

Criteria for Selecting Species of Greatest Conservation Need

To develop New Jersey's list of Species of Greatest Conservation Need (SGCN), all of the state's indigenous wildlife species were evaluated using the best available assessments of their conservation status and trends. Each assessment has its own system for classifying at-risk species. The table below describes these assessments and the classifications within each that serve as our SGCN criteria. A species must meet one or more of the following criteria to be included on the SGCN list:

Taxonomic Group or subgroup to which the assessment applies	Source of the assessment	Criteria or Rank warranting SGCN status	Description/Justification
All taxonomic groups	US Fish and Wildlife Service (USFWS) (Field: USFWS List)	Endangered	USFWS implements a rulemaking/regulatory process to evaluate a species' population status. Through this process, a species listed as Endangered and Threatened has been found to be "in danger of extinction throughout all or a significant portion of its range or is likely to become endangered within the foreseeable future throughout all or a significant portion of its range."
		Threatened	Candidate Species include "animals and plants for which USFWS or NOAA Fisheries has on file sufficient information on biological vulnerability and threats to support a proposal to list the species as endangered or threatened" (USFWS, 2011). Additional information regarding candidate species can be found at the following websites:
		Candidate Species	USFWS jurisdiction: http://ecos.fws.gov/tess_public/pub/candidateSpecies.jsp NMFS (NOAA) jurisdiction: www.nmfs.noaa.gov/pr/species/esa/candidate.htm
	NJ Division of Fish and Wildlife (Field: State List)	Endangered (NatureServe S1)	New Jersey adapted and implements the Delphi Status Review (or Delphi process) to determine the relative endangerment or stability of a species' population. A systematic method for reaching consensus among experts, the Delphi process is an iterative process characterized by anonymity among the participating experts and controlled feedback via the principal investigator. The results of this status assessment are used to assign the legal status of species in the state.
		Threatened (NatureServe S2)	Endangered (E), Threatened (T) and Special Concern (SC) species warrant special attention due to their limited population and success as a result of numerous threats contributing to their decline. (NatureServe Conservation Status ranks of S1 (critically imperiled), S2 (imperiled), and S3 (vulnerable) align with New Jersey's E, T, and SC designations, respectively, except for those that have not been reviewed by the Delphi process.)
		Special Concern (NatureServe S3)	
		Candidate Species	Candidate Species include those that have been reviewed by the Delphi process and recommended for listing as E, T, or SC by ENSAC, but whose listings have not yet been promulgated by rule.

All taxonomic groups	NatureServe (Fields: NatureServe Global Rank, NatureServe State Rank)	Conservation Status G1, Critically Imperiled	NatureServe assigns global and regional (i.e., national/subnational) species' ranks by "researching and recording information on a set of conservation status factors." The protocol for assigning a conservation status rank is based on scoring an element against ten conservation status factors, which are grouped into three categories based rarity (six factors), trends (two factors), and threats (two factors). G3 is the lowest global rank contributing to NJ's SGCN list. These include species that are at "moderate risk of extinction or elimination due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors." N3 is the lowest regional rank contributing to NJ's SGCN list. Similar to G3 but more localized, these include species that are at a "moderate risk of extirpation in the jurisdiction due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors." To read more about NatureServe's Conservation Status Assessments and Methodology for Assigning Ranks, please visit their website: http://www.natureserve.org/publications/ConsStatusAssess_RankMethodology.jsp
		Conservation Status G2, Imperiled	
		Conservation Status G3, Vulnerable	
		National Conservation Status Rank (N1), Critically Imperiled	
		National Conservation Status Rank (N2), Imperiled	
		National Conservation Status Rank (N3), Vulnerable	
	IUCN Red List (Field: IUCN Red List)	Critically Endangered	The IUCN Red List is a "system for classifying species at high risk of global extinction." The process for qualifying species is extensive. Species valued as Critically Endangered, Endangered and Vulnerable have been so assessed based on the reduction of the population's size, the geographic range of the species, and the probability of extinction based on quantitative analysis. A species is valued as Near Threatened when it has been "evaluated against the criteria but does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future." (IUCN website, 01/23/13) NJ has included these species as SGCN. For more information on IUCN Red List parameters, please visit their website: http://www.iucnredlist.org/technical-documents/categories-and-criteria/2001-categories-criteria#definitions
		Endangered	
		Vulnerable	
		Near Threatened	
Regional SGCN List (Field: Regional SGCN List)	Included on the RSGCN List	The Northeast Fish and Wildlife Diversity Technical Committee (NEFWDC) identifies a list of Regional Species of Greatest Conservation Need (RSGCN) to help direct conservation attention to those species in most urgent need. The list is based on the conservation status of species that regularly occur within the Northeast, their listing within State Wildlife Action Plans, and the proportionate responsibility of the Northeast in each species' North American range.	
Taxa-Specific Criteria (Field: Taxa Specific Criteria)	Meets ≥1 taxa-specific criterion established by Taxa Team	Many credible sources exist for taxonomy-based status assessment data. See the tables below for taxa-specific criteria that were chosen by the Taxa Teams to warrant inclusion on the SGCN list.	

Taxa Specific Criteria are as follows:

Birds

Taxonomic Group or subgroup to which the assessment applies	Source of the assessment	Criteria or Rank warranting SGCN status	Description/Justification
All birds	Listed by USFWS in the most recent Birds of Conservation Concern for BCRs 28, 29, or 30	All birds on list who winter, breed, and/or migrate through NJ	The USFWS maintains the Birds of Conservation Concern list of non-hunted birds the US to represent their highest conservation priorities. This list is separated by BCR and season (breeding and non-breeding). Therefore, any species of bird designated as conservation concern in the BCRs that occurs in NJ (28, 29, 30) is included as long as the species occurs in NJ during the season it is designated as conservation concern.
	South Atlantic Migratory Bird Implementation Plan (2006)	High (rank)	Species meeting these criteria are continental or regional concern in need of management attention, not just monitoring, in the regional and/or national plans for each bird species group. While the focus are for this plan is south of NJ, it prioritizes many species that occur in NJ as being important in coastal areas for breeding, wintering, and/or migration.
		Highest (rank)	
	BCR 30 All-bird Plan (2007)	High (rank)	Species meeting these criteria are ranked high for continental concern, BCR concern, and/or BCR responsibility. The ranking is based upon decision-rules and BCR-specific information provided in the continental and regional plans produced by the bird initiatives, State Wildlife Action Plans, results from previous workshops held by bird conservation initiatives, and results from the December 2004 BCR 30 All-bird Workshop.
		Highest (rank)	
	[Most recent draft of the] BCR29 all-bird species list	High (rank)	Species meeting these criteria are ranked high for continental concern, BCR concern, and/or BCR responsibility. This ranking is based upon species requiring serious and/or immediate attention.
		Highest (rank)	
	[Most recent draft of the] BCR28 all-bird species list	High (rank)	Species meeting these criteria require serious and/or immediate attention for either breeding or non-breeding. Ranking is based upon a summary of international, national, and regional plans, a conglomeration of listing in SWAPs in the AMJV region, and recommendations from the BCR 28 technical committee.
Highest (rank)			
Landbirds	Most recent Partners in Flight breeding and/or non-breeding scores for BCRs 28, 29, or 30	Regional concern status	Only those species designated as regional concern, which rank high due to population threats instead of relative density, will be included as SGCN.
Landbirds	Partners in Flight National Landbird Conservation Plan (2004)	Continental Watch List, Eastern Biome Watch List, or Northern Forest Biome Watch List	Only those species on the Watch Lists which rank high for threats, distribution, and/or declining population trends will be included as SGCN. Northern Forest Biome was used to include SGCN species that migrate through or winter in NJ.

Shorebirds	Most recent scores/draft of the US Shorebird Conservation Plan	High Concern	These criteria include all species listed nationally as endangered or threatened, plus all species with known population declines and either low populations or one other threat or high risk factor.	
		Highly Imperiled		
	Most recent scores/draft of the North Atlantic Shorebird Conservation Plan	High Concern		These criteria include species with known population declines and either low populations or one other threat or high risk factor.
		Highly Imperiled		
Waterbirds	North American Waterbird Conservation Plan (2001)	Moderate Concern	Includes species with, at the very least, declining populations and moderate threats or distributions, or stable populations with known threats or restricted distributions.	
		High Concern		
		Highly Imperiled		
	BCR 28 Waterbird Conservation Plan (2005)	Moderate Concern	Includes species with, at the very least, declining populations and moderate threats or distributions, or stable populations with known threats or restricted distributions.	
		High Concern		
		Highly Imperiled		
Southeast BCR 28 and 29 Waterbird Conservation Plan (2006)	Tier I species	Using Partners in Flight scoring criteria, includes all species both continental and regional concern criteria, regional concern criteria only, and continental concern only.		
Waterfowl	North American Waterfowl Management Plan (2004)	Moderate High	Includes only species ranked in these categories because of decreasing or unknown population trends and unknown or below-objective population sizes. Those species ranked in these categories because of high harvest importance or negative impacts on other species were removed so that only species of greatest conservation need are reflected.	
		High		
		Highest		
	Atlantic Coast Joint Venture waterfowl Implementation Plan (2005)	Moderate High		Includes only species ranked in these categories because of decreasing or unknown population trends and unknown or below-objective population sizes. Those species ranked in these categories because of high harvest importance or negative impacts on other species were removed so that only species of greatest conservation need are reflected.
		High		
		Highest		

Mammals

Taxonomic Group or subgroup to which the assessment applies	Source of the assessment	Criteria or Rank warranting SGCN status	Description/Justification
Terrestrial	In surrounding states (PA ¹ , NY ² , DE ³ , MD ⁴ and CT) ⁵	Endangered, Threatened, or Special Concern	The listing process in each surrounding state varies, but in each state a committee of experts is assembled to evaluate extinction risk of each species. There are no regional priority lists for terrestrial species so the status of species in surrounding states is being used as a surrogate for that information to incorporate species of conservation concern in the region.
	In surrounding states (PA, NY, DE, MD and CT)	NatureServe rank S1-S3	Includes species ranked as S1 (critically imperiled), S2 (imperiled), or S3 (vulnerable) in states surrounding NJ. These state ranks are determined by each state using methods developed by NatureServe*, and are based on the best available information and consider a variety of factors such as species abundance, distribution, population trends and threats. NatureServe state rank procedures often have different criteria, evidence requirements, purposes and taxonomic coverage than state lists of endangered and threatened species. There are no regional priority lists for terrestrial mammal species so the status of species in surrounding states is being used as a surrogate for that information to identify species of conservation concern in the region.
Marine	NOAA Fisheries	Candidate species for NJ waters	NOAA is the federal authority with jurisdiction over marine mammals. Candidate species are those petitioned species that are actively being considered for E or T status, as well as those for which NMFS has initiated an ESA status review. Proposed species are candidate species that were found to warrant listing as either T or E and were proposed as such in the Federal Register after completion of a status review. Species of Concern are those about which NMFS has some concern regarding status and threat, but for which insufficient information is available under the ESA.
		Proposed species for NJ waters	
		Species of Concern for NJ waters	

* <http://www.natureserve.org/explorer/ranking.htm>

¹ <http://www.portal.state.pa.us/portal/server.pt?open=514&objID=622722&mode=2>

² http://www.dec.ny.gov/docs/wildlife_pdf/2007_animal_list.pdf

³ http://www.dnrec.delaware.gov/fw/NHESP/information/Pages/Endangered.aspx?as_sitesearch=http%3A%2F%2Fwww.dnrec.delaware.gov&q=delaware+threatened+species

⁴ http://www.dnr.state.md.us/wildlife/Plants_Wildlife/rte/pdfs/rte_Animal_List.pdf

⁵ http://www.ct.gov/dep/lib/dep/wildlife/pdf_files/nongame/ets10.pdf

Reptiles and Amphibians

Taxonomic Group or subgroup to which the assessment applies	Source of the assessment	Criteria or Rank warranting SGCN status	Description/Justification
Terrestrial and freshwater reptiles and amphibians	Northeast Amphibian and Reptile Species of Regional Responsibility and Conservation Concern	Moderate Concern	A regional assessment that identified and ranked species of regional priority based on whether or not a species is listed in the States' Wildlife Action Plans as "Species of Greatest Conservation Need" and how frequently this occurs, and also considering percentage of a species' range within the Northeast (Regional Responsibility). Species of Moderate Concern and more severe were included regardless of the percentage of the species' ranges within the Northeast region (i.e., <50% or >50%) in order to capture several species at the limits of their range that occur in unique ecosystems.
		High Concern	
		Severe Concern	
	Turtles in Trouble: The World's 25+ Most Endangered Tortoises and Freshwater Turtles – 2011	Any species of freshwater turtle that occurs in New Jersey that is identified on this list	This list is a result of a compilation and review of multiple sources including the previous Top 25 lists from Turtle Conservation Fund (TCF, 2003) and Tortoise and Freshwater Turtle Specialist Group (TFTSG, 2007), a synthesis of all the 2007 regional lists, review and recommendations based on extinction risk by/from the membership of the TFTSG, a final review by the 30-member Steering Committee of the TFTSG, and then finally discussed at a joint leadership meeting of the principals of the Turtle Conservation Coalition thereby generating the current list. Species found in New Jersey were included due to their determined rarity.
	Vulnerability of At-risk Species to Climate Change in New York	Species considered Moderately Vulnerable	The methodology for assigning species' ranks is well defined in the document, which relies heavily on NatureServe's Climate Change Vulnerability Index (CCVI) tool. Since many reptiles are relatively long-lived and because of the increasing threats to reptiles and amphibians (such as emerging diseases which are expected to increase by 2050) which was not addressed by NatureServe, the Moderately Vulnerable species designation was used as our lowest selection criteria as NatureServe identifies them as species whose abundance or range is likely to decrease by 2050. The document identifies the limitations to the CCVI, which does not assign value to a number of other primary and secondary threats to wildlife.
		Species considered Highly Vulnerable	
Species considered Extremely Vulnerable			

	Petition to List 53 Amphibians and Reptiles in the United States as Threatened or Endangered Species Under the Endangered Species Act	Any species that occurs in New Jersey that is identified on this list	The list was created using information from NatureServe, IUCN, AmphibiaWeb, and a panel of experts. Species were not included if no documented declines or demonstrated threats were known. Expert advice further refined the list by removing species deemed un-warranted for federal listing.
Marine reptiles	NOAA Fisheries	Candidate species for NJ waters	NOAA and FWS share jurisdiction over marine turtles, with NOAA having authority when turtles are in the water. Candidate Species are those petitioned species that are actively being considered for listing as E or T, as well as those for which NMFS has initiated an ESA status review. Proposed species are those candidate species that were found to warrant listing as either T or E and were proposed as such in the Federal Register after completion of a status reviews. Species of Concern are those about which NOAA's NMFS has some concern regarding status and threat, but for which insufficient information is available under the ESA.
		Proposed species for NJ waters	
		Species of Concern for NJ waters	

Invertebrates

Taxonomic Group or subgroup to which the assessment applies	Source of the assessment	Criteria or Rank warranting SGCN status	Description/Justification
Bees/Ants (Hymenoptera)	Xerces Society Red List	PE (possibly extinct)	The list was created by a panel of experts in the field of invertebrate conservation and coordinated by the Xerces Society and the American Museum of Natural History. The list was created with data from NatureServe and various museum and research collections and papers. Members of the panel ranked species based on the level of threats facing them or amount of population decline they have suffered. Species deemed to be of conservation concern but lacking sufficient data for a ranking were listed as DD (data deficient and in need of further research).
		CI (critically imperiled)	
		I (Imperiled)	
		V (vulnerable)	
Butterflies/ Lepidoptera	Rare, Declining, and Poorly Known Butterflies and Moths (Lepidoptera) of Forests and Woodlands in the Eastern United States.	All species included in the report and documented in NJ.	This publication was a report created by a panel of Lepidoptera experts (Schweitzer, D. F., M. C. Minno, and D. L. Wagner) and published by the U.S. Forest Service, Forest Health Technology Enterprise Team, FHTET-2011-01. It analyzed all available regional Lepidoptera data from NatureServe, State databases, and Lepidoptera research projects in order to generate a list and report on the species of greatest conservation need.

	Xerces Society Red List	PE (possibly extinct)	The list was created by a panel of experts in the field of invertebrate conservation and coordinated by the Xerces Society and the American Museum of Natural History. The list was created with data from NatureServe and various museum and research collections and papers. Members of the panel ranked species based on the level of threats facing them or amount of population decline they have suffered. Species deemed to be of conservation concern but lacking sufficient data for a ranking were listed as DD (data deficient and in need of further research).
		CI (critically imperiled)	
		I (Imperiled)	
		V (vulnerable)	
Coleoptera	Xerces Society Red List	PE (possibly extinct)	The list was created by a panel of experts in the field of invertebrate conservation and coordinated by the Xerces Society and the American Museum of Natural History. The list was created with data from NatureServe and various museum and research collections and papers. Members of the panel ranked species based on the level of threats facing them or amount of population decline they have suffered. Species deemed to be of conservation concern but lacking sufficient data for a ranking were listed as DD (data deficient and in need of further research).
		CI (critically imperiled)	
		I (Imperiled)	
		V (vulnerable)	
Crayfish	American Fisheries Society publication, "Conservation Status of Crayfish Species" and associated rankings, dated August 2007	Endangered	The AFS-Endangered Species Committee lists crayfish based on a comprehensive review of US/Canadian status. Definitions are as follows: Endangered (E) species are those species or subspecies in danger of extinction throughout all or significant portion of range. Threatened (T) species are those species or subspecies likely to become endangered throughout all or a significant portion of the range. Vulnerable species include species or subspecies that may become E or T by minor disturbances to its habitat and deserves careful monitoring of abundance and distribution.
		Threatened	
		Vulnerable	
Dragonflies and Damselflies/Odonata	Xerces Society Red List	PE (possibly extinct)	The list was created by a panel of experts in the field of invertebrate conservation and coordinated by the Xerces Society and the American Museum of Natural History. The list was created with data from NatureServe and various museum and research collections and papers. Members of the panel ranked species based on the level of threats facing them or amount of decline they have suffered. Species deemed to be of conservation concern but lacking sufficient data for a ranking were listed as DD (data deficient and in need of further research).
		CI (critically imperiled)	
		I (Imperiled)	
		V (vulnerable)	
	Northeastern Regional Odonata Status Assessment	All species found to be of regional conservation concern.	This list is being generated by a panel of experts from the Northeastern United States. Data from NatureServe and individual State databases will be analyzed to generate a list of species of regional conservation concern based on threats and population decline.

Freshwater Mussels	US Fish and Wildlife Service	Species petitioned to be listed	FWS is federal authority for status determination and listing of freshwater mussels; species petitioned to be listed under the ESA undergo a 90 day process to determine whether there is enough evidence to move forward with a status review.
Other Mollusks & Crustaceans (fairy shrimp, clam-shrimp)	US Fish and Wildlife Service	Species petitioned to be listed	FWS is federal authority for status determination and listing of freshwater invertebrates. Species petitioned to be listed under the ESA undergo a 90 day process to determine whether there is enough evidence to move forward with a status review.

Fish

Taxonomic Group or subgroup to which the assessment applies	Source of the assessment	Criteria or Rank warranting SGCN status	Description/Justification
Freshwater Fish	American Fisheries Society publication, "Conservation Status of Imperiled North American Freshwater and Diadromous Fishes" and associated rankings, dated August 2008	Endangered for NJ waters	The AFS-Endangered Species Committee used existing lists to develop a draft of the present list. AFSESC then added taxa meriting consideration and provided rationale for inclusion. Each taxon was assigned current status, listing criteria, and native ecoregion distribution. Endangered species includes taxon that is in imminent danger of extinction throughout all or extirpation from a significant portion of its range. Threatened species includes taxon that is in imminent danger of becoming endangered throughout all or a significant portion of its range. Vulnerable species includes taxon that is in imminent danger of becoming threatened throughout its range.
		Threatened for NJ waters	
Vulnerable for NJ waters			
	US Fish and Wildlife Service	Species petitioned to be listed	USFWS is the federal authority for status designation and listing of freshwater fishes. Species petitioned to be listed under the ESA undergo a 90 day process to determine whether there is enough evidence to move forward with a status review.
Marine Fish	American Fisheries Society publication, "Marine, Estuarine, and Diadromous Fish Stocks at Risk of Extinction in North America (Exclusive of Pacific Salmonids)," dated November 2000	Endangered for NJ waters	AFS recognizes the following categories of risk: <i>endangered</i> , high risk of extinction in the wild in the immediate future (years); <i>threatened</i> , not <i>endangered</i> but facing risk of extinction in the near future (decades); <i>vulnerable</i> , not <i>endangered</i> or <i>threatened</i> severely but at possible risk of falling into one of these categories in the near future.
		Threatened for NJ waters	
		Vulnerable for NJ waters	
	NOAA Fisheries	Candidate species for NJ waters	NOAA Fisheries/ is the federal authority for determining status and listing of marine fishes. Candidate Species are those petitioned species that are actively being considered for listing as E or T, as well as those species for which NMFS

		Proposed species for NJ waters	has initiated an ESA status review. Proposed species are those candidate species that were found to warrant listing as either T or E and were officially proposed as such in the Federal Register after completion of a status review. Species of Concern are those about which NOAA's NMFS has some concern regarding status and threat, but for which insufficient information is available under the ESA.
		Species of Concern for NJ waters	
Fish	NOAA Fisheries	Federally managed species occurring within or dependent upon designated Essential Fish Habitat areas in NJ (within 3 mile limit) or Habitats of Particular Concern	NOAA Fisheries works with the regional fishery management councils to identify the essential habitat for every life stage of each federally managed species using the best available scientific information. Essential Fish Habitat has been described for approximately 1,000 managed species to date. NOAA and the councils also identified more than 100 "habitat areas of particular concern," or HAPCs. These are considered high priority areas for conservation, management, or research because they are rare, sensitive, stressed by development, or important to ecosystem function.

Species in need of further investigation

Species in need of further investigation but are not yet considered SGCN meet the following criteria:

Taxonomic Group or subgroup to which the assessment applies	Source of the assessment	Criteria or Rank warranting SGCN status	Description/Justification
All taxonomic groups	NJ Division of Fish and Wildlife	State Status or Candidate Status of Undetermined/Unknown per Delphi process	New Jersey adapted and implements the Delphi Status Review (or Delphi process) to determine the relative endangerment or stability of a species' population. A systematic method for reaching consensus among experts, the Delphi process is an iterative process characterized by anonymity among the participating experts and controlled feedback via the principal investigator. The results of this status assessment are used to assign the legal status of species in the state. <i>Unknown (U)</i> species are those for which it is impossible to assign E, T, or SC because enough information on which to base a judgment simply does not exist.