



## Delaware Wildlife Species of Greatest Conservation Need

As part of the federal requirement to address conservation of the broad array of wildlife in Delaware, 459 Species of Greatest Conservation Need (SGCN) were identified in Delaware's 2007 Wildlife Action Plan. Beginning in March 2014, the criteria and SGCN list were re-evaluated resulting in a draft list of 655 species and subspecies of mammals, birds, amphibians, reptiles, fishes and invertebrates for the 2015 Wildlife Action Plan.

### Comparison with 2007

Because of the availability of more recent and complete data for many taxa, rather than reevaluate the status of each of the 2007 GCN species for the 2015 revision, the 2015 list was created anew using a slightly different set of inclusion criteria, followed by screening by species experts using a simple decision tree (see Section II below). The results of this exercise were then compared to the SGCN list from 2007.

#### *Additions since 2007*

The new process resulted in a net addition of 194 taxa to the SGCN list. These additions are the result of several factors. The primary driver is the inclusion in the 2015 list of a regional perspective. Incorporating Regional Species of Greatest Conservation Need and Regional Odonates of Conservation Concern as listing criteria generated a number of GCN species that were not previously listed.

In addition, a much larger number of marine fish and sharks are included in the 2015 list, primarily because all ASMFC Managed species were included in the draft list, pending review of their status in Delaware waters. A number of insect species were also added, based on work done in Delaware since 2007 that has led to S-ranking of additional species, especially moths and caddisflies.

#### *Removals since 2007*

Sixteen species included as SGCN in the 2007 Delaware Wildlife Action Plan did not meet the 2015 SGCN inclusion criteria, and thus were removed from the Draft SGCN list. These species and the reasons for their removal are presented in Table 1 below.

**Table 1. 2007 SGCN Not Meeting 2015 Criteria**

Group	Scientific Name	Common Name	Global Rank	State Rank	2007 SGCN Tier	Reason Removed
Birds	<i>Accipiter cooperii</i>	Cooper's Hawk	G5	S3B	Tier 1	No longer meets Criterion #4 (S Rank) due to rank change
Birds	<i>Coragyps atratus</i>	Black Vulture	G5	S3B	Tier 2	No longer meets Criterion #4 (S Rank) due to rank change
Birds	<i>Coturnicops noveboracensis</i>	Yellow Rail	G4	SNA	Tier 2	Decision Tree #5 (very rare or casual visitor)
Birds	<i>Haliaeetus leucocephalus</i>	Bald Eagle	G5	S3B, S4N	Tier 1	No longer meets Criteria #1 (Federal listing) #2 (State Endangered) or #4 (S Rank) due to status and rank changes
Birds	<i>Hydrocoloeus minutus</i>	Little Gull	G5	SNA	Tier 2	Decision Tree #5 (very rare or casual visitor)
Birds	<i>Pandion haliaetus</i>	Osprey	G5	S4B	Tier 1	Original listing justification "Sensitive / Significant Population – Indicator Species" no longer considered valid criterion
Birds	<i>Pelecanus erythrorhynchos</i>	American White Pelican	G4	SNA	Tier 2	Decision Tree #5 (very rare or casual visitor)
Birds	<i>Rhodostethia rosea</i>	Ross's Gull	G3G4	SNA	Tier 2	Decision Tree #5 (very rare or casual visitor)
Birds	<i>Strix varia</i>	Barred Owl	G5	S3	Tier 2	No longer meets Criterion #4 (S Rank) due to rank change No valid Delaware records
Fishes	<i>Pristis pectinata</i>	Smalltooth Sawfish	G1G3	SNR	Tier 1	Original listing justification "Sensitive / Significant Population – Restricted Range" no longer considered valid criterion
Fishes	<i>Ameiurus natalis</i>	Yellow Bullhead	G5	S3S4	Tier 1	Decision Tree #5 (very rare or casual visitor)
Insects	<i>Amblyscirtes aesculapius</i>	Lace-winged Roadside-Skipper	G3G4	SNR	Tier 2	Decision Tree #5 (very rare or casual visitor)
Insects	<i>Amblyscirtes carolina</i>	Carolina Roadside-Skipper	G3G4	SNR	Tier 2	Decision Tree #5 (very rare or casual visitor)
Insects	<i>Catocala palaeogama</i>	Oldwife Underwing	G5	S3	Tier 2	No longer meets Criterion #4 (S Rank) due to rank change
Mammals	<i>Canis latrans</i>	Coyote	G5	SU	Tier 2	Now considered a non-native species by DE DFW
Reptiles	<i>Pituophis melanoleucus</i>	Pinesnake	G4	SNA	Tier 2	No valid Delaware records

## SGCN Selection Process in Detail

A multi-step system was used to generate and evaluate species for GCN status. The data sources in Table 2 were used in conjunction with criteria shown in Box 1 below to generate the draft list via a database query process. This list was then screened using the decision framework shown in Box 2 below. Additional sources of data, including but not limited to those shown in Table 3 were used to help ensure completeness of the list.

**Table 2. Data Sources Used to Generate SGCN Candidates**

<b>Data Source</b>	<b>Date of Last Revision</b>
<b>Delaware Elements List from Biotics Database</b>	May 2014
<b>Regional Species of Greatest Conservation Need (RSGCN) List for the Northeast States</b>	2013
<b>Delaware Endangered Species List</b>	July 2013
<b>Federal Endangered, Threatened, Candidate Species</b>	May 2014
<b>IUCN Red List</b>	May 2014
<b>Northeast Odonate Conservation Status Assessment</b>	2014
<b>Atlantic States Marine Fisheries Commission Managed Species</b>	2014
<b>NOAA NMFS Species of Concern</b>	Nov 2013
<b>American Fisheries Society Freshwater and Diadromous Fishes at Risk of Extinction</b>	2008
<b>Bird Conservation Region (BCR) 29 – Piedmont Priority Species</b>	2014
<b>Bird Conservation Region (BCR) 30 – Atlantic Coastal Plain Priority Species</b>	2008
<b>NEPARC Northeast Amphibian and Reptile Species of Regional Responsibility and Conservation Concern</b>	2010

**Table 3. A Sampling of Additional Species Data Sources Reviewed**

<b>Data Source</b>	<b>Date of Last Revision</b>
<b>Partners in Flight Databases</b>	2014
<b>North Atlantic Regional Shorebird Plan</b>	n.d.
<b>North American Waterfowl Management Plan</b>	2012
<b>U.S. Shorebird Conservation Plan</b>	2000
<b>Population Estimates of North American shorebirds (Andres et al 2012)</b>	2012
<b>State of the Birds Report 2014</b>	2014
<b>Xerces Society Red List of Aquatic Invertebrates</b>	n.d.
<b>Xerces Society Red List of Bees</b>	n.d.
<b>Xerces Society Red List of Butterflies and Moths</b>	n.d.
<b>US Fish and Wildlife Species of Conservation Concern</b>	2008
<b>Sea Duck Joint Venture Strategic Plan 2014-2018</b>	2014

### Box 1. SGCN Criteria for Delaware Wildlife Action Plan 2015

Species will be considered a *candidate* for GCN status if they **occur in Delaware** AND they meet any one of the following criteria:

1. Federally Endangered, Threatened, or Candidate status
2. State Legal Status of Endangered
3. Global Rank of G3 or higher
4. S-Rank of S2 or higher, SH, or SX for Breeding, Nonbreeding or Both
5. Regional Species of Greatest Conservation Need (RSGCN) for the Northeast
6. IUCN Red List Status of Near Threatened or higher
7. Taxon-specific Conservation Concern. Included at the following levels on the following taxon-specific plans:



#### *Birds*

Mid-Atlantic Bird Conservation Initiative BCR 29 or BCR 30 "Highest Priority" and "High Priority" Species

#### *Fishes and Marine Invertebrates*

National Oceanic and Atmospheric Administration (NOAA) NMFS Species of Concern (NOAA 2010)  
American Fisheries Society (2001) Marine, Estuarine, and Diadromous Fish Stocks at Risk of Extinction in North America (Exclusive of Pacific Salmonids)  
American Fisheries Society (2008) List of imperiled North American freshwater and diadromous fishes  
Atlantic States Marine Fisheries Commission (ASMFC) Managed Species

#### *Reptiles & Amphibians*

NEPARC (2010) Northeast Amphibian and Reptile Species of Regional Responsibility and Conservation Concern

#### *Odonates*

White, et al. (2014) A conservation status assessment of Odonata for the northeastern United States. New York Natural Heritage Program, Albany, NY.

8. Endemic, Near-Endemic, or Disjunct. (Species which, according to the best available data are endemic or near-endemic to the Delmarva Peninsula, or whose Delaware populations are widely disjunct: 200+ miles from the species main range of distribution)

9. Scientific Data and Expert Consensus

Taxa that do not meet other SGCN criteria that can be demonstrated by scientific evidence or expert consensus to have at least a moderate risk of extinction in the future, or that have especially significant Delaware populations. This may include taxa that are data deficient, have demonstrated population declines, rarity or limited habitat requirements, need direct species management in order to persist, have at-risk populations, or are likely to be significantly negatively impacted by climate change or other specific and imminent threats.

## Box 2. Decision Tree for Screening GCN Species from GCN Candidate List

1. Is the species native or thought to be native to Delaware or adjacent waters (including North American native species whose range has expanded naturally into the region)?

YES: continue NO: not SGCN

2. Is Delaware within, or presumed to be within, the species' regularly occurring range, now or at some time in the past? Accidental and vagrant species should not be included, even if there are multiple records. Disjunct populations should be considered part of the regularly occurring range.

YES: continue NO: not SGCN

3. If the species is included solely on the basis of a breeding season S-rank, does that rank reflect only sporadic, accidental breeding attempts well outside the usual breeding range of the species? (Any evidence of continued breeding or establishment of a breeding population should be considered.)

YES: not SGCN NO: continue

4. If the species is considered extirpated from Delaware (SX), is there some possibility that the species could either recolonize naturally or be intentionally reintroduced in the foreseeable future?

Yes: SGCN No: Not SGCN

5. Is the species a rare or casual migrant or rare seasonal visitor in Delaware such that threats and conservation actions present /conducted over the next 10 years in Delaware are unlikely to have a measurable impact on the species' population?

YES: not SGCN NO: continue

6. Are there potential, feasible conservation actions that could be implemented within Delaware that may result in a measurable impact on the species' population? (Including reintroduction)

YES: SGCN NO: not SGCN

The database query process using Criteria 1-7 from Box 2 generated an initial list of taxa for consideration. Additional taxa that were not picked up by the initial database query were added to the draft list based on Criteria 8 or 9. Of these taxa, two (the firefly *Photuris mysticalis* and the frog *Lithobates* sp. nov.) are newly recognized species that will likely meet both State and Global Rank Criteria once they are officially ranked. Seven native bee species are not yet S-ranked, but are globally or regionally rare and were added on the basis of rangewide declines and historical occurrence in Delaware. It is likely that more species of native bees will be added during further review of that group. One species of butterfly, the Monarch (*Danaus plexippus*) was added on the basis of current critical rangewide declines that are not yet reflected in state or global ranks. One species of caddisfly (*Hydropsyche hoffmani*) is not yet S-ranked, but is globally rare, with a rounded G-rank of G3. Because the G-rank of this caddisfly was G3G4, it narrowly missed the cutoff for that criterion, but was added on the basis of its limited global distribution. A spider wasp (*Psorthaspis sanguinea*) was added based on disjunct distribution as described in Criterion 8. Two species, the blue crab (*Callinectes sapidus*) and the American oyster (*Crassostrea virginica*) were added

based on criteria 9 due to their dependence on management activities to build and maintain populations. A handful of other species were added based on anticipated S rank changes to be updated during the course of the WAP process (some fireflies, bats, etc.) A complete list of species added since 2007, along with their corresponding criteria met, will be included in the final Wildlife Action Plan.

After screening using the decision framework shown in the green box above to remove several accidental and extralimital taxa, the current draft list contains 653 taxa. The taxonomic makeup of the SGCN list is shown in Table 4 below.

**Table 4. Taxonomic Distribution of SGCN**

<b>Taxonomic Group</b>	<b>Species of Greatest Conservation Need</b>
<b>Insects</b>	277
<b>Birds</b>	183
<b>Fishes</b>	50
<b>Sharks and Rays</b>	42
<b>Snails</b>	22
<b>Mammals</b>	21
<b>Amphibians</b>	18
<b>Reptiles</b>	14
<b>Turtles</b>	11
<b>Freshwater Mussels</b>	10
<b>Other Invertebrates</b>	5
<b>Lampreys</b>	2
<b>TOTAL</b>	655

Overall, the 2015 GCN list reflects a comprehensive approach to identifying of species of conservation concern across many taxa, including many representatives of historically underrepresented taxonomic groups.

