# RECOMMENDATIONS TO IMPROVE THE IDENTIFICATION, ASSESSMENT, AND PRIORITIZATION OF SPECIES OF GREATEST CONSERVATION NEED (SGCN) IN THE SEAFWA REGION.

*Figure 1. Shoals Spider Lilly (Hymenocallis coronaria), Flat Shoals Creek, Georgia. Photo by Georgia DNR.*

SEAFWA WILDLIFE DIVERSITY COMMITTEE

SWAP STANDARDIZATION SUBCOMMITTEE

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## Introduction

SEAFWA members utilized different species assessment approaches, different terminology to describe threats and conservation actions, and different approaches to describe and prioritize conservation areas during their 2015 SWAP revisions. The lack of consistent terminology and approaches has been identified as a barrier to implementation of range-wide conservation actions and landscape scale conservation. Following the approach taken in northeastern states, a special subcommittee of the SEAFWA Wildlife Diversity Committee was formed in April 2021 to help southeastern states identify standard terminology and approaches for the upcoming 2025 SWAP revision. The subcommittee operates through periodic virtual meetings where specific SWAP topics are discussed. While meeting participation varies, most SEAFWA states and territories are represented on the committee by 1-2 people that will have a leadership role in the upcoming SWAP revision.

During their first meeting, the subcommittee established the following goal statement:

> Goal: The state wildlife action plans of the SEAFWA southeastern states and territories will include common terminology and methods for SGCN identification, prioritization, and conservation to improve effectiveness of state wildlife action plans and to facilitate conservation efforts at a landscape/regional scale.

The subcommittee also developed a competitive state wildlife grant proposal to improve regional conservation of southeastern SGCN. The grant was awarded to Arkansas, Georgia, and North Carolina and is being led by Georgia. The first objective of the grant is to create a database that will be used to identify consistent threats, status ranks, and conservation actions for SGCN and share the database with all SEAFWA members by October 1st 2022. Because it will encode standard terminology and approaches, completion of the database and its use by SEAFWA states and territories is an important step toward meeting the subcommittees' overall goal.

The subcommittee surveyed SWAP coordinators in September 2021 to understand how SEAFWA members were planning to approach the upcoming SWAP revision (SWAP Coordinator Survey 2021). Thirteen of the 14 states and territories participating in the survey indicated that identifying or updating the SGCN list would be moderately or very difficult to accomplish. Further, 13 of the 14 survey respondents indicated that they were moderately or very interested in helping to develop a standard approach for determining SGCN for their upcoming SWAP revision. Since the initial survey, the subcommittee held two discussions and carried out an additional survey focused on the process to identify and prioritize SGCN. The objective of this report is to present the subcommittee's final recommendations regarding the identification, assessment, and prioritization of SGCN. These findings are included immediately below, but we encourage you to review the additional sections of the report to understand how they were developed. Documentation for the SGCN database will be addressed in a separate report.

## Final Recommendations

Survey responses and discussions were reviewed in composing our final set of recommendations. Draft recommendations were sent to the entire subcommittee and the SEAFWA Wildlife Diversity Committee for review and editing. Additional input was received from NatureServe Program leads in southeastern states, which helped clarify the recommendations regarding use of the NatureServe methodology. Partner's in Flight status was incorporated into the recommendations as a result of discussions during the review process. Recommendations marked with an asterisk are also recognized as an AFWA best practice but are re-emphasized here because they were also supported by our survey results and discussions. We have developed a diagram (Figure 2) showing how these steps can be integrated into the SGCN revision process, though we recognize that states will adopt a workflow that works best for them. We also want to emphasize that that these are truly **recommendations** and that each state may adopt these fully, in part, or not at all depending upon the specific objectives of their revision, availability of data and species experts, and other constraints.

1. **SGCN Potential List.** Consider specific groups of species as **potential** SGCN at the beginning of the species assessment process, with the understanding that some species could be added or removed during later stages of the SWAP revision. The potential list should start with your state or territories SGCN list from your most recent SWAP revision (e.g, 2015 revision). The list should then be supplemented with any additional species from the following groups:

    a. Species currently listed, proposed or a candidate for listing under the U.S. Endangered Species Act by the U.S. Fish and Wildlife Service or the National Oceanic and Atmospheric Administration.

    b. NatureServe G1-G2 species, including any species with rounded ranks within this range (i.e, include G2G3 species and G1G3 species).

    c. Regional Species of Greatest Conservation Need

    d. State Listed Species

    e. NatureServe S1-S2 species, including any species with rounded ranks within this range (i.e., include S2S3 and S1S3 species).

    f. U.S. Fish and Wildlife Service At-Risk Species. U.S. Fish and Wildlife Service defines At Risk species as species that are petitioned, a candidate or proposed for listing under the U.S. Endangered Species Act. While this category overlaps partly with item a, the At-Risk Species Finder is useful for identifying these species in your state or territory.

    g. IUCN Red List species ranked as CR (critically endangered), EN (endangered), and VU (vulnerable) at the global scale of assessment.

    h. Partner's In Flight Category of Continental Importance: Red Watchlist, Yellow Watchlist, and Common Birds in Steep Decline.

This recommendation is for groups of species that all states should consider **at a minimum**, some states may want to consider additional groups of species in their assessment of SGCN. For example, several states indicated that they are also planning to include S3 species in their assessment, while other states indicated that including all S3 species would not be feasible.

2. **Historic and Extirpated Species.** Species considered by experts or ranked by NatureServe as SX (extirpated) or SH (historic) should be considered for inclusion in the species assessment on a case-by-case basis. For example, a state may want to include historic species that could potentially be rediscovered through additional surveys, especially if re-discovered populations would be valuable for conservation. Similarly, species that are likely to be reintroduced or could recolonize restored habitats should also be considered for inclusion in the assessment.

3. **Uncertain or Data Deficient Species.** Species that are considered data deficient by experts or ranked SU (unrankable) by NatureServe or DD (Data Deficient) by IUCN should be considered for inclusion in the species assessment on a case-by-case basis. If there is an expectation that a data deficient species may be imperiled in the state, including it in the species assessment may help identify targeted research needs that could be later addressed through SGCN funding.

4. **Undescribed Species.** There should be strong evidence for including undescribed species in the assessment. Examples of such data include publications, reports that include genetic or morphological data, or recognition of the taxon by a professional society or conservation organization. Further, there should be some expectation that the undescribed species is in need of conservation.

5. **Additional SGCN.** During the revision process, your species experts may want to add additional species to the assessment. This could include recently described species, species with emerging threats, indicator or umbrella species that can represent the conservation needs of multiple taxa without having to list each one as an individual SGCN, or any other species with significant conservation needs that were not captured on the potential SGCN list.

6. ***Assessing Conservation Status.** Coordinate with your state's NatureServe Program Office (NSPO) to obtain the most recent state rarity ranks for species you are including in your assessment. If state rarity ranks have not been recently updated (within the last few years), work with your NSPO to update rarity ranks using the NatureServe Ranking Methodology. The SWAP revision process is a good opportunity to engage experts and organize the data needed for ranking. If existing NSPO staff are not completing the ranking, provide opportunities for your staff or species experts to participate in an upcoming training session. Keep in mind that experts can override the rank calculator with sufficient justification. Further, it is preferable to determine an SU rank (unrankable) when NatureServe ranking factors are poorly estimated.

7. **Southeastern SGCN Database.** Utilize the Southeastern SGCN database developed by the subcommittee to complete your species assessment. The database will include standard terminology, threats, NatureServe ranking factors, and conservation actions and will be available on or before October 1st, 2022. If your state already has an SGCN database that it prefers to use, consider adopting data fields and definitions included in the Southeastern SGCN database where feasible. An additional document describing the database is in preparation.

8. ***Prioritize SGCN.** After completing the species assessment, utilize the SGCN priority tier reference guide (Table 1) to assign SGCN to one of four priority levels: Highest Conservation Concern, High Conservation Concern, Moderate Conservation Concern, and Data Deficient. If species do not meet any of the reference criteria, think carefully about whether they should be designated as SGCN. A species may merit prioritization by meeting any one of the listed reference criteria. However, prioritization should be based on an overall synthesis of the priority tier definition and the most suitable criteria for assessing the status of a particular SGCN. Deviation from reference criteria may be appropriate for certain SGCN.

9. ***Document Your Process.** Describe the process you used to identify, evaluate, and prioritize SGCN within your SWAP so that your results are clearly understood and repeatable. Please document any deviations from the recommendations presented in this document.

*Table 1. Priority tier reference guide that may be used to help assign SGCN to priority tiers.*

| Priority Tier | Definition | Reference Criteria |
|---|---|---|
| Highest Conservation Concern | Imperiled species that may become extirpated from my state in the near future unless conservation efforts are continued or enhanced. The population(s) in my state is/are important to the global conservation of the species. | -G1-G2<br>-RSGCN Very High or High **and** S1-S2<br>-ESA E<br>-ESA T or C **and** S1-S2<br>-IUCN CR or EN **and** S1-S2<br>PIF Red Watchlist Species |
| High Conservation Concern | Imperiled species that may continue to decline in my state unless conservation efforts are continued or enhanced. The population(s) in my state is/are important to the global or regional conservation of the species.<br><br>* While Highest Conservation Concern was the most frequently selected category for G5S1 species in the survey, this was a relatively weak preference that represented less than half of respondents (43%). Whether or not to designate G5S1 species as SGCN in your state should take into account the regional or global significance of your state's occurrence. | -G3-G4 **and** S1-S2<br>-G5 **and** S1*<br>-RSGCN Mod **and** S1-S2<br>-RSGCN Very High or HIGH **and** S3<br>-ESA T or C **and** S3<br>-IUCN CR or EN **and** S3<br>-IUCN VU **and** S1-S2<br>PIF Yellow Watchlist Species |
| Moderate Conservation Concern | Species that may be currently stable but of long-term conservation concern due to increasing or emerging threats or species that are currently stable but are representative of an ecosystem or community in need of conservation or species that are currently stable but represented by a strong population or unique genetic diversity that is worthy of conservation within my state. | G3 **and** S3<br>RSGCN Mod **and** S3<br>IUCN VU **and** S3<br>PIF CBSD |
| Data Deficient | Species that may be imperiled, but lack of information on their conservation status, taxonomy, life history, and threats precludes the identification of conservation actions. | Any G Rank **and** SU<br>SH or SX species that may be rediscovered<br>IUCN Data Deficient |

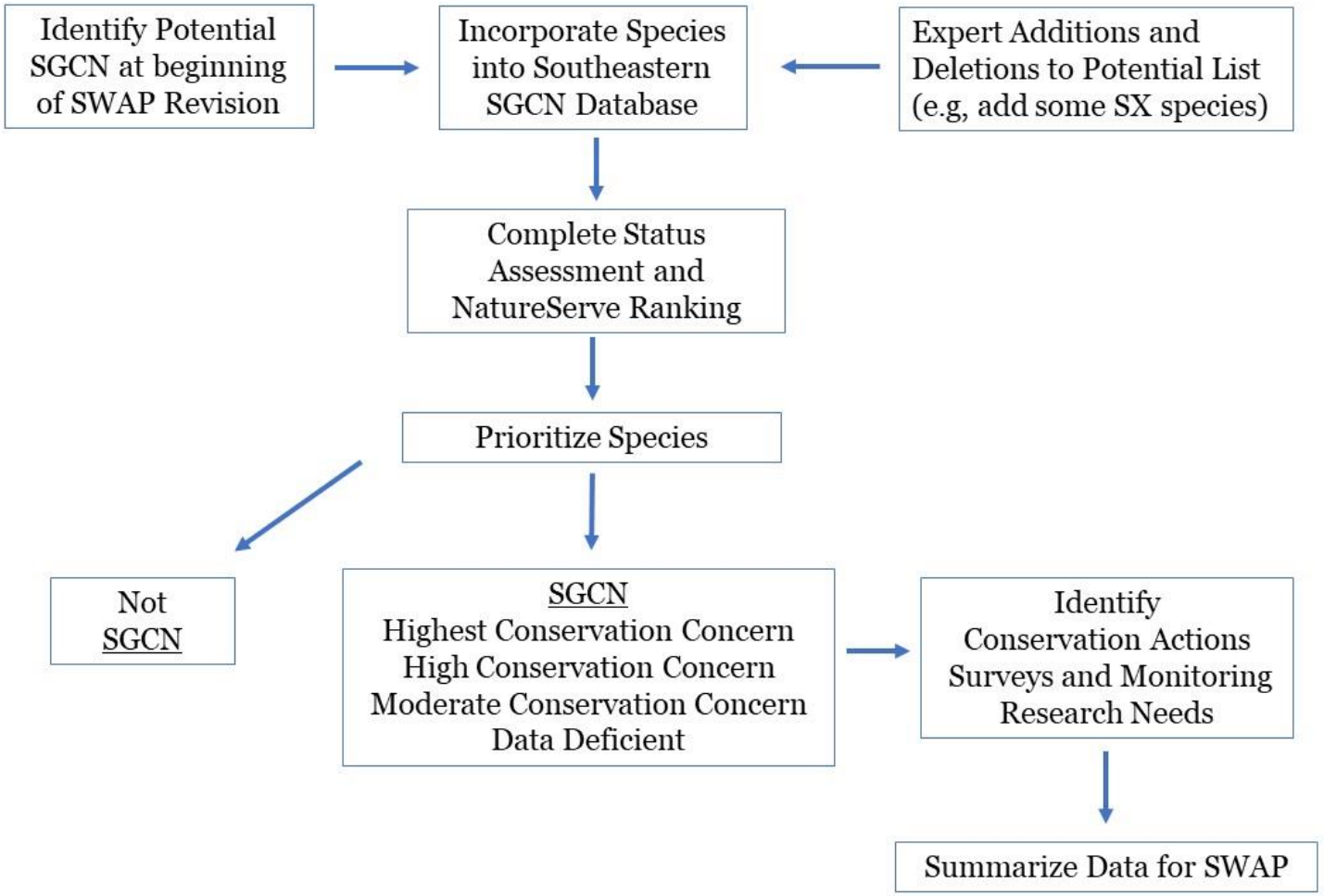


*Figure 2. Potential workflow showing where recommendations can be integrated into the SWAP SGCN assessment process.*

# Development of Recommendations

## SWAP Coordinators Survey

In addition to the survey responses noted in the introduction, the SWAP Coordinator Survey asked respondents to indicate (i.e, select from a list) the criteria they would use to "…prioritize, identify, or update their SGCN list". All but 2 respondents selected federally listed species (Figure 3). A majority of respondents selected species with low global or state rarity ranks, species identified through expert opinion, state listed species, and species recognized on the southeastern Regional Species of Greatest Conservation Need list.

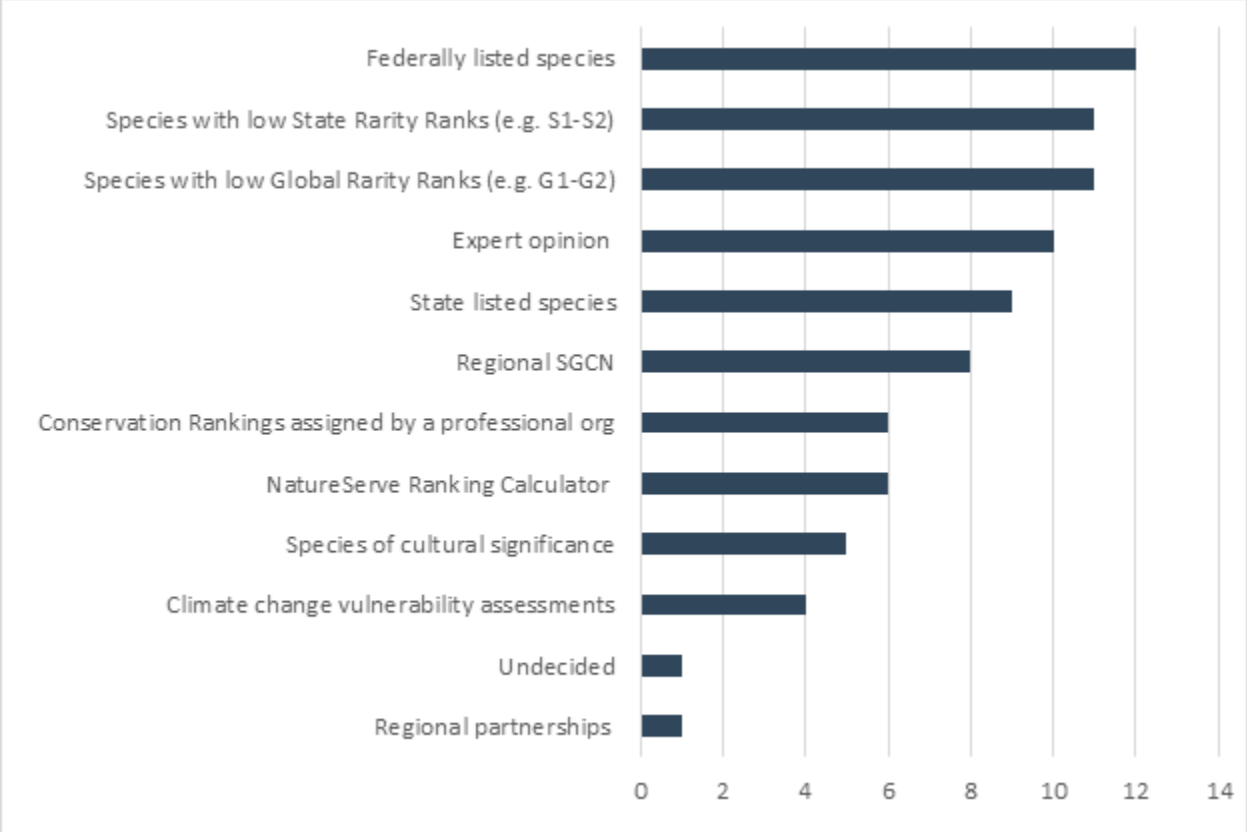


*Figure 3. Responses to question 14 in the SWAP Coordinator survey completed in September 2021. The question asked states to select the criteria they would use to "prioritize, identify, or update the list of SGCN during the upcoming SWAP revision.*

Respondents who checked the "other" box on this survey question were prompted to list any additional criteria they plan to use during their SWAP revision. These responses included IUCN taxa, FWS At-Risk species, NMFS species of concern, newly described species, recently de-listed species, species vulnerable to illegal harvest or emerging risk factor, species identified through a custom metric process, and species with a large or important part of their range within the state or territory.

The initial survey also asked respondents to select from a list of potential categories for prioritizing SGCN. There was strong support (10 of 14 respondents) for three categories: Highest Conservation Concern, High Conservation Concern, and Data Deficient. Only 6 respondents selected the Moderate Conservation Concern category and 1 respondent indicated that they did not want to prioritize SGCN.

**Discussions**

Fifteen members of the subcommittee participated in two 2+ hour discussions on SGCN on September 21st and November 17th, 2021. These calls were recorded and are available upon request. During the calls, we discussed the congressionally required elements of SWAP plans (AFWA 2021, Appendix 3), the SWAP Best Practices report (AFWA 2012), the Northeast Lexicon report (Crisfield et al. 2013), and results of the SWAP coordinators survey. We also discussed potential approaches to address the following questions (Box 1)

Box 1: Guiding Questions for Discussion

1. What species to consider for potential inclusion as SGCN?
2. What methods should be used to assess the conservation status of species?
3. How to prioritize SGCN given limited conservation resources?

*Potential SGCN*

The purpose of identifying potential SGCN at the beginning of the SWAP revision process is simply to know where to start. High biological diversity throughout the SEAFWA region precludes an assessment of all species. On the other hand, a process focused only on critically imperiled species precludes proactive conservation of species that are beginning to decline or need further study to understand their conservation needs. This tradeoff generated substantial discussion within the group. One group argued that it would be more effective to develop a smaller list of SGCN that could be addressed during the next revision cycle and could include indicator species that are representative of other priority species and habitat types. The other group pointed out that failing to list a species specifically as SGCN means that it would not be eligible for funding. This latter group also argued that a SWAP plan is a plan for all conservation partners (not just an agency plan) and collective efforts to address the conservation needs of a large number of species should not be underestimated. One person in the group offered that categorizing a large group of SGCN into different priority levels would help balance this trade-off.

We reviewed the initial survey results that identified strong support for using federal listing status, NatureServe rarity ranks, expert opinion, state listing status and RSGCN status. We also reviewed the Northeast Lexicon report, which recommended these same groups of species and species classified within the most imperiled IUCN categories. Our group was generally in agreement that all of these categories of species should be considered as potential SGCN. However, significant caution was expressed about NatureServe rarity ranks that have not been updated using recent information or methodology.

In our second discussion, we considered more specific groups of species that were not included in the SWAP coordinator survey. We discussed including G3 species, but several participants argued that including all G3 species in their state would be unreasonable due to the large number of additional species that would have to be assessed. Similarly, there was no support for recommending that all states consider S1-S2 species with high G Ranks (G4-G5) or S3 species. In contrast, there was support for including USFWS At-Risk species. These species may have significant information needs that could be addressed through SWG/RAWA funding before listing determinations are made. There was also support for considering additional marine species, which are difficult to rank using the NatureServe methodology. The RSGCN list includes marine fishes, marine reptiles and marine mammals and can help fill this gap. The National Marines Fisheries Service also maintains a list of all federally listed marine species as well as candidate species.

The Northeast Lexicon recommended utilizing conservation prioritizations developed by professional societies and organizations (e.g, Partners in Flight, American Fisheries Society), while SWAP coordinator survey respondents only showed marginal support (6 of 14 states or territories) for these data sets. While these lists include taxa that should be further considered for SGCN status, our group discussed their limitations. Most importantly, they introduce taxonomic specific criteria into the process that are not consistently applied to other taxonomic groups. Further, like all the criteria, it is important to consider when they were last updated. For example, several of the American Fisheries Society conservation rankings have not been updated since the last SWAP revision cycle was completed in 2015.

Finally, our group discussed the importance of clarifying recommendations to states and territories. The purpose of identifying categories of species as potential SGCN is not to dictate what species groups must be designated as SGCN but to recommend which species should be considered for SGCN status. Further, the recommendations should represent the group of species which states should consider at a minimum. Some states may want to consider additional groups of species that face unique or emerging threats in their state (e.g., species vulnerable to illegal harvest for pet trade). While our group was starting to come to a consensus on what groups to recommend for potential SGCN status, we all agreed that it would be beneficial to get additional input from SWAP technical team leaders in each state (see SGCN survey).

*Assessing Conservation Status*

We began our discussion by reviewing the NatureServe ranking calculator. Advantages of using the calculator are that it can be applied to all taxonomic groups, it can incorporate different data types depending on what is known about the species, it is well documented, and it specifically allows for uncertainty. The AFWA best practices report (AFWA 2012) specifically recommends using the NatureServe ranking calculator for assessing conservation status.

In our initial survey, six states or territories responded that they were planning to use the NatureServe ranking calculator in the upcoming revision (SWAP Coordinators Survey). This number seems low when compared to the 11 survey respondents who indicated they were going to utilize rarity ranks in the revision process. This apparent discrepancy may be due to lack of familiarity with the calculator, preference for using expert opinion over the calculator to update rarity ranks, or because rarity ranks have been recently updated in the state or territory. One way to increase recognition and use of the ranking calculator is to offer training workshops. During our discussion, representatives from Texas shared their enthusiasm for using the calculator internally and their success in training outside experts to update rarity ranks.

One participant familiar with the use of the calculator on invertebrates cautioned about the importance of data quality. The example given was for tree snails, which are under-surveyed. Using known occurrence data for under-surveyed groups could result in over-estimating their extinction risk with the calculator. When these data deficiencies are known, the species should be assigned to the SU rank (unrankable).

*Prioritizing SGCN*

Our discussion began by reviewing results from the SWAP coordinators survey which identified strong support for the Highest Conservation Concern, High Conservation Concern, and Data Deficient categories. Our group was in general agreement that these categories should be recognized. One participant on the call recommended a precautionary approach when prioritizing species with range ranks (e.g., S1S3). They argued that these species should be assigned to a higher priority category because they could indeed be an S1 species. It was also pointed out that the RSGCN process in the northeast, southeast, and for the ongoing plant RSGCN list also recommended a Moderate Conservation Concern Category that should be considered further.

AFWA (2012) recommends prioritization based upon both state and range-wide status as a best practice. As part of our second discussion, we developed and discussed 6 different prioritization schemes that were based on the status of a species within each state (S Ranks) and their range-wide status based upon G Ranks and RSGCN status. Our draft schemes all included the Highest, High and Data Deficient categories; half of the options presented also included a Moderate Conservation Category. For each option, we identified examples of birds and salamanders that would meet a given priority level.

The use of RSGCN status as a criterion identified a lot of bird species that otherwise would have not met prioritization criteria based upon G Rank alone. For example, Swallow-tailed Kite would be designated as Highest Conservation Concern in North Carolina because of their low S Rank and recognition as Very High conservation concern on the RSGCN list. At this point in the call, several participants lacked confidence that we could develop prioritization criteria that would work well across the SEAFWA region. They argued that some states already have a prioritization process in place and it would be acceptable for states to have different methods as long as those methods were clearly described in their SWAP. A counter point to this argument was that some states have not prioritized their SGCN list in the past and could benefit from some criteria or at least examples of how species could be prioritized.

Some other details about prioritization were discussed. The group agreed that states/territories should decide on a case-by-case basis whether to designate SH and SX species as SGCN. For example, if surveys were likely to rediscover a species in the state it would make sense to list it as a data deficient species. Similarly, if the species is a priority for reintroduction in the near future, it might be designated as Highest Conservation Concern. In general, the group discouraged recognition of undescribed species as SGCN. However, exceptions should be made when there is compelling evidence (e.g, written report) that the taxon is distinct and imperiled (e.g, Sicklefin Redhorse).

**SGCN Survey**

In order to get more specific input on recommendations, we carried out an additional survey and solicited responses from SWAP coordinators and technical team leaders throughout the SEAFWA region. Fifty-six people completed the survey from eleven states (Table 2). Technical team leaders representing all major taxonomic groups were represented in the survey, although participation was lowest for plants and terrestrial invertebrates (Table 3). Survey responses were presented at the annual meeting of the SEAFWA Wildlife Diversity Committee in April 2022, which provided another opportunity to get input on our proposed recommendations. The complete survey and responses (with names removed) is provided in Appendix I of this report.

*Table 2. Representation in the SGCN survey by state.*

| State | Number of Responses |
|---|---|
| Alabama | 1 (SWAP Coordinator) |
| Arkansas | 6 |
| Georgia | 7 |
| Kentucky | 3 |
| Louisiana | 1 (SWAP Coordinator) |
| Mississippi | 8 |
| Missouri | 8 |
| North Carolina | 9 |
| South Carolina | 8 |
| Tennessee | 1 (SWAP Coordinator) |
| Texas | 4 |
| Total | 56 |

*Table 3. Representation in the SGCN survey by taxonomic group. Some individuals represented more than one taxonomic group.*

| Taxonomic Group | Number of Responses |
|---|---|
| Mammals | 7 |
| Birds | 11 |
| Reptiles | 11 |
| Amphibians | 11 |
| Fishes | 9 |
| Aquatic Invertebrates | 13 |
| Terrestrial Invertebrates | 4 |
| Plants | 5 |
| Other | 3 |

*Potential SGCN*

Most (85%) respondents indicated that's the species groups considered for potential SGCN status adequately represented the vast majority of potential SGCN for their taxonomic group (Figure 4). Respondents that answered no or unsure to this question provided the following additional categories for consideration: IUCN red list taxa (4 responses), species ranked S3 (3 responses), species ranked G4-G5 and S1-S2 (3 responses), SU and SH species (1 response), and data deficient species that are not yet ranked (1 response).

Q3. Recognizing that experts can add or delete species during the revision process, will the groups listed above adequately represent the vast majority of **potential SGCN** for your taxonomic group? Please keep in mind that there is significant overlap among these groups, but some groups include species that may be poorly represented in other groups. For example, the RSGCN list captures many marine species and birds that do not have low global rarity ranks.

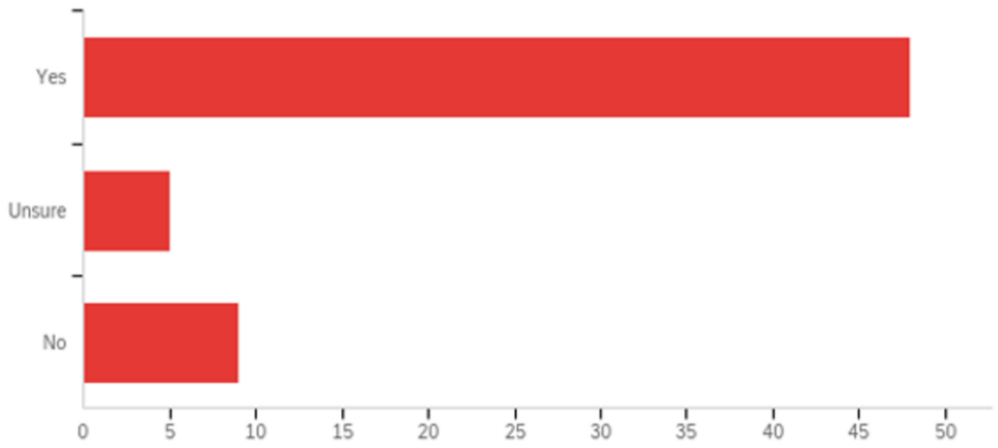


*Figure 4. Responses to question 3 of the SGCN survey. Respondents were presented with the follwoing list of potential SGCN groups when answering this question: federally threatened and endangered species listed by USFWS and NOAA, NatureServe G1-G2 species, Southeastern Regional Species of Greatest Conservation Need, G3, S1-S2 species, and USFWS at-risk species.*

### *Assessing Conservation Status*

Three survey questions were focused on the NatureServe ranking calculator. When asked if they were planning to use the calculator to update rarity ranks for their SWAP revision, about 2/3 indicated that they were unsure, about 1/3 said yes, and 6 indicated that were not planning to use it. A follow up question asking what methods would be used as an alternative to NatureServe ranking yielded a wide range of answers. Thirteen of the 28 people who answered this question indicated that they would use a combination of metrics (including NatureServe metrics) in conjunction with expert opinion to assess the status of species. One person indicated that they would use Partner's In Flight Data, while 3 responded that they would use recently updated NatureServe Ranks and 5 responded that they were unsure. Finally, when asked if they would like to learn about the NatureServe Ranking Calculator through a training session, over half said yes, 1/3 said maybe and 10 indicated no.

*Prioritizing SGCN*

We provided working definitions (Box 2) corresponding to the four SGCN priority levels and then asked participants to match proposed criteria based on NatureServe ranks, RSGCN status, ESA status, and IUCN status to each priority level (Figures 5-8).

Box 2: SGCN Priority Level Definitions used in SGCN Survey

- **Highest Conservation Concern:** Critically imperiled species that may become extirpated from my state in the near future unless conservation efforts are continued or enhanced.
- **High Conservation Concern:** Imperiled species that may continue to decline in my state unless conservation efforts are continued or enhanced.
- **Moderate Conservation Concern:** Species that may be currently stable but of long-term conservation concern due to increasing or emerging threats or species that are currently stable but are representative of an ecosystem or community in need of conservation or species that are currently stable but represented by a strong population or unique genetic diversity that is worthy of conservation within my state.
- **Data Deficient:** Species that may be imperiled, but lack of information on their conservation status, taxonomy, life history, and threats precludes the identification of conservation actions.
- **Not SGCN:** Species in this status category do not merit recognition as SGCN
- **Not Applicable:** This status category should not be used to prioritize SGCN for my taxonomic group because it may include species that do not merit SGCN or it may exclude species that do warrant SGCN status.

| Species Status Category | Highest Conservation Concern | High Conservation Concern | Moderate Conservation Concern | Data Deficient | NOT SGCN |
|---|---|---|---|---|---|
| **G1-G2, S1-S2** | 47 | 3 | 0 | 0 | 1 |
| **G3, S1-S2** | 23 | 26 | 1 | 0 | 1 |
| **G3, S3** | 1 | 14 | 32 | 0 | 4 |
| **G4, S1-S2** | 7 | 31 | 11 | 0 | 2 |
| **G5, S1** | 5 | 22 | 14 | 2 | 8 |
| **G1-G3, SU** | 4 | 13 | 7 | 26 | 1 |
| **G4-G5, SU** | 0 | 1 | 6 | 28 | 16 |
| **GU, SU** | 0 | 1 | 3 | 38 | 6 |

*Figure 5. Number of SGCN survey respondents selecting each priority level for different combinations of global and state rarity ranks. The most frequently selected (i.e., preferred) category is written in blue. See Appendix 2 for supplemental information on the criteria referenced in the table.*

| Species Status Category | Highest Conservation Concern | High Conservation Concern | Moderate Conservation Concern | Data Deficient | NOT SGCN |
|---|---|---|---|---|---|
| **RSGCN Very High, S1-S2** | 45 | 5 | 0 | 0 | 0 |
| **RSGCN High, S1-S2** | 28 | 21 | 1 | 0 | 0 |
| **RSGCN Moderate, S1-S2** | 9 | 31 | 10 | 0 | 0 |
| **RSGCN Very High, S3** | 5 | 30 | 14 | 0 | 0 |
| **RSGCN High, S3** | 0 | 26 | 23 | 0 | 1 |
| **RSGCN Moderate, S3** | 0 | 5 | 41 | 0 | 4 |

*Figure 6. Number of SGCN survey respondents selecting each priority level for different combinations of RSGCN concern level and state rarity ranks. The most frequently selected (i.e., preferred) category is written in blue. See Appendix 2 for supplemental information on the criteria referenced in the table.*

| Species Status Category | Highest Conservation Concern | High Conservation Concern | Moderate Conservation Concern | Data Deficient | NOT SGCN |
|---|---|---|---|---|---|
| **Fed E, S1-S2** | 50 | 0 | 0 | 0 | 0 |
| **Fed E, S3** | 26 | 21 | 3 | 0 | 0 |
| **Fed T, S1-S2** | 41 | 9 | 0 | 0 | 0 |
| **Fed T, S3** | 19 | 24 | 7 | 0 | 0 |
| **Fed C, S1-S2** | 32 | 17 | 0 | 0 | 0 |
| **Fed C, S3** | 6 | 29 | 14 | 0 | 0 |

*Figure 7. Number of SGCN survey respondents selecting each priority level for different combinations of Endangered Species Act status and state rarity ranks. The most frequently selected (i.e., preferred) category is written in blue. Abbreviations are as follows: E = Endangered, T = Threatened, and C = Candidate. See Appendix 2 for supplemental information on the criteria referenced in the table.*

| Species Status Category | Highest Conservation Concern | High Conservation Concern | Moderate Conservation Concern | Data Deficient | NOT SGCN |
|---|---|---|---|---|---|
| **IUCN CR, S1-S2** | 38 | 7 | 0 | 0 | 1 |
| **IUCN CR, S3** | 9 | 24 | 12 | 0 | 1 |
| **IUCN EN, S1-S2** | 31 | 13 | 1 | 0 | 1 |
| **IUCN EN, S3** | 3 | 28 | 13 | 0 | 2 |
| **IUCN VU, S1-S2** | 10 | 30 | 6 | 0 | 1 |
| **IUCN VU, S3** | 0 | 11 | 33 | 1 | 2 |

*Figure 8. Number of SGCN survey respondents selecting each priority level for different combinations of IUCN status and state rarity ranks. The most frequently selected (i.e., preferred) category is written in blue. Abbreviations are as follows: CR = Critically endangered, EN = Endangered, VU= Vulnerable. See Appendix 2 for supplemental information on the criteria referenced in the table.*

In most cases there was a clear preference for a single priority level for a given set of species criteria. For example, 47 of 51 respondents matched G1G2 species to the Highest Conservation Concern category. Similarly, 38 of 46 respondents matched IUCN critically endangered species to the Highest Conservation Concern category (Note: the number of respondents varied because some people did not match all criteria to a priority category). Preferences for other categories were not as strong but exceeded 50% of responses in all but two cases. For example, 24 respondents (48%) matched federally threatened S3 species to High Conservation Concern, while 19 respondents matched this group to the Highest Conservation Concern Category. The Highest Conservation Concern category was selected most frequently for G5,S1 species, but this represented the weakest preference in the survey (43% of respondents). The Highest and High Conservation Concern categories were selected as the preferred category 9 and 11 times respectively, while the Moderate Concern and Data Deficient categories were each selected as the most frequent response 3 times. The NOT SGCN was never selected as the preferred category, but was selected most frequently for G4G5, SU species and G5,S1 species.

After finishing the prioritization question, a slight majority of respondents indicated that the species status categories presented were adequate for prioritizing species in their taxonomic group (Figure 9). When asked about alternative criteria that should be considered for SGCN prioritization, respondents suggested bird specific conservation assessments (1 response), climate change vulnerability assessments (1 response), state listing status (2 responses), and importance of state/territory to overall conservation of the species (2 responses). One respondent suggested that prioritization should be left up to the biologist and they should not have to use categories if they don't want to. Another echoed an earlier sentiment from the discussions about assessing the accuracy of rarity ranks before using them to prioritize.

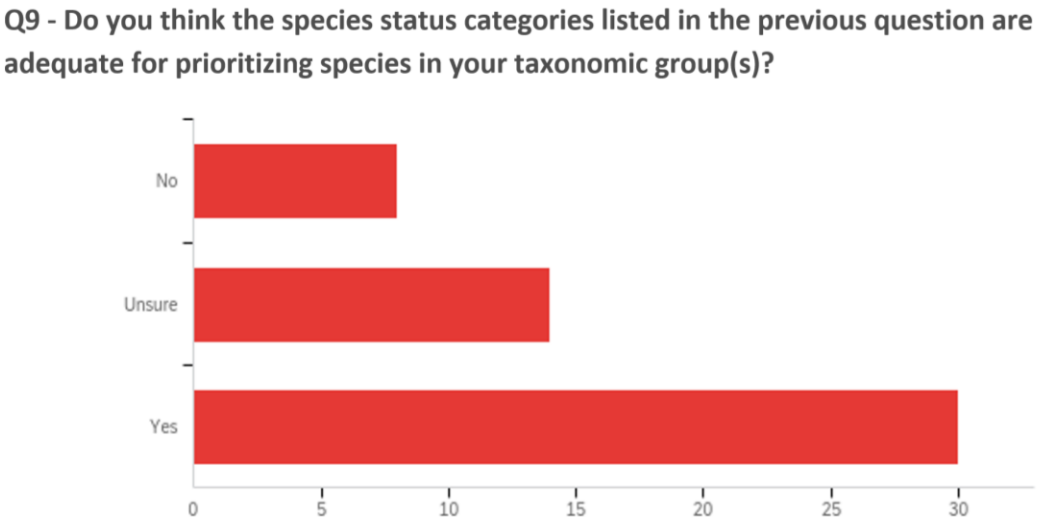


*Figure 9. Response to question 9 of the SGCN survey.*

The final question of the survey gave participants the opportunity to provide any additional comments regarding the process of selecting and prioritizing SGCN in general. Many of the comments addressed issues and limitations of the ranking process. For example, one participant stated that "Some criteria used to develop NatureServe categories tend to be poorly suited to birds and other animal groups." Another participant indicated that "S and G ranks need serious updating across taxa before they should be used to drive prioritization". Another set of comments argued for the importance of experts in the species assessment and prioritization process. For example, one participant commented that "It is important for experts to have some flexibility to adjust the priority level when justified". Finally, one participant signaled their openness to a new process and stated "We are currently discussing a replacement for our tiered ranking system and for the sake of consistency across the region, are open to recommendations from AFWA/SEAFWA. All of the individual comments can be reviewed in Appendix 1 of this report.

## Constraints to Implementation of Recommendations

Based upon the recommendation of a reviewer, we developed a bulleted list of reasons why each state may not be able to implement some or all of the recommendations. The purpose of this list is to help improve implementation of recommendations in the future and also to recognize that some deviations from the recommendations may be unavoidable or reflect the use of an alternative but sufficient methodology.

- Some state's already have specific methodologies developed for their SGCN process and want to maintain continuity in methodology across revision cycles

- Some state's had already begun their latest SWAP revision cycle before these recommendations were completed. In the SEAFWA region, three states have due dates before 2025 (Kentucky, South Carolina and Texas) and may have difficulty adopting some or all of the recommendations (July 8, 2022 email from Mark Humpert, Association of Fish and Wildlife Agencies).

- The relationship between the state agency leading the SWAP revision and the state's NatureServe Program Office (NSPO) may impact the state's ability to implement recommendations. In the best-case scenario, the SWAP lead agency and NSPO are part of the same organization and utilize the same data sets to evaluate the status of species. In other cases, it may take additional effort to coordinate data sharing and the process to update rarity ranks.

- Some states may prioritize their SGCN separately from their SWAP revision process. This approach may save time during the revision and allow for a more dynamic SWAP implementation process in response to changing threats and conservation needs.

- There is strong reticence to place too much emphasis on global rarity ranks, state rarity ranks, and other conservation status rankings that have not been recently updated. Greater availability of up-to-date ranks will facilitate their use in future SWAP revisions.

# References

Association of Fish and Wildlife Agencies (AFWA). 2012. Best Practices for State Wildlife Action Plans—Voluntary Guidance to States for Revision and Implementation. Washington (DC): Association of Fish and Wildlife Agencies. 80 pages.

Association of Fish and Wildlife Agencies (AFWA). 2021. Leading At-risk Fish and Wildlife Conservation: A Framework to Enhance Landscape-Scale and Cross-Boundary Conservation through Coordinated State Wildlife Action Plans. A report from the AFWA State Wildlife Action Plan and Landscape Conservation Work Group to the AFWA Wildlife Diversity Conservation and Funding Committee. Washington, D.C. 29 pages.

Crisfield, E and the Northeast Fish and Wildlife Diversity Technical Committee. 2013. The Northeast Lexicon: Terminology Conventions and Data Framework for State Wildlife Action Plans in the Northeast Region. A report submitted to the Northeast Fish and Wildlife Diversity Technical Committee. Terwilliger Consulting, Inc., Locustville, VA.

# Acknowledgments

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Traci Wood, Alabama Department of Conservation and Natural Resources

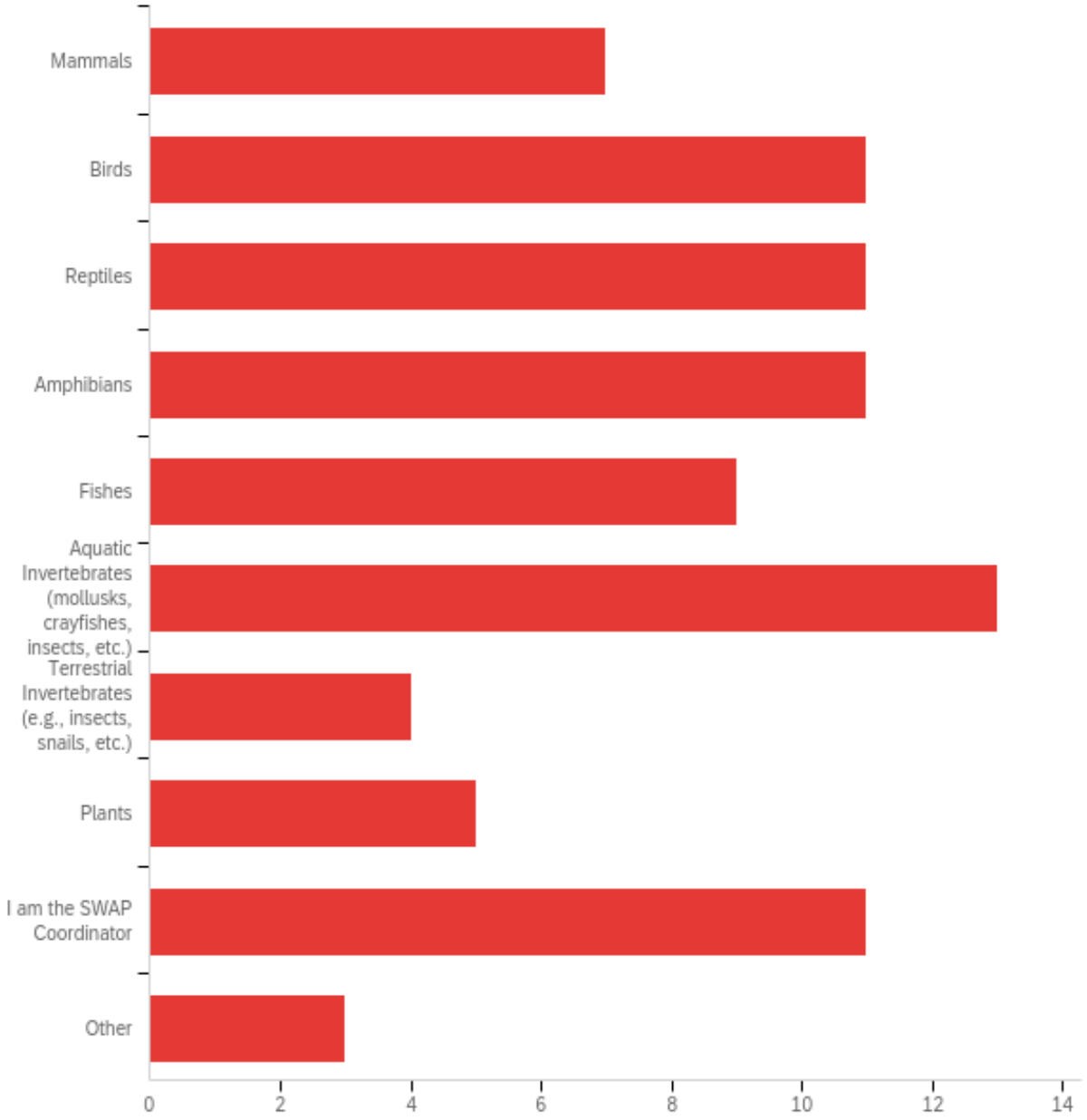
## Appendix 1: SGCN Survey and Anonymous Responses

# Default Report

*SWAP recommendations survey - SGCN*

**March 3rd 2022, 7:43 pm MST**

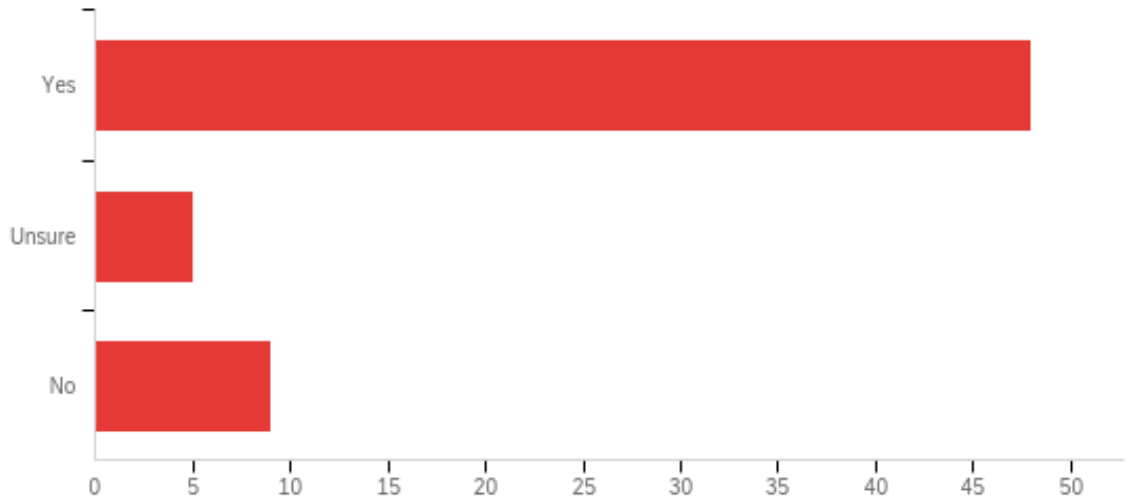
**Q2 - Which group best describes the technical or taxa team you will represent during the upcoming SWAP revision? If you focus on more than a single taxonomic group, check all that apply.**




| # | Answer | % | Count |
|---|---|---|---|
| 1 | Mammals | 8.24% | 7 |
| 2 | Birds | 12.94% | 11 |
| 3 | Reptiles | 12.94% | 11 |
| 4 | Amphibians | 12.94% | 11 |
| 5 | Fishes | 10.59% | 9 |

| | | | |
|---|---|---|---|
| 6 | Aquatic Invertebrates (mollusks, crayfishes, insects, etc.) | 15.29% | 13 |
| 7 | Terrestrial Invertebrates (e.g., insects, snails, etc.) | 4.71% | 4 |
| 8 | Plants | 5.88% | 5 |
| 9 | I am the SWAP Coordinator | 12.94% | 11 |
| 10 | Other | 3.53% | 3 |
| | Total | 100% | 85 |

**Q3 - The SWAP subcommittee will recommend that each state consider specific groups of species as potential SGCN when they begin their revision, with the understanding that some species could be added or removed from the SGCN list during later stages of the revision. Each state should begin their assessment with their current 2015 SWAP list of SGCN and supplement this list to include all species from the groups listed below that are known to currently occur within their state or are likely to occur within their state following additional surveys or priority conservation actions (e.g., reintroductions). This recommendation is for the groups of species that all states should consider at a minimum, some states may want to consider additional groups of species in their assessment of SGCN. Endangered and Threatened Species listed by USFWS and NOAA (coastal states only) NatureServe G1-G2 Species Southeastern Regional Species of Greatest Conservation Need State Listed Species State Rarity Rank S1-S2 species with G Rank of G3 USFWS at-Risk Species (candidates, proposed and petitioned species) Recognizing that experts can add or delete species during the revision process, do the groups listed above adequately represent the majority of potential SGCN for your taxonomic group? Keep in mind that there is significant overlap among these groups, but some groups include species that may be poorly represented in other groups. For example, the RSGCN list captures many marine species and birds that do not have low global rarity ranks.**



| # | Field | Minimum | Maximum | Mean | Std Deviation | Variance | Count |
|---|---|---|---|---|---|---|---|
| 1 | The SWAP subcommittee will recommend that each state consider specific groups of species as potential SGCN when they begin their revision, with the understanding that some species could be added or removed from the SGCN list during later stages of the revision. Each state should begin their assessment with their current 2015 SWAP list of SGCN and supplement this list to include all species from the groups listed below that are known to currently occur within their state or are likely to occur within their state following additional surveys or priority conservation actions (e.g., reintroductions). This recommendation is for the groups of species that all states should consider at a minimum, some states may want to consider additional groups of species in their assessment of SGCN. Endangered and Threatened Species listed by USFWS and NOAA (coastal states only) NatureServe G1-G2 Species Southeastern Regional Species of Greatest Conservation Need State Listed Species State Rarity Rank S1-S2 species with G Rank of G3 USFWS at-Risk Species (candidates, proposed and petitioned species) Recognizing that experts can add or delete species during the revision process, do the groups listed above adequately represent the majority of potential SGCN for your taxonomic group? Keep in mind that there is significant overlap among these groups, but some groups include species that | 1.00 | 3.00 | 1.37 | 0.72 | 0.52 | 62 |

| | | | | | | |
|---|---|---|---|---|---|---|
| may be poorly represented in other groups. For example, the RSGCN list captures many marine species and birds that do not have low global rarity ranks. | | | | | | |

| # | Answer | % | Count |
|---|---|---|---|
| 1 | Yes | 77.42% | 48 |
| 2 | Unsure | 8.06% | 5 |
| 3 | No | 14.52% | 9 |
| | Total | 100% | 62 |

## Q4 - If you answered "no" or "unsure", are there any other groups of species you think all Southeastern states and territories should include as Potential SGCN in their upcoming SWAP revision? Please be as specific as possible and include the latest revision date for any species groups you recommend (e.g. American Fisheries Society Crayfish Status Assessment 2007).

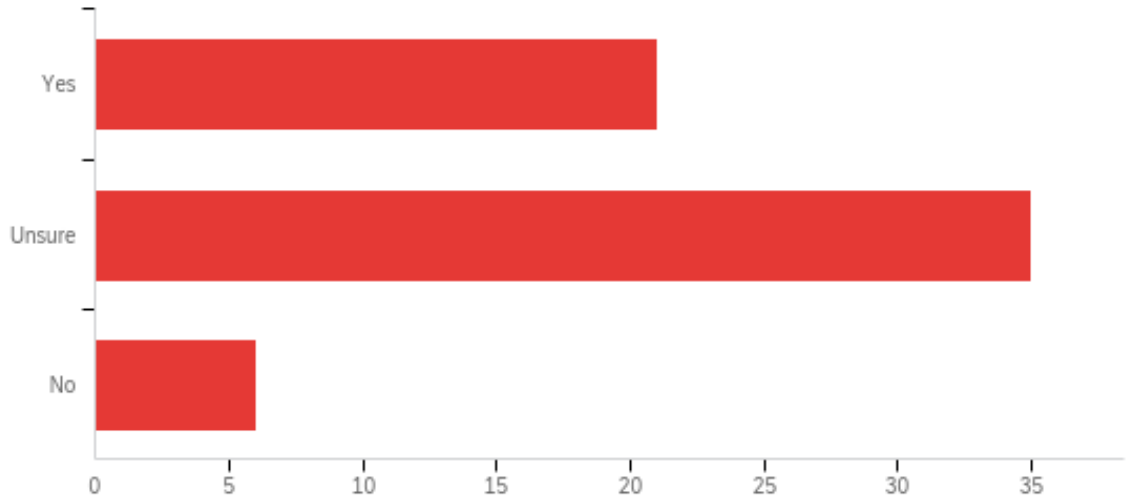
| If you answered "no" or "unsure", are there any other groups of species you think all Southeastern states and territories should include as Potential SGCN in their upcoming SWAP revision? Please be as specific as possible and include the latest revision date for any species groups you recommend (e.g. American Fisheries Society Crayfish Status Assessment 2007). |
|---|
| It seems the "State Rarity Rank S1-S2 species with G Rank of G3" is limiting. There are S1-S2 species that fall within G4-G5 that could still have regional concerns. We also consider characteristic species that help us monitor health of an ecosystem. |
| Not really. A number of species with limited distributions in Kentucky are on our SGCN list even though they may be common and/or widely distributed in other states (examples: Barking Treefrog, Northern Red-backed Salamander). I see no way to include these on a regional list. Most "classical" rare herp species of the Southeast (Gopher Tortoise, Eastern Indigo Snake, Reticulated Flatwoods Salamander) occur nowhere near Kentucky! |
| IUCN has some inverts that are not yet assigned a state rank. |
| MS's SGCN list is mainly built upon the MS Natural Heritage Program Tracking list, which primarily focuses upon species in the S1-S3 range, regardless of G-rank. A comparatively large percentage of our tracked species occur in extreme NE MS in a narrow zone of Tuscaloosa Group geology not found elsewhere in this state, but which supports species which may be relatively common (G ranks of larger #) in states with larger areas of more rugose, vertiginous topography and habitat. |
| Of the species within the group that have data available, the listed categories are a good place to start, however, there are large numbers of aquatic invertebrates that are critically under studied and would be omitted from the SGCN list due entirely to inadequate knowledge. |
| SU and SH species. |
| In our 2015 SWAP we included many species with other s ranks. I would also like to consider those species. |
| We have more than 750 plant and animal SGCN in our 2015 WAP. Using the suggested groupings, only 162 species meet the criteria. Louisiana would be including G4 and G5 into our list. |
| IUCN red list |
| For those of us outside government circles, you first need to translate "SGCN" and "SWAP." Until I know what they mean, I will be unable to answer your questions. |
| Most species have either not be assessed using either S or G-ranks or through a formal NatureServe rank calculator process or they are very outdated. If you request G or S-ranks from NatureServe central and include rank date most will be either blank or over ten years old. This is not a standard that should be used. Coupled with synonymous IUCN ranks they still are inadequate. Invertebrates are vastly under-represented in state SGCN lists in general and a rigid structure surrounding an S or G rank puts too much weight on the accuracy and consistency of those ranks. If we as state agencies want to use these as a standard then more resources need to be committed to updating ranks or |

creating ranks supported by data. An investigation into the S-ranks for many of our current Texas SGCN revealed the ranks are virtually meaningless if they are done without supporting data and expert opinion is difficult to cite and should not be the sole supporting data behind a rank. I would caution use of rank assessments for a SEAFWA standardized list. One group that has been formally ranked across the U.S. recently is the IUCN Assessment of North American Fireflies.

Species ranked as S3

We also use the IUCN Red List for birds

## Q5 - Are you planning to use the NatureServe Ranking Calculator to update state rarity ranks to assess the status of some or all of the species you will review during your upcoming SWAP revision?




| # | Field | Minimum | Maximum | Mean | Std Deviation | Variance | Count |
|---|---|---|---|---|---|---|---|
| 1 | Are you planning to use the NatureServe Ranking Calculator to update state rarity ranks to assess the status of some or all of the species you will review during your upcoming SWAP revision? | 1.00 | 3.00 | 1.76 | 0.61 | 0.38 | 62 |

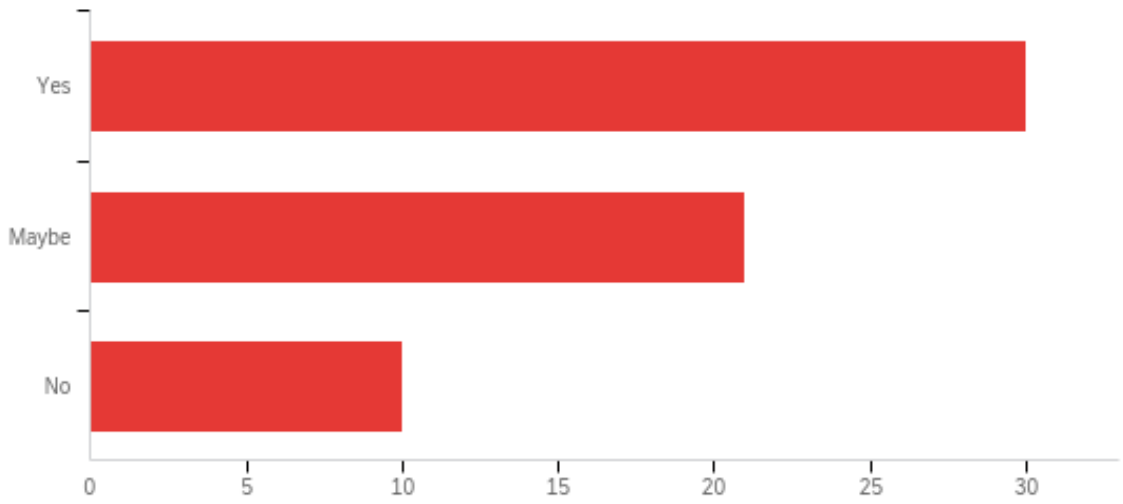
| # | Answer | % | Count |
|---|---|---|---|
| 1 | Yes | 33.87% | 21 |
| 2 | Unsure | 56.45% | 35 |
| 3 | No | 9.68% | 6 |
| | Total | 100% | 62 |

## Q7 - If you are not planning to use the NatureServe ranking calculator, what method (or existing dataset) will you use to assess the conservation status of species within your state?”

| If you are not planning to use the NatureServe ranking calculator, what method (or existing dataset) will you use to assess the conservation status of species within your state?” |
|---|
| We use the existing NatureServe ranks. The mammal group was last globally updated in the early 2000s, but I have updated about 5-6 species that have undergone changes since then. |
| We will most likely use the rank calculator for amphibians, reptiles, and mammals for the 2025 SWAP revision, but that decision isn't firm; however, the Oklahoma NHI is interested in working with us to update the state ranks for those roughly 300 species by 2025 |
| a combination of G-ranks, state threatened, endangered, and special concern species regulations, and input from academic partners |
| Partners In Flight Land Bird assessment protocol and Waterbird (colonial waterbirds and marsh birds) assessment protocol |
| In-house ranking/prioritization worksheet |
| Most state ranks for herps have changed little over time. The majority of ranks are determined by the taxa knowledge of the species with input from various herpetological groups. Ranking are largely based upon survey data, species rarity, and restricted or endemic range. |
| In our 2015 SWAP NatureServe rankings were one of seven criteria used in our tiered ranking system. Our Heritage program is currently debating whether to use NatureServe this time around. |
| expert opinion |
| Likely augment with more recent project- or species-specific data (e.g., NC Bird Atlas, PEFA monitoring, CERW surveys, BACS surveys, etc.) |
| I will use the rank calculator, but in concert with commonsense determination of numbers of discrete populations/occurrences of tracked species, and consideration of the boundaries/distance/barriers between these population/occurrences. The rank calculator makes assumptions about boundaries between populations and occurrences which are simply not known or inadequately known for many species groups. |
| Available state survey data, and data from collaborators in shared basins. |
| We have A "Crayfish Species of Conservation Concern Working Group" that conducts all of our rankings. |
| MO used the SOCC list as a starting point for developing the SGCN list. The NatureServe ranking calculator was applied to calculate the ranks for some of the SOCC. Additional data sources include: • Nelson’s Terrestrial Natural Communities of Missouri (2010), IUCN Red List, • Flora of Missouri (Steyermark 1999, 2006, 2013) • The Crayfishes of Missouri (Pflieger 1996) • A Guide to Missouri’s Freshwater Mussels (Mc¬Murray 2012) • The Fishes of Missouri (Pflieger 1997) |
| unsure at this time |
| State Heritage Status, S ranks |

| |
|---|
| We will likely use the one we used from 2015 with modifications. The primary metrics used are similar to the calculator's metrics and I believe were the primary metrics used across many states whether they used the calculator or some other method.. |
| Unsure |
| breeding bird survey |
| In the past, we have relied heavily on expert opinion. |
| State data through my agency, NHP and NC Museum of Natural Sciences |
| I will use it if someone will direct me to it. |
| Natural Heritage Program ranks |
| Taxa team expertise |
| Fish Distribution Database for the State of Mississippi |
| A combination of rarity lists, NatureSeve rankings, and expert opinion. |
| combination to also include expert opinion |
| state metrics |

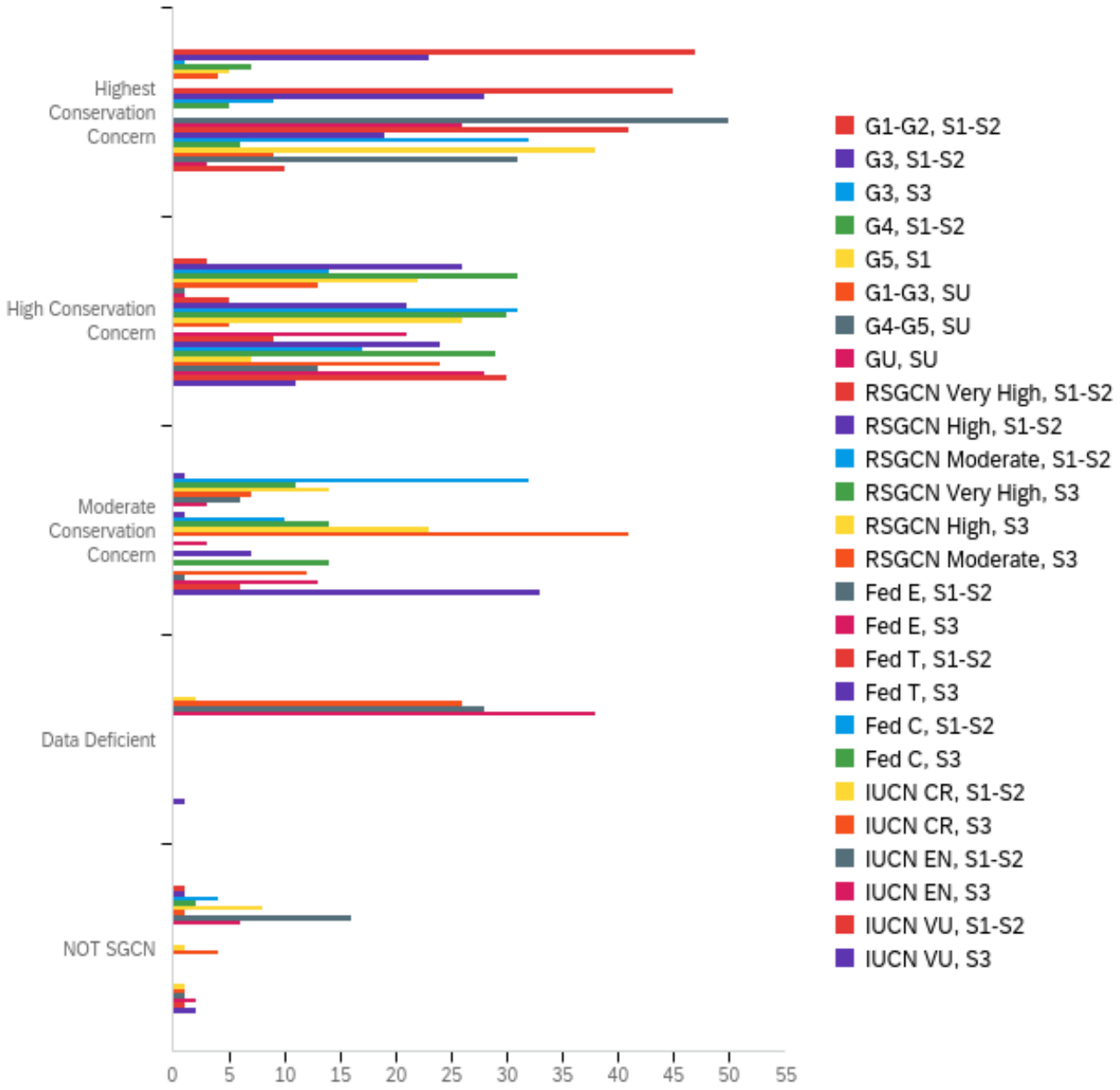
**Q6 - Are you interested in attending a free webinar or other virtual format where you can learn more about using the NatureServe ranking calculator? The webinar is expected to last about 2 hours total, which includes instructional content and time for questions.**




| # | Field | Minimum | Maximum | Mean | Std Deviation | Variance | Count |
|---|---|---|---|---|---|---|---|
| 1 | Are you interested in attending a free webinar or other virtual format where you can learn more about using the NatureServe ranking calculator? The webinar is expected to last about 2 hours total, which includes instructional content and time for questions. | 1.00 | 3.00 | 1.67 | 0.74 | 0.55 | 61 |

| # | Answer | % | Count |
|---|---|---|---|
| 1 | Yes | 49.18% | 30 |
| 2 | Maybe | 34.43% | 21 |
| 3 | No | 16.39% | 10 |
| | Total | 100% | 61 |

**Q8 - Based on prior input from the SWAP coordinators, the SWAP subcommittee will recommend that each state prioritize SGCN into the following categories: 1. Highest Conservation Concern, 2. High Conservation Concern, or 3. Data Deficient. The SWAP subcommittee may also recommend an additional category to recognize species of "Moderate Conservation Concern". AFWA best practices recommends that states prioritize SGCN into categories based upon both the species status within their state and overall status (i.e. rangewide).This prioritization step would be completed at the end of the species assessment when conservation actions, threats, and updated State Rarity Ranks are available. The SWAP subcommittee will use the results of this survey to develop guidance on how to prioritize SGCN, with the caveat that experts could adjust the priority level when justified. Keep in mind that a species may meet a priority level by meeting any one of final criteria. For example, a species might be classified as Highest Conservation Concern if it was either G1 or RSGCN Very high - it would not have to meet both criteria. After reviewing definitions below, please classify each group of species into one of the following categories. Category definitions Highest Conservation Concern: Critically imperiled species that may become extirpated from my state in the near future unless conservation efforts are continued or enhanced. High Conservation Concern: Imperiled species that may continue to decline in my state unless conservation efforts are continued or enhanced. Moderate Conservation Concern: Species that may be currently stable but of long-term conservation concern due to increasing or emerging threats or species that are currently stable but are representative of an ecosystem or community in need of conservation or species that are currently stable but represented by a strong population or unique genetic diversity that is worthy of conservation within my state. Data Deficient: Species that may be imperiled, but lack of information on their conservation status, taxonomy, life history, and threats precludes the identification of conservation actions. Not SGCN: Species in this status category do not merit recognition as SGCN Not Applicable: This status category should not be used to prioritize SGCN for my taxonomic group because it may include species that do not merit SGCN or it may exclude species that do warrant SGCN status.**




| # | Field | Minimum | Maximum | Mean | Std Deviation | Variance | Count |
|---|---|---|---|---|---|---|---|
| 1 | G1-G2, S1-S2 | 1.00 | 5.00 | 1.14 | 0.59 | 0.35 | 51 |
| 2 | G3, S1-S2 | 1.00 | 5.00 | 1.63 | 0.71 | 0.51 | 51 |
| 3 | G3, S3 | 1.00 | 5.00 | 2.84 | 0.80 | 0.64 | 51 |
| 4 | G4, S1-S2 | 1.00 | 5.00 | 2.20 | 0.82 | 0.67 | 51 |
| 5 | G5, S1 | 1.00 | 5.00 | 2.73 | 1.19 | 1.41 | 51 |

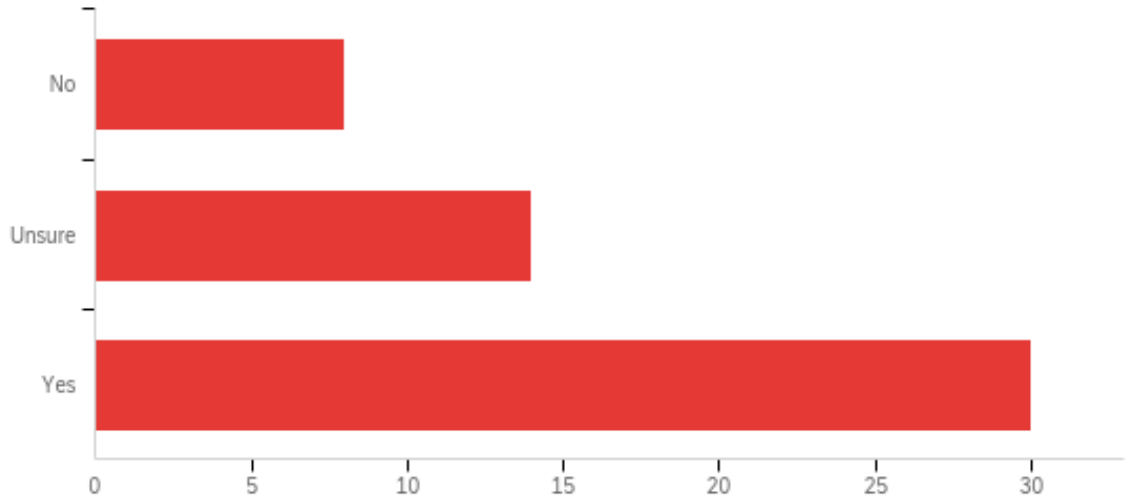
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 6 | G1-G3, SU | 1.00 | 5.00 | 3.14 | 1.07 | 1.14 | 51 |
| 7 | G4-G5, SU | 2.00 | 5.00 | 4.16 | 0.70 | 0.49 | 51 |
| 8 | GU, SU | 2.00 | 5.00 | 4.02 | 0.52 | 0.27 | 48 |
| 9 | RSGCN Very High, S1-S2 | 1.00 | 2.00 | 1.10 | 0.30 | 0.09 | 50 |
| 10 | RSGCN High, S1-S2 | 1.00 | 3.00 | 1.46 | 0.54 | 0.29 | 50 |
| 11 | RSGCN Moderate, S1-S2 | 1.00 | 3.00 | 2.02 | 0.62 | 0.38 | 50 |
| 12 | RSGCN Very High, S3 | 1.00 | 3.00 | 2.18 | 0.59 | 0.35 | 49 |
| 13 | RSGCN High, S3 | 2.00 | 5.00 | 2.52 | 0.61 | 0.37 | 50 |
| 14 | RSGCN Moderate, S3 | 2.00 | 5.00 | 3.06 | 0.65 | 0.42 | 50 |
| 15 | Fed E, S1-S2 | 1.00 | 1.00 | 1.00 | 0.00 | 0.00 | 50 |
| 16 | Fed E, S3 | 1.00 | 3.00 | 1.54 | 0.61 | 0.37 | 50 |
| 17 | Fed T, S1-S2 | 1.00 | 2.00 | 1.18 | 0.38 | 0.15 | 50 |
| 18 | Fed T, S3 | 1.00 | 3.00 | 1.76 | 0.68 | 0.46 | 50 |
| 19 | Fed C, S1-S2 | 1.00 | 2.00 | 1.35 | 0.48 | 0.23 | 49 |
| 20 | Fed C, S3 | 1.00 | 3.00 | 2.16 | 0.62 | 0.38 | 49 |
| 21 | IUCN CR, S1-S2 | 1.00 | 5.00 | 1.24 | 0.67 | 0.44 | 46 |
| 22 | IUCN CR, S3 | 1.00 | 5.00 | 2.13 | 0.80 | 0.64 | 46 |
| 23 | IUCN EN, S1-S2 | 1.00 | 5.00 | 1.41 | 0.74 | 0.55 | 46 |
| 24 | IUCN EN, S3 | 1.00 | 5.00 | 2.35 | 0.79 | 0.62 | 46 |
| 25 | IUCN VU, S1-S2 | 1.00 | 5.00 | 1.98 | 0.73 | 0.53 | 47 |
| 26 | IUCN VU, S3 | 2.00 | 5.00 | 2.87 | 0.64 | 0.41 | 47 |

| # | Question | Highest Conservation Concern | | High Conservation Concern | | Moderate Conservation Concern | | Data Deficient | | NOT SGCN | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | G1-G2, S1-S2 | 92.16% | 47 | 5.88% | 3 | 0.00% | 0 | 0.00% | 0 | 1.96% | 1 | 51 |
| 2 | G3, S1-S2 | 45.10% | 23 | 50.98% | 26 | 1.96% | 1 | 0.00% | 0 | 1.96% | 1 | 51 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | G3, S3 | 1.96% | 1 | 27.45% | 14 | 62.75% | 32 | 0.00% | 0 | 7.84% | 4 | 51 |
| 4 | G4, S1-S2 | 13.73% | 7 | 60.78% | 31 | 21.57% | 11 | 0.00% | 0 | 3.92% | 2 | 51 |
| 5 | G5, S1 | 9.80% | 5 | 43.14% | 22 | 27.45% | 14 | 3.92% | 2 | 15.69% | 8 | 51 |
| 6 | G1-G3, SU | 7.84% | 4 | 25.49% | 13 | 13.73% | 7 | 50.98% | 26 | 1.96% | 1 | 51 |
| 7 | G4-G5, SU | 0.00% | 0 | 1.96% | 1 | 11.76% | 6 | 54.90% | 28 | 31.37% | 16 | 51 |
| 8 | GU, SU | 0.00% | 0 | 2.08% | 1 | 6.25% | 3 | 79.17% | 38 | 12.50% | 6 | 48 |
| 9 | RSGCN Very High, S1-S2 | 90.00% | 45 | 10.00% | 5 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 50 |
| 10 | RSGCN High, S1-S2 | 56.00% | 28 | 42.00% | 21 | 2.00% | 1 | 0.00% | 0 | 0.00% | 0 | 50 |
| 11 | RSGCN Moderate, S1-S2 | 18.00% | 9 | 62.00% | 31 | 20.00% | 10 | 0.00% | 0 | 0.00% | 0 | 50 |
| 12 | RSGCN Very High, S3 | 10.20% | 5 | 61.22% | 30 | 28.57% | 14 | 0.00% | 0 | 0.00% | 0 | 49 |
| 13 | RSGCN High, S3 | 0.00% | 0 | 52.00% | 26 | 46.00% | 23 | 0.00% | 0 | 2.00% | 1 | 50 |
| 14 | RSGCN Moderate, S3 | 0.00% | 0 | 10.00% | 5 | 82.00% | 41 | 0.00% | 0 | 8.00% | 4 | 50 |
| 15 | Fed E, S1-S2 | 100.00% | 50 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 50 |
| 16 | Fed E, S3 | 52.00% | 26 | 42.00% | 21 | 6.00% | 3 | 0.00% | 0 | 0.00% | 0 | 50 |
| 17 | Fed T, S1-S2 | 82.00% | 41 | 18.00% | 9 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 50 |
| 18 | Fed T, S3 | 38.00% | 19 | 48.00% | 24 | 14.00% | 7 | 0.00% | 0 | 0.00% | 0 | 50 |
| 19 | Fed C, S1-S2 | 65.31% | 32 | 34.69% | 17 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 49 |
| 20 | Fed C, S3 | 12.24% | 6 | 59.18% | 29 | 28.57% | 14 | 0.00% | 0 | 0.00% | 0 | 49 |
| 21 | IUCN CR, S1-S2 | 82.61% | 38 | 15.22% | 7 | 0.00% | 0 | 0.00% | 0 | 2.17% | 1 | 46 |
| 22 | IUCN CR, S3 | 19.57% | 9 | 52.17% | 24 | 26.09% | 12 | 0.00% | 0 | 2.17% | 1 | 46 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 23 | IUCN EN, S1-S2 | 67.39% | 31 | 28.26% | 13 | 2.17% | 1 | 0.00% | 0 | 2.17% | 1 | 46 |
| 24 | IUCN EN, S3 | 6.52% | 3 | 60.87% | 28 | 28.26% | 13 | 0.00% | 0 | 4.35% | 2 | 46 |
| 25 | IUCN VU, S1-S2 | 21.28% | 10 | 63.83% | 30 | 12.77% | 6 | 0.00% | 0 | 2.13% | 1 | 47 |
| 26 | IUCN VU, S3 | 0.00% | 0 | 23.40% | 11 | 70.21% | 33 | 2.13% | 1 | 4.26% | 2 | 47 |

## Q9 - Do you think the species status categories listed in the previous question are adequate for prioritizing species in your taxonomic group(s)?




| # | Field | Minimum | Maximum | Mean | Std Deviation | Variance | Count |
|---|---|---|---|---|---|---|---|
| 1 | Do you think the species status categories listed in the previous question are adequate for prioritizing species in your taxonomic group(s)? | 1.00 | 3.00 | 2.42 | 0.74 | 0.55 | 52 |

| # | Answer | % | Count |
|---|---|---|---|
| 1 | No | 15.38% | 8 |
| 2 | Unsure | 26.92% | 14 |
| 3 | Yes | 57.69% | 30 |
| | Total | 100% | 52 |

## Q10 - What other species status categories should be considered for use in SGCN prioritization? Please be specific in your response.

| What other species status categories should be considered for use in SGCN prioritization? Please be specific in your response. |
|---|
| State Listing Status. |
| For birds, there are national assessments that incorporate overall population size and population trend. More data exist for birds than for most taxa and these bird conservation-specific assessments seem to be more useful than G and S ranks. That isn't true for most taxa, but it seems to hold for birds because only the rarest birds have a G rank of 3 or less. |
| Other factors than conservation status should be considered when designating SGCN status, including "conservation responsibility" species - those that are imperiled, but that our state has a large and important breeding population. Also, use of static population bins (as used in some status categories and previous SGCN evaluation) is not appropriate to apply across all bird species, that have very different life histories. |
| Species that are peripheral in a state, but are wide-ranging and common elsewhere. Species that are currently considered common in the state, but severe declines or extirpations are documented in adjacent states or nearby regions. |
| S4 S5 and others |
| I would add State Endangered and State Threatened - these species have received additional scrutiny and have been determined to warrant special consideration. |
| Percent of Population/Range within the state, Population Trend, Dependent on Rare/Vulnerable Habitat, Climate Change Vulnerability |
| State listing |
| I would leave that up to the biologist that are ranking the species. They should not have to use categories if they don't want to. |
| difficult to assess if appropriate across a broad suite of species without specific examples. this assumes state codes are appropriately identified and reviewed as well as the other taxonomic rankings. many herp species are underserved and difficult to detect, making accurate ranking difficult. |
| n/a |
| I think you need to address the validity and accuracy of S and G-ranks before proposing they be used as the foundation of SGCN lists across the region. In Texas, we have already developed our updated SGCN criteria and while based largely on IUCN or NatureServe we had to admit that these ranks were inadequate across taxonomic groups and created large biases so we have committed to updating ranks as a condition of their inclusion as SGCN but that requires a commitment that ranks be updated which is a massive undertaking especially for groups as diverse as invertebrates and plants. Take a look at the underlying NatureServe data on bird ranks and you will see they are decades old and not the best tool for identifying conservation priority bird taxa. This is why many states used PIF species lists. However, when comparing un-assessed species like birds to assessed species you are then comparing two different standards and you cannot use a single set of criteria like NatureServe rank to do this across taxa. We went through this whole line of logic in Texas for the last year and a half in detail and the data is just not there to structure anything as is being proposed. Our marine and |

freshwater fish, mussels and plants however are in great shape to do this as they have committed a large volume of resources and time to develop species assessments.

It depends on what they are a priority for. Research, conservation action, etc. Some species are a lower priority but an excellent ambassador for habitat work and thus would be a high priority for action but a low priority for research. I don't know if it can be this simple.

**Q11 - Three states (AR, GA, and NC) have received a C-SWG grant to develop a database that may be used by SEAFWA states and territories in support of the upcoming SWAP revision. The database will include standardized data fields related to taxonomy, rarity, trends, threats and conservation actions and is scheduled for completion on or before October 1st, 2022. The goal of the database is to make it easier for technical team members to complete the species assessment and also to increase the use of consistent methods and terminology throughout the SEAFWA region. Do you have any general recommendations you would like us to consider when developing this database to make it more useful for you or your taxonomic team? For example, preferred software or functionality?**

| |
|---|
| Three states (AR, GA, and NC) have received a C-SWG grant to develop a database that may be used by SEAFWA states and territories in support of the upcoming SWAP revision. The database will include standardized data fields related to taxonomy, rarity, trends, threats and conservation actions and is scheduled for completion on or before October 1st, 2022. The goal of the database is to make it easier for technical team members to complete the species assessment and also to increase the use of consistent methods and terminology throughout the SEAFWA region. Do you have any general recommendations you would like us to consider when developing this database to make it more useful for you or your taxonomic team? For example, preferred software or functionality? |
| I would not try to include habitat information as a data field(s). The current Arkansas plan does this and I don't think it adds much value and requires a lot of judgement calls to be made about the use of various habitat types that we may not have the data required. |
| would prefer the output be available as an Excel spreadsheet |
| no |
| I have a conflict of interest in answering this question. |
| For plant taxa, standardize plant taxonomy to Weakley (2022 - which is being released in coming weeks), or Weakley (2020). Include key fields to other data sources including NatureServe and USDA-Plants. |
| It would be difficult to provide input without seeing all the data fields. It would be good to determine software use approved by IT within states to ensure all states have access. Also, it would be good to align fields and data in a way that they can be easily printed. Reviewing paper copy is still the preferred method by many people There is considerable published data that comprehension of printed material is much more accurate. |
| No. |
| - API for querying and accessing data from other web sources and desktop applications (e.g., R, R shiny, other web apps). Include WAP habitats and priorities linked to each species. - Robust crosswalk of species entity designations (e.g., ITIS for all species, avibase/AOU/eBird/Clements taxonomy for birds) |

| |
|---|
| Drop down menus to populate fields are useful. If possible, a spatial database may be useful. |
| Prompted walk-through for each use. Drop menus. Simplistic view and simple use. |
| Assuming this would be in table or spreadsheet form, something that is accessible for viewing, sorting, and downloading (e.g., AirTable) would work well. |
| user friendly |
| In the 2015 SWAP revision, maps were created to identify the state, age, and extent of survey activities and species presence for each of the mussel species under consideration. At the time, I was involved as an expert from another state on Georgia's SWAP revision, and we received these maps ahead of the process. It was incredibly helpful and I would recommend using this method again. |
| NCNHP houses plant and animal ranking data and element occurrence records in Biotics. It would be helpful if the SEAFWA database uses Biotics or if the field names and definitions are easily translatable to Biotics, to aid with consistently extracting and importing data between the two databases. NCNHP would be glad to consult on the development of the database; contact our data manager Meredith Wojcik. |
| online database that filters and sorts easily |
| MS Access or Excel |
| None |
| none at this time |
| No |
| Please include definitions for terms as appropriate, and consider that some users may not be biologists (although non-biologists who are users will still likely have a good understanding of conservation biology and ecology). |
| in addition to previous ranking fields from the previous questions, it'd be very beneficial to include various taxonomic indices as well, in order for states to map these fields back to our taxonomy codes. for example, Natureserve Element Global Tracking or Element Subnational Tracking ids for each state may be useful. |
| Software such as Excel that is familiar to most people involved in this process would be best if it can be adapted to this process. Stay away from complicated or highly specialized software that requires a lot of learning. |
| no |
| Hard to comment without knowing the details of how it was structured. Invertebrate data and taxonomy are really tough issues to tackle due to the volume of species. Rarity is often artificial based on sampling effort and we typically have very little data on trends. I think it would be amazing to have a database that could spit out assessments based on the major rank factors and data that was fed into it. Frankly, NatureServe should have developed a tool like this decades ago. This sounds like an amazing tool but without knowing more it is tough to make recommendations or recommend functionality. I think generally having a spatial database that uses ArcGIS online would be great as you can add in additional factors such as mapped threats to help make management decisions. Having the ability to feed data in bulk using Darwin Core data standards would also be awesome as Biotics cannot currently accommodate efficient bulk data entry. |

## Q12 - Please provide any other comments related to any of the questions above or the process of selecting and prioritizing SGCN in general.

| Please provide any other comments related to any of the questions above or the process of selecting and prioritizing SGCN in general. |
|---|
| I have completed this survey twice, but for different taxa groups (birds and amphibians/reptiles). I approached my answers differently each time because the ranking criteria apply a little differently to each taxon group. |
| none |
| Thanks. In case I already answered this survey, please use this version as my final response. Thank you! |
| For amphibians and reptiles there are few species that have a G1 or G2 global rank. There are many very rare herps with G3 or even G4 ranks. Although Granks are important, the scale for herps might be broad compared to some other taxa groups. Also, many Granks might need to be evaluated for herps. |
| We are currently discussing a replacement for our tiered ranking system and for the sake of consistancy across the region, are open to recommendations from AFWA/SEAFWA. |
| While many systems can get a close approximation of the appropriate conservation status of a species, review by species experts is required for appropriate adjustments. |
| Could you send out a draft of the database for comments to this survey groups? I feel like I will have suggestions on standardizing and fields to include, but it would be easier to give feedback on a draft. |
| With regard to the question concerning the the use of species status categories as a tool for prioritizing SGCN, I answered 'Yes', but would liked to have said 'Usually Yes'. Most cases are more or less unequivocal, but some are not. For example, species that are federally listed or have a 'Critically Endangered' IUCN status, but less severe state rank (S3). It seems logical to find a balance between the global/national and subnational/state status, but doing this objectively can be difficult. This becomes more problematic when species are data deficient to varying degrees - and at what point to you call them 'Data Deficient'? That is often not straight-forward, either. It is important for experts to have some flexibility to "adjust the priority level when justified", as stated above. |
| Earlier comments betrayed a reluctance to wholeheartedly embrace the rank calculator. The latter uses assumptions (for convenience, and in the absence of species specific data) about behavior of individuals within species of certain taxonomic groups which may be unwarranted, and which may be of significance in calculations of population size/extent, and in the potential for genetic interchange among populations. Numbers derived from calculations may confer a false sense of rigor. All of this has implications for population persistence and S-rank assessments. I am very wary of modeling based upon inadequately substantiated/reality grounded assumptions. |
| Thank you for the opportunity to include plants in this effort. |
| I feel that we don't look at global rankings as much but rely more on state rankings and sgcn. |
| I think that even though methods are not standardized across states, they use most of the same metrics regarding rarity, trends, threats, and conservation actions, which, in general, makes them comparable in general and qualitative terms. Quantitative comparisons are much more difficult but at the end of the day, implementation of conservation is as much art as science. |

Please use this survey in replacement of the one previously submitted.

Need to retain the ability for taxa experts to "override" the SGCN calculator if a species seems to fall through the cracks. In other words, need to retain the ability to use the experts that we convene for this effort.

I think state SGCNs should be heavily weighted on how the species is doing in that state compared to how much the species depends on that state. For example, Henslow's Sparrows are not doing well in NC with only one real breeding population, but Henslow's Sparrows don't depend on NC for their (breeding) existence, and we have no real evidence that they bred here historically (at least in significant numbers) so I would not rank them as high as a species that has low population numbers and has always depended on NC for their existence (i.e.: Wayne's Black-throated Green Warblers).

I believe that if a species is available for legal harvest, it should not be a SGCN. This should include species in all taxonomic groups, both terrestrial and aquatic.

Some criteria used to develop NatureServe categories tend to be poorly suited to birds and other animal groups.

As mentioned in my previous comments I think that using NatureServe S & G ranks is the ideal way to assess and prioritize species, especially S ranks relative to G ranks (e.g. Douglas Fir in Texas a G5S1 is probably a peripheral species artificially ranked as S1 based on limited state range but secure across it's larger range.) The S and G ranks alone only paint a part of the picture and should not be looked at separately. That being said most of the NatureServe ranks are not worth much. We dove really deep into the data in Texas and found that many species had a "rank" but no data to support the rank and often it was a best guess rank from NatureServe central 20 years ago when then provided starter species and ranks to emerging Heritage programs. In my opinion these should all be dumped and we should start from scratch using data to drive our rankings. S and G ranks need serious updating across taxa before they should be used to drive our prioritization. Without digging into these data most would never know this was the case. I would encourage you to look deeper at the validity of these ranks.

This seems like a strange goal. Why is consistency in prioritizing SGCNs important? For herps, very little coordination occurs across state lines because the populations exist at smaller spatial scales.

# Appendix 2: SGCN Supplemental Information for Respondents

Supplemental Information, SEAFWA SGCN Survey

- Please read through this before you complete the survey and have it handy while you are completing the survey. You don't necessarily need to visit any of the links, but they are provided in case you are not familiar with any of the categories of species described in the survey. Thank you!!!

1. Please click on the hyperlinks if you would like to learn more about the Potential SGCN categories of species. Links a, b, c, e, should allow you to query what species are included in these categories within your state, territory, or marine waters.
    a. Endangered and Threatened Species listed by USFWS and NOAA (coastal states only)
    b. Nature Serve G1-G2 Species
    c. Regional Species of Greatest Conservation Need
    d. State Listed Species
    e. State Rarity Rank S1-S2 species with G Rank of G3
    f. USFWS at-Risk Species (candidates, proposed and petitioned species). These species can be identified here: https://experience.arcgis.com/experience/c578e0f4d7ab48a7a9648abe76296ec4/page/Welcome/?org=fws&views=Data-Dictionary
    g. Partner's In Flight, Continental Concern Species* https://pif.birdconservancy.org/avian-conservation-assessment-database-scores/

    *Partner's in Flight categories were not included in the SGCN survey.

2. Click this link to learn more about the NatureServe Ranking Calculator , which automates the process of assigning conservation status ranks.

3. SGCN Prioritization Categories (Some details and links):

- One of the goals of the prioritization question is to determine if there is common "edge" among states that can be used to separate categories of species that are higher priority vs. lower priority SGCN or between species that are SGCN and species that are not SGCN. In completing this question, you are asked to help balance the trade-off between a very small SGCN list that focuses on only the most imperiled species (but misses some important taxa of conservation concern) and a very large SGCN list that is very inclusive but impractical.

- A plant RSGCN list is currently being developed and will likely include similar concern levels as the RSGCN animal list. If you are answering the prioritization question on behalf of your

plant technical team, please estimate how you would prioritize species based upon their regional (southeastern) conservation significance. This project is described here: http://www.se-pca.org/se-pca-launches-the-development-of-a-regional-species-of-greatest-conservation-need-rsgcn-list-for-plants/. If you want to review presentations about the project, please visit http://www.se-pca.org/meeting-9-january-10th-2022/

- Species that are Proposed Endangered or Proposed Threatened under the ESA would be treated as Endangered or Threatened Species in the prioritization.

- NatureServe Status Ranks are defined here: https://help.natureserve.org/biotics/content/record_management/Element_Files/Element_Tracking/ETRACK_Definitions_of_Heritage_Conservation_Status_Ranks.htm

  The ranks GU and SU indicate that the species cannot be assigned a rank due to limited information. The committee will recommend use of rounded ranks for prioritization (e.g a G2G3 species would be considered a G2 species for prioritization). The committee will recommend that SH and SX species be treated on a case by case basis. For example, an SH species might be treated like an S1 for prioritization if a survey is likely to rediscover it or as a data deficient species if there is a lot uncertainty on whether it still persists. An SX might be prioritized like an S1 if a reintroduction program is likely to be completed in the next 10 years.

- Learn more about IUCN Red List Categories. The categories referenced in the survey are defined below. You can also look at red list categories for individual species by typing in their name on this webpage. For the prioritization question, please consider IUCN categories evaluated at the Global Scope of Assessment.

CRITICALLY ENDANGERED (CR) A taxon is Critically Endangered when the best available evidence indicates that it is facing an extremely high risk of extinction in the wild.

ENDANGERED (EN) A taxon is Endangered when the best available evidence indicates that it is facing a very high risk of extinction in the wild.

VULNERABLE (VU) A taxon is Vulnerable when the best available evidence indicates that it is facing a high risk of extinction in the wild.