibility	Immediacy	Spatial Index	Certainty	Likelihood		Action level 2	Action Level 3
Aquatic (Formation) / Freshwater Pond (Macrogroup)													
Freshwater Pond	wood duck, American beaver, eastern painted turtle, pickerel frog, lilypad forktail damselfly	Invasive and Other Problematic Species, Genes and Diseases	Invasive Non-native/Alien Species/Diseases	Invasive Plants, Fish, Turtles	Moderate	Reversible with difficulty	Near-Term	Dispersed/Patchy	High	Occurring	14	Invasive species control	Inventory, mechanical, biological, chemical, partnerships
			Problematic Native Species/Diseases	Fish, Turtles	Moderate	Reversible with difficulty	Near-Term	Dispersed/Patchy	High	Occurring	14	Wildlife Damage Management; Species control; Decontamination protocols	Inventory, mechanical, biological, chemical, partnerships
		Residential and Commercial Development	Tourism and Recreation Areas	Pressures from tourism and recreational activities, trail creation	Slight	Reversible with difficulty	Long-term	Localized	Low	Unlikely	7	Education and Outreach	Education and Outreach
		Human Intrusions and Disturbance	Recreational Activities	People, dogs, social trails	Slight	Reversible	Long-term	Localized	Low	Unlikely	6	Pond Modification	Pond Reconfiguration
		Natural Systems Modifications	Other Ecosystem Modifications		Slight	Reversible with difficulty	Near-Term	Localized	Moderate	Likely	10	Water Management	Drainage
		Pollution	Domestic and Urban Waste Water	Sewage	Moderate	Reversible with difficulty	Immediate	Localized	Moderate	Occurring	13	Water Management	Drainage
				Run-off	Severe	Reversible with difficulty	Immediate	Dispersed/Patchy	Moderate	Occurring	15	Water Management	Drainage
			Agriculture and Forestry Effluents	Soil Erosion and Sedimentation	Severe	Reversible with difficulty	Immediate	Dispersed/Patchy	Moderate	Occurring	15	Pond Modification	Stabilization

Habitat System	Exemplary SGCN	Threats IUCN 1	Threats IUCN 2	Threats IUCN 3	Severity	Reversibility	Immediacy	Spatial Index	Certainty	Likelihood		Action level 2	Action Level 3
Aquatic (Formation) / Lake/Embayed Riverine Areas (Macrogroup)													
Lake/Embayed Riverine Areas	American black duck, green frog, big brown bat	Invasive and Other Problematic Species, Genes and Diseases	Invasive Non-native/Alien Species/Diseases	Invasive Plants, Fish, Turtles	Moderate	Reversible with difficulty	Near-Term	Dispersed/Patchy	High	Occurring	14	Invasive species control	Inventory, mechanical, biological, chemical, partnerships
			Problematic Native Species/Diseases	Fish, Turtles	Moderate	Reversible with difficulty	Near-Term	Dispersed/Patchy	High	Occurring	14	Wildlife Damage Management; Species control; Decontamination protocols	Inventory, mechanical, biological, chemical, partnerships
		Residential and Commercial Development	Commercial and Industrial Areas	Industrial and other commercial development	Slight	Reversible with difficulty	Long-term	Localized	Low	Unlikely	7	Wildlife Management Areas	Partnerships, Administrative, Land Acquisition, Translocation, Best Management Practices
			Tourism and Recreation Areas	Pressures from tourism and recreational activities, trail creation	Slight	Reversible with difficulty	Long-term	Localized	Low	Unlikely	7	Education and Outreach	Education and Outreach
		Human Intrusions and Disturbance	Recreational Activities	People, dogs, social trails	Slight	Reversible	Long-term	Localized	Low	Unlikely	6	Lake Modification	Lake Reconfiguration
		Natural Systems Modifications	Other Ecosystem Modifications		Slight	Reversible with difficulty	Near-Term	Localized	Moderate	Likely	10	Water Management	Drainage
		Pollution	Domestic and Urban Waste Water	Sewage	Moderate	Reversible with difficulty	Immediate	Localized	Moderate	Occurring	13	Water Management	Drainage
				Run-off	Severe	Reversible with difficulty	Immediate	Dispersed/Patchy	Moderate	Occurring	15	Water Management	Drainage
			Agriculture and Forestry Effluents	Soil Erosion and Sedimentation	Severe	Reversible with difficulty	Immediate	Dispersed/Patchy	Moderate	Occurring	15	Lake Modification	Stabilization

Habitat System	Exemplary SGCN	Threats IUCN 1	Threats IUCN 2	Threats IUCN 3	Severity	Reversibility	Immediacy	Spatial Index	Certainty	Likelihood		Action level 2	Action Level 3
Aquatic (Formation) / Reservoir (Macrogroup)													
Reservoir	American black duck, big brown bat	Invasive and Other Problematic Species, Genes and Diseases	Invasive Non-native/Alien Species/Diseases	Invasive Plants, Fish, Turtles	Moderate	Reversible with difficulty	Near-Term	Dispersed/Patchy	High	Occurring	14	Invasive species control	Inventory, mechanical, biological, chemical, partnerships
			Problematic Native Species/Diseases	Fish, Turtles	Moderate	Reversible with difficulty	Near-Term	Dispersed/Patchy	High	Occurring	14	Wildlife Damage Management; Species control; Decontamination protocols	Inventory, mechanical, biological, chemical, partnerships
		Residential and Commercial Development	Commercial and Industrial Areas	Industrial and other commercial development	Slight	Reversible with difficulty	Long-term	Localized	Low	Unlikely	7	Wildlife Management Areas	Partnerships, Administrative, Land Acquisition, Translocation, Best Management Practices
			Tourism and Recreation Areas	Pressures from tourism and recreational activities, trail creation	Slight	Reversible with difficulty	Long-term	Localized	Low	Unlikely	7	Education and Outreach	Education and Outreach
		Human Intrusions and Disturbance	Recreational Activities	People, dogs, social trails	Slight	Reversible	Long-term	Localized	Low	Unlikely	6	Modification	Reconfiguration
		Natural Systems Modifications	Other Ecosystem Modifications		Slight	Reversible with difficulty	Near-Term	Localized	Moderate	Likely	10	Water Management	Drainage
		Pollution	Domestic and Urban Waste Water	Sewage	Slight	Reversible with difficulty	Near-Term	Localized	Moderate	Likely	10	Water Management	Drainage
				Run-off	Slight	Reversible with difficulty	Near-Term	Localized	Moderate	Likely	10	Water Management	Drainage
				Agriculture and Forestry Effluents	Soil Erosion and Sedimentation	Slight	Reversible with difficulty	Near-Term	Localized	Moderate	Likely	10	Modification

Habitat System	Exemplary SGCN	Threats IUCN 1	Threats IUCN 2	Threats IUCN 3	Severity	Reversibility	Immediacy	Spatial Index	Certainty	Likelihood		Action level 2	Action Level 3
Aquatic (Formation) / Riverine (Macrogroup)													
Great River	purple martin, eastern redbelly turtle, river otter	Biological Resource Use	Fishing and harvesting of aquatic resources		Moderate	Reversible	Near Term	Pervasive	Moderate	Likely	12	Biological Resource Management	Regulations and Law Enforcement
		Invasive and Other Problematic Species, Genes and Diseases	Invasive Non-native/Alien Species/Diseases	Fish/ Blue Catfish	Moderate	Reversible with difficulty	Near Term	Pervasive	Moderate	Occurring	14	Invasive species control	Inventory, mechanical, biological, chemical, partnerships
		Pollution	Garbage and Solid Waste		Severe	Reversible with difficulty	Immediate	Pervasive	Moderate	Occurring	16	Hazard or infrastructure removal	Solid waste removal
			Domestic and Urban Waste Water	Run-off	Severe	Reversible with difficulty	Immediate	Pervasive	Moderate	Occurring	16	Planting/seeding	Submerged aquatic vegetation
		Residential and Commercial Development	Commercial and Industrial Areas	Industrial and other commercial development	Severe	Irreversible	Immediate	Pervasive	Moderate	Occurring	17	Planting/seeding	Submerged aquatic vegetation
			Tourism and Recreation Areas	Pressures from tourism and recreational activities, trail creation	Slight	Reversible with difficulty	Long-term	Localized	Low	Unlikely	7		
		Natural Systems Modifications	Dams and Water Management/Use	Dams (size unknown)	Severe	Reversible with difficulty	Immediate	Dispersed or Patchy	Highly	Occurring	16	Dam and barrier removal	Obstruction removal
		Resource Management Needs	Resource information collection needs	lack of initial baseline inventory	Slight	Reversible	Long-term	Dispersed/Patchy	Moderate	Occurring	10	Research, survey or monitor habitat	Baseline inventory
		Education/ Outreach Needs	Education Needs	Lack of aquatic resources and wildlife education facilities	Slight	Reversible	Long-term	Localized	Low	Likely	7	Student training	Aquatic resource education

Habitat System	Exemplary SGCN	Threats IUCN 1	Threats IUCN 2	Threats IUCN 3	Severity	Reversibility	Immediacy	Spatial Index	Certainty	Likelihood		Action level 2	Action Level 3
Aquatic (Formation) / Riverine (Macrogroup)													
Small River	green frog, muskrat, eastern mud turtle, Forster's tern	Education/ Outreach Needs	Education Needs	Lack of aquatic resources and wildlife education facilities	Slight	Reversible	Long-term	Localized	Low	Likely	7	Education and Outreach	Education and Outreach
		Invasive and Other Problematic Species, Genes and Diseases	Invasive Non-native/Alien Species/Diseases	Named Species	Moderate	Reversible with difficulty	Near Term	Pervasive	Moderate	Occurring	14	Invasive species control	Inventory, mechanical, biological, chemical, partnerships
		Natural Systems Modifications	Dams and Water Management/Use	Dams (size unknown)	Severe	Reversible with difficulty	Immediate	Dispersed or Patchy	Highly	Occurring	16	Structure Removal	Habitat Restoration
		Pollution	Domestic and Urban Waste Water	Run-off	Moderate	Reversible with difficulty	Immediate	Localized	Moderate	Occurring	13	Water Treatment	Runoff Management, Erosion Control, Vegetation Buffers, Outreach and Education, Data Collection
				Sewage	Moderate	Reversible with difficulty	Immediate	Dispersed/Patchy	Moderate	Occurring	14	Water Treatment	Runoff Management, Erosion Control, Vegetation Buffers, Outreach and Education, Data Collection
				List the type, source, and if possible, the specific pollutants of concern	Severe	Reversible with difficulty	immediate	Pervasive	Moderate	Occurring	16	Water Treatment	Runoff Management, Erosion Control, Vegetation Buffers, Outreach and Education, Data Collection
		Resource Management Needs	Resources information collection needs	lack of initial baseline inventory	Slight	Reversible	Long-term	Localized	Low	Likely	7	Data Collection and Analysis	Research, Survey, Monitoring Habitat
		Pollution	Agricultural and Forestry Effluents	Soil Erosion and Sedimentation	Severe	Reversible with difficulty	Immediate	Dispersed/Patchy	Moderate	Occurring	15	Water Treatment	Stabilization of Streambanks
				Nutrient Loads	Severe	Reversible with difficulty	Near-Term	Pervasive	High	Occurring	16	Water Treatment	Runoff Management, Erosion Control, Vegetation Buffers, Outreach and Education, Data Collection

Habitat System	Exemplary SGCN	Threats IUCN 1	Threats IUCN 2	Threats IUCN 3	Severity	Reversibility	Immediacy	Spatial Index	Certainty	Likelihood		Action level 2	Action Level 3
Aquatic (Formation) / Riverine (Macrogroup)													
Creek	Willow Flycatcher, Two-lined Salamander, Eastern Red Bat	Natural Systems Modifications	Other Ecosystem Modifications	Stream construction/instream modifications/imbrication	Slight	Reversible with difficulty	Near-Term	Localized	Moderate	Likely	10	Instream Modification	Restoration of Natural Stream Channel
Headwater Creek		Residential and Commercial Development	Housing and Urban Areas	List the type of development	Severe	Irreversible	Immediate	Pervasive	Moderate	Occurring	17	Wildlife Management Areas	Partnerships, Administrative, Land Acquisition, Translocation, Best Management Practices
		Biological Resource Use	Fishing and Harvesting of Aquatic Resources		Moderate	Reversible	Near Term	Pervasive	Highly	Likely	13	Hunting and Collecting Terrestrial Animals	Regulations and Law Enforcement
		Education/Outreach Needs	Education Needs	Lack of aquatic resources and wildlife education facilities	Slight	Reversible	Long-term	Localized	Low	Likely	7	Education and Outreach	Education and Outreach
		Invasive and Other Problematic Species, Genes and Diseases	Invasive Non-native/Alien Species/Diseases	Named Species	Moderate	Reversible with difficulty	Near Term	Pervasive	Moderate	Occurring	14	Invasive species control	Inventory, mechanical, biological, chemical, partnerships
		Natural Systems Modifications	Dams and Water Management/Use	Dams (size unknown)	Severe	Reversible with difficulty	Immediate	Dispersed or Patchy	Highly	Occurring	16	Instream Modification	Restoration of Natural Stream Channel
		Pollution	Domestic and Urban Waste Water	sewage	Severe	Reversible with difficulty	Immediate	Dispersed/Patchy	Moderate	Occurring	15	Water Treatment	Runoff Management, Erosion Control, Vegetation Buffers, Outreach and Education, Data Collection
				Run-off	Severe	Reversible with difficulty	Immediate	Dispersed/Patchy	Moderate	Occurring	15	Water Treatment	Runoff Management, Erosion Control, Vegetation Buffers, Outreach and Education, Data Collection

Habitat System	Exemplary SGCN	Threats IUCN 1	Threats IUCN 2	Threats IUCN 3	Severity	Reversibility	Immediacy	Spatial Index	Certainty	Likelihood		Action level 2	Action Level 3
			Garbage and Solid Waste	List the type, source, and if possible, the specific pollutants of concern	Severe	Reversible with difficulty	immediate	Pervasive	Moderate	Occurring	16	Water Treatment	Runoff Management, Erosion Control, Vegetation Buffers, Outreach and Education, Data Collection
			Agricultural and Forestry Effluents	Soil Erosion and Sedimentation	Severe	Reversible with difficulty	Immediate	Dispersed/Patchy	Moderate	Occurring	15	Water Treatment	Runoff Management, Erosion Control, Vegetation Buffers, Outreach and Education, Data Collection
Aquatic (Formation) / Riverine (Macrogroup)													
Pond		Invasive and Other Problematic Species, Genes and Diseases	Invasive Non-native/Alien Species/Diseases	Invasive Plants, Fish, Turtles	Moderate	Reversible with difficulty	Near-Term	Dispersed/Patchy	High	Occurring	14	Invasive species control	Inventory, mechanical, biological, chemical, partnerships
			Problematic Native Species/Diseases	Fish, Turtles	Moderate	Reversible with difficulty	Near-Term	Dispersed/Patchy	High	Occurring	14	Wildlife Damage Management; Species control; Decontamination protocols	Inventory, mechanical, biological, chemical, partnerships
		Residential and Commercial Development	Tourism and Recreation Areas	Pressures from tourism and recreational activities, trail creation	Slight	Reversible	Long-term	Localized	Low	Unlikely	6	Education and Outreach	Education and Outreach
		Human Intrusions and Disturbance	Recreational Activities	People, dogs, social trails	Slight	Reversible	Long-term	Localized	Low	Unlikely	6	Modification	Reconfiguration
		Natural Systems Modifications	Other Ecosystem Modifications		Slight	Reversible with difficulty	Near-Term	Localized	Moderate	Likely	10	Water Management	Drainage
		Pollution	Domestic and Urban Waste Water	Sewage	Moderate	Reversible with difficulty	Immediate	Localized	Moderate	Occurring	13	Water Management	Drainage
				Run-off	Severe	Reversible with difficulty	Immediate	Dispersed/Patchy	Moderate	Occurring	15	Water Management	Drainage
			Agriculture and Forestry Effluents	Soil Erosion and Sedimentation	Severe	Reversible with difficulty	Immediate	Dispersed/Patchy	Moderate	Occurring	15	Modification	Stabilization

Habitat System	Exemplary SGCN	Threats IUCN 1	Threats IUCN 2	Threats IUCN 3	Severity	Reversibility	Immediacy	Spatial Index	Certainty	Likelihood		Action level 2	Action Level 3
Aquatic (Formation) / Vernal Pool (Macrogroup)													
Floodplain	wood frog, Louisiana waterthrush, Virginia opossum	Invasive and Other Problematic Species, Genes and Diseases	Invasive Non-native/Alien Species/Diseases	Invasive Plants, Fish, Turtles	Moderate	Reversible with difficulty	Near-Term	Dispersed/Patchy	High	Occurring	14	Invasive species control	Inventory, mechanical, biological, chemical, partnerships
			Problematic Native Species/Diseases	Fish, Turtles	Moderate	Reversible with difficulty	Near-Term	Dispersed/Patchy	High	Occurring	14	Wildlife Damage Management; Species control; Decontamination protocols	Inventory, mechanical, biological, chemical, partnerships
		Residential and Commercial Development	Housing and Urban Areas	Human cities, towns and settlements, encroachment	Severe	Irreversible	Immediate	Dispersed/Patchy	High	Occurring	17	Wildlife Management Areas	Partnerships, Administrative, Land Acquisition, Translocation, Best Management Practices
		Commercial and Industrial Areas	Industrial and other commercial development	Moderate	Reversible with difficulty	Near-Term	Dispersed/Patchy	High	Likely	13	Wildlife Management Areas	Partnerships, Administrative, Land Acquisition, Translocation, Best Management Practices	
		Tourism and Recreation Areas	Pressures from tourism and recreational activities, trail creation	Slight	Reversible with difficulty	Near-Term	Localized	Moderate	Likely	10	Education and Outreach	Education and Outreach	
		Human Intrusions and Disturbance	Recreational Activities	People, dogs, social trails	Slight	Reversible with difficulty	Near-Term	Localized	Moderate	Likely	10	Modification	Reconfiguration
		Natural Systems Modifications	Other Ecosystem Modifications	Severe	Reversible with difficulty	Immediate	Dispersed/Patchy	Moderate	Occurring	15	Water Management	Drainage	
		Pollution	Domestic and Urban Waste Water	Sewage	Severe	Reversible with difficulty	Immediate	Dispersed/Patchy	Moderate	Occurring	15	Water Management	Drainage
				Run-off	Severe	Reversible with difficulty	Immediate	Dispersed/Patchy	Moderate	Occurring	15	Water Management	Drainage
			Agriculture and Forestry Effluents	Soil Erosion and Sedimentation	Severe	Reversible with difficulty	Immediate	Dispersed/Patchy	Moderate	Occurring	15	Modification	Stabilization

Habitat System	Exemplary SGCN	Threats IUCN 1	Threats IUCN 2	Threats IUCN 3	Severity	Reversibility	Immediacy	Spatial Index	Certainty	Likelihood		Action level 2	Action Level 3	
Aquatic (Formation) / Springs and Seeps (Macrogroup)														
Springs and Seeps	Hay's spring amphipod	Invasive and Other Problematic Species, Genes and Diseases	Invasive Non-native/Alien Species/Diseases	Invasive Plants	Moderate	Reversible with difficulty	Near-Term	Dispersed/Patchy	High	Occurring	14	Invasive species control	Inventory, mechanical, biological, chemical, partnerships	
		Residential and Commercial Development	Housing and Urban Areas	Human cities, towns and settlements, encroachment	Slight	Reversible with difficulty	Long-term	Localized	Low	Unlikely	7	Wildlife Management Areas	Partnerships, Administrative, Land Acquisition, Translocation, Best Management Practices	
		Commercial and Industrial Areas	Industrial and other commercial development		Slight	Reversible with difficulty	Long-term	Localized	Low	Unlikely	7	Wildlife Management Areas	Partnerships, Administrative, Land Acquisition, Translocation, Best Management Practices	
		Tourism and Recreation Areas	Pressures from tourism and recreational activities, trail creation		Moderate	Reversible with difficulty	Near-Term	Localized	Moderate	Likely	11	Education and Outreach	Education and Outreach	
		Human Intrusions and Disturbance	Recreational Activities	People, dogs, social trails	Slight	Reversible with difficulty	Near-Term	Localized	Moderate	Likely	10	Modification	Reconfiguration	
		Natural Systems Modifications	Other Ecosystem Modifications		Severe	Reversible with difficulty	Immediate	Dispersed/Patchy	Moderate	Occurring	15	Water Management	Drainage	
		Pollution	Domestic and Urban Waste Water	sewage		Severe	Reversible with difficulty	Immediate	Dispersed/Patchy	Moderate	Occurring	15	Water Management	Drainage
				Run-off		Severe	Reversible with difficulty	Immediate	Dispersed/Patchy	Moderate	Occurring	15	Water Management	Drainage
			Agriculture and Forestry Effluents	Soil Erosion and Sedimentation		Severe	Reversible with difficulty	Immediate	Dispersed/Patchy	Moderate	Occurring	15	Modification	Stabilization
			Industrial and Military Effluents	Groundwater contamination		Moderate	Reversible with difficulty	Near-Term	Dispersed/Patchy	Low	Likely	9	Water Management	Drainage

Habitat System	Exemplary SGCN	Threats IUCN 1	Threats IUCN 2	Threats IUCN 3	Severity	Reversibility	Immediacy	Spatial Index	Certainty	Likelihood		Action level 2	Action Level 3
Intertidal - Nonvascular (Formation) / Intertidal Shore (Macrogroup)													
North Atlantic Intertidal Mudflat	lesser yellowlegs, little blue heron	Pollution	Garbage and Solid Waste		Moderate	Reversible	Immediate	Dispersed/Patchy	High	Occurring	14	Hazard or infrastructure removal	Solid waste removal
		Residential and Commercial Development	Tourism and Recreation Areas	Pressures from tourism and recreational activities, trail creation	Slight	Reversible	Near-Term	Localized	Moderate	Likely	9	Education and Outreach	Education and Outreach
		Pollution	Domestic and Urban Waste Water	sewage	Moderate	Reversible with difficulty	Immediate	Dispersed/Patchy	Moderate	Occurring	14	Water Management	Drainage
				Run-off	Moderate	Reversible with difficulty	Immediate	Dispersed/Patchy	Moderate	Occurring	14	Water Management	Drainage
		Industrial and Military Effluents	Oil Spills	Moderate	Reversible with difficulty	Near-Term	Dispersed/Patchy	Moderate	Likely	12	Water Management	Drainage	
		Agriculture and Forestry Effluents	Soil Erosion and Sedimentation	Moderate	Reversible with difficulty	Immediate	Dispersed/Patchy	Moderate	Occurring	12	Modification	Stabilization	
Rocky shoals		Natural Systems Modifications	Recreational Activities	People, dogs, social trails	Slight	Reversible	Long-term	Localized	Low	Unlikely	9	Education and Outreach	Education and Outreach
		Pollution	Domestic and Urban Waste Water	sewage	Moderate	Reversible with difficulty	Near-Term	Dispersed/Patchy	Low	Occurring	10	Water Management	Drainage
				Run-off	Moderate	Reversible with difficulty	Near-Term	Dispersed/Patchy	Low	Occurring	10	Water Management	Drainage
		Industrial and Military Effluents	Oil Spills	Moderate	Reversible with difficulty	Near-Term	Dispersed/Patchy	Low	Likely	9	Water Management	Drainage	
		Agriculture and Forestry Effluents	Soil Erosion and Sedimentation	Moderate	Reversible with difficulty	Near-Term	Dispersed/Patchy	Low	Occurring	10	Modification	Stabilization	

Habitat System	Exemplary SGCN	Threats IUCN 1	Threats IUCN 2	Threats IUCN 3	Severity	Reversibility	Immediacy	Spatial Index	Certainty	Likelihood		Action level 2	Action Level 3
Aquatic (Formation) / Overlaps with Freshwater Marsh (Macrogroup)													
Freshwater Emergent Wetland	eastern redbelly turtle	Invasive and Other Problematic Species, Genes and Diseases	Invasive Non-native/Alien Species/Diseases	Invasive Plants, Fish, Turtles	Moderate	Reversible with difficulty	Near-Term	Dispersed/Patchy	High	Occurring	14	Invasive species control	Inventory, mechanical, biological, chemical, partnerships
			Problematic Native Species/Diseases	Fish, Turtles	Moderate	Reversible with difficulty	Near-Term	Dispersed/Patchy	High	Occurring	14	Wildlife Damage Management; Species control; Decontamination protocols	Inventory, mechanical, biological, chemical, partnerships
		Residential and Commercial Development	Housing and Urban Areas	Human cities, towns and settlements, encroachment	Moderate	Irreversible	Near-Term	Localized	High	Occurring	15	Wildlife Management Areas	Partnerships, Administrative, Land Acquisition, Translocation, Best Management Practices
			Commercial and Industrial Areas	Industrial and other commercial development	Slight	Reversible	Long-term	Localized	Low	Unlikely	6	Wildlife Management Areas	Partnerships, Administrative, Land Acquisition, Translocation, Best Management Practices
			Tourism and Recreation Areas	Pressures from tourism and recreational activities, trail creation	Slight	Reversible	Long-term	Localized	Low	Unlikely	6	Education and Outreach	Education and Outreach
			Human Intrusions and Disturbance	Recreational Activities	People, dogs, social trails	Slight	Reversible	Long-term	Localized	Low	Unlikely	6	Education and Outreach
		Natural Systems Modifications	Other Ecosystem Modifications		Slight	Reversible with difficulty	Near-Term	Localized	Moderate	Likely	10	Wetland Modification	Wetland Reconfiguration
		Pollution	Domestic and Urban Waste Water	Sewage	Moderate	Reversible with difficulty	Immediate	Localized	Moderate	Occurring	13	Water Management	Drainage
				Run-off	Severe	Reversible with difficulty	Immediate	Dispersed/Patchy	Moderate	Occurring	15	Water Management	Drainage
			Agriculture and Forestry Effluents	Soil Erosion and Sedimentation	Severe	Reversible with difficulty	Immediate	Dispersed/Patchy	Moderate	Occurring	15	Wetland Modification	Stabilization

Habitat System	Exemplary SGCN	Threats IUCN 1	Threats IUCN 2	Threats IUCN 3	Severity	Reversibility	Immediacy	Spatial Index	Certainty	Likelihood		Action level 2	Action Level 3
Aquatic (Formation) / Overlaps with Northeastern Wetland Forest (Macrogroup)													
Freshwater Forested/Shrub Wetland	American woodcock, spring peeper, American beaver	Invasive and Other Problematic Species, Genes and Diseases	Invasive Non-native/Alien Species/Diseases	Invasive plants	Moderate	Reversible with difficulty	Immediate	Dispersed/Patchy	Moderate	Occurring	14	Invasive species control	Inventory, mechanical, biological, chemical, partnerships
			Invasive Non-native/Alien Species/Diseases	Fish, Turtles	Severe	Irreversible	Immediate	Pervasive	High	Occurring	18	Wildlife Damage Management; Species control; Decontamination protocols	Inventory, mechanical, biological, chemical, partnerships
		Residential and Commercial Development	Tourism and Recreational Areas	Pressures from tourism and recreational infrastructure	Slight	Reversible	Long-term	Localized	Moderate	Likely	8	Wildlife Management Areas	Partnerships, Administrative, Land Acquisition, Translocation, Best Management Practices
		Human Intrusions and Disturbance	Recreational Activities	Pressures from tourism and recreational activities	Slight	Reversible	Long-term	Localized	Moderate	Likely	8	Education and Outreach	Education and Outreach
		Natural Systems Modifications	Other Ecosystem Modifications		Slight	Reversible with difficulty	Near-Term	Localized	Moderate	Likely	10	Wetland Modification	Wetland Reconfiguration
		Pollution	Domestic and Urban Waste Water	Sewage	Moderate	Reversible with difficulty	Immediate	Localized	Moderate	Occurring	13	Water Management	Drainage
				Run-off	Moderate	Reversible with difficulty	Immediate	Dispersed/Patchy	Moderate	Occurring	14	Water Management	Drainage
				Agricultural and Forestry Effluents	Soil Erosion and Sedimentation	Severe	Reversible with difficulty	Immediate	Pervasive	Moderate	Occurring	16	Wetland Modification

Appendix G Public Comments

(This is a placeholder for the public comments that will be received July 31 through August 31, 2015)