# Prioritizing Species for Conservation Planning

**Participants**
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**Aim of the working group**
To explore the need for, and potential solutions to, prioritizing species for conservation action planning, within the SSC and beyond.

**Introduction**
The intended focus of this workshop was the prioritization of species for conservation action planning. Resources are finite and so as the IUCN SSC CPSG moves forward with an expanded remit decisions will need to be made about which species are planned for, or which are planned for first.

**The workshop confined its attention to thinking about how we might prioritize species for entry into the planning process. It did not direct attention to other areas of prioritization, such as prioritizing actions or projects.**

A number of initiatives, including some led by IUCN member countries and non-government organizations, have considered the issue of species prioritization for conservation planning/attention and have developed their own approaches. A sample of them is described in Table 1. (circulated prior to the workshop).

In advance of the workshop, potential participants were invited to share prioritization needs and experiences via an on-line survey, to which 13 people responded. Responses are included within the body of this report.

**Presentation 1.**
To illustrate the value to institutions of transparent species prioritization systems, a presentation was given on ZSL's EDGE initiative, by Claudia Gray.

Claudia Gray, Zoological Society of London (ZSL) – Evolutionarily Distinct and Globally Endangered (EDGE)

- ZSL's EDGE score combines evolutionary value and global endangerment.
- ED – Evolutionary Distinctiveness is a measure of evolutionary value.
- GE – Global Endangerment measures urgency of action.

- ED scores so far completed for mammals, amphibians, birds, reptiles and corals.
- EDGE Fellows are supported by a grant to work on high priority EDGE species. Their work culminates in a "blueprint" for the conservation of their species.
- To date, there have been 63 EDGE Fellows in 36 countries. As a result of the work carried out, new species and new populations have been discovered, conservation strategies developed, legislation and protected areas developed, species have been down-listed on the IUCN Global Red List and innovative technology has been developed.
- Currently there are about 11 -12 fellows each year and it I hoped that this will increase to around 18.
- All EDGE fellows to date still work in conservation.
- The List of EDGE species is updated annually.

*[We had originally hoped to have the EDGE and AZE initiatives represented at the workshop but in the end this was not possible. We attempted to link via Skype to Claudia Gray (EDGE) and to Amy Upgren (AZE) to enable them to give presentations remotely. Claudia was able to give her presentation, however the deterioration of sound forced us to abandon attempts to hear from Amy. Both Claudia and Amy have generously made available their presentations to workshop participant:* ***Amy Upgren Alliance for Zero Extinction (AZE)*** *and* ***Claudia Gray Prioritizing species on the EDGE of Existence****]*

We can learn much from these and from other initiatives and experts consulted prior to the workshop. Of particular relevance in this context (and circulated in advance of the workshop):

1) There is no universally "right" outcome of species prioritization for conservation attention. Different prioritization goals and contexts will necessarily give rise to different priorities – that is, different priorities can be "right" for different circumstances.
2) Despite the necessary subjectivity embedded within specific prioritization schemes, it is possible to design systematic approaches that are transparent about where this subjectivity lies.
3) Those prioritizing species for conservation attention, though working in different contexts and towards different goals, will often cover some of the same ground and draw the same conclusions about what is important.
4) Where prioritization criteria require the *de novo* assembly or analysis of large amounts of data, the use of those criteria is likely to be limited to well-understood taxa.
5) Developing from scratch a prioritization scheme acceptable to a large group of stakeholders can take much time, energy and resources.
6) Prioritization schemes often pursue the following steps, either formally or informally, quantitatively or qualitatively:
   I. Agreeing what the aims of prioritization are – what do "we" want from the prioritization process?
   II. Agreeing what all the alternatives are that we can choose from (e.g. all the species in a zoo, TAG or Regional Zoo association; all of the species that fall under an SSC

Specialist Group; the species that occur in a country, or in a particular national park etc)

III. Evaluating which species, if successfully conserved, would bring most benefit to the conservation values of most interest to us – "why might it be more important to us to conserve this species instead of that one?"

IV. Evaluating which species are most likely to be conserved as a result of the planning (and subsequent action) that we might take (i.e. given our understanding of current circumstances for these species and of the resources that we are able to direct or influence, would focusing on this species be more likely to lead to success, than focusing on that one?)

V. Treating the resulting group or ranked list of species to shape it into the subset required (e.g. we might take from a ranked list the top 10 or top 100 species for further work; we might generate a taxonomic portfolio, by selecting not the top priorities but the top priorities among a number of taxonomic group etc).

**Potential tools**

The IUCN plays two major roles: one in bringing nations, NGOs and individuals together to discuss and reach agreement on conservation issues and the other in providing technical advice. Several IUCN SSC members and partners have already spent time and resources developing systems for prioritizing species (e.g. EDGE, AZE, AARK, ASAP), and the IUCN's Global Red List is one of the most commonly used tools for prioritization. In keeping with the IUCN's traditional roles, useful additions to this body of work are likely to be those that:

- Complement and do not duplicate existing work.
- Promote (and do not compete with) the species priorities already developed by members and partners (though they may also introduce new, relevant metrics).
- Appeal to a broad audience of users

Two possible "tools" that we had hoped to discuss during the workshop (but ran out of time…) are:

1) Written **IUCN Guidelines on Prioritization** – simple, well-described and exemplified principles and steps that would allow users to develop their own custom-built prioritization processes. Given the inherent similarities, this document could cover not only prioritizing species for entry into an action planning process but also the prioritization of actions, projects and so on.
2) An '**Expert Species Prioritization System',** capable of drawing on the data captured in other, existing systems (e.g. AArk CNA, ASAP, AZE, EDGE, MAPISCo) and able to be queried in a variety of ways. The system would enable users to select a group of species (e.g. all species within a Specialist Group, or within a Protected Area, or within a zoo) and score and filter them according to a user-selected subset of pre-developed criteria. So, for example, the tool might enable a user to extract a list of the species covered by an IUCN SSC Specialist Group and go on to identify which of these species is: identified

in the IUCN Global Red List as Critically Endangered or Endangered AND has a declining trend (also via the Red List) AND is restricted to a single site (from AZE) AND is highly evolutionarily distinct (from ZSL EDGE) AND…..etc.

Option 2 was discussed briefly prior to the workshop with representatives from Amphibian Ark's Conservation Needs Assessment (Kevin Johnson), Alliance for Zero Extinction (Amy Upgren), ZSL's EDGE initiative (Claudia Gray) and Species360 (Dalia Conde). All were positive about the general idea and contributed ideas and valuable information.

Dalia's knowledge and experience of data mining dramatically expanded the boundaries of the concept and confirmed its technical feasibility.

**Presentation 2.**

Dalia Conde, Species360 and Max Planck Institute.

- Data are key to the decision making process.
- Making a good decision is harder when there's more uncertainty.
- Data can help, by helping us to calculate the probabilities of alternative outcomes of certain decisions.
- Species360's ZIMS project is currently incorporating knowledge on species from a number of different data sources, and manages data contributed from the animal records keeping systems of over 1000 zoological institutions.

**Workshop discussions**

There was too little time and too many workshop participants for any real discussion of the tool ideas presented. Instead, the final 20 minutes of the workshop was spent gathering additional information to support post-conference discussions. Participants separated into two groups. Group 1 built on the list of potentially useful prioritization criteria and existing sources of data from which species-specific information on these might be drawn. Group 2 considered the pros and cons of existing prioritization tools, taking into account results of the pre-workshop survey on, "characteristics of a good prioritization tool".

***Group 1. Discussion around criteria***

*"Why might it be more important or more useful to plan conservation action for this species rather than for that one?"*

| Criteria (relating to potential conservation impact) | Potential data source | Notes |
|---|---|---|
| **Extinction risk** | IUCN Global or National Red Lists | |
| **Population trend** | IUCN Global or National Red Lists | |
| **Single site** | Alliance for Zero Extinction | Currently covers mammals, birds, amphibians, reptiles, conifers, and |

| | | |
|---|---|---|
| | | reef-building corals |
| **Evolutionarily Distinct** | EDGE database | Currently for Amphibians, Birds, Corals, Mammals & Reptiles |
| **Climate change vulnerable** | ? | |
| **Prioritized by AArk for specific types of conservation action** | AArk database | |
| **Prioritized by the Asian Species Action Partnership** | ASAP database | 174 Critically Endangered vertebrate species |
| **"Irreplaceability"** | Birdlife International | Birds only |
| **Keystone/Flagship/Umbrella species** | DICE Flagship analysis | |
| **Cultural emblems** | ? | |
| **Policy Targets** | Targets embedded in Conventions on Conservation of Biological Diversity, Migratory Species, CITES etc | |
| **Criteria (relating to feasibility, including uptake likelihood and likelihood of success following uptake)** | | |
| **Cost** | ? | |
| **Sufficient information (about the species and the threats to it)** | | |
| **Existence of a captive population** | Species360 (ZIMS) | |
| **Action-specific likelihood of success** | Sutherland's Conservation Evidence database | |
| **Existing capacity, logistics etc.** | ? | |
| **Corruption, political stability etc** | CIA World Factbook<br>Corruption Perceptions Index (Transparency International) | |
| **Social/political likelihood of uptake** | ? | |
| **Economic value** | ? | |
| **Popularity (as an enabler)** | ? | |
| **Current opportunity or interest** | ? | |
| **Jurisdiction or responsibility** | ? | |

### *Group 2. Discussion around tools*

Below are the pre-workshop survey responses to the question, "In your view, what would the strengths be, of a good system for prioritizing species for conservation attention?" These qualities were made available to Group 2 as a basis for discussion.

- Has potential to service many different types of query, to differentiate the score (to avoid the problem of many species achieving similar scores).
- Underlying values are made explicit and all assumptions are transparent.
- Simple and quick first pass that allows more time to be focused on those taxa requiring it.
- Provides an objective assessment that reflects the needs of the species and allows us to prioritize our resources optimally.

- Allows for evaluating of lesser known species for conservation support (e.g. those not yet assessed through the IUCN Global Red List).
- Easy to access and use, transparent, a good mechanism for resolving differences of opinion, logical, easy to understand.
- Supports sharing and collaboration so that teams can learn from each other, leverage existing prioritization decisions, lessons learned, mistakes, etc.
- Comprehensive coverage – i.e. included all parties (IUCN Specialist Groups, *ex situ*, *in situ*).

Group 2 discussed the various species prioritization tools available and in use. The benefits of these tools were considered to be their transparency and credibility, while their taxonomic limitations currently reduce utility.

**Next steps**
The following group of participants kindly agreed to participate in further discussions:

Anne Baker, Taylor Callicrate, Joel Callicrate, Dalia Conde, Karen Dixon, Mike Jordan, Tara Martin, Phil McGowan, Kirsten Pullen.

**Action:** Caroline Lees to speak with Dalia Conde in the first instance, to discuss possible synergies with the Data Hub, and then to communicate with the wider group to develop a sensible way forward.

**Table 1. Example schemes for prioritizing species for conservation attention**

*Note that all of the schemes exemplified here use the IUCN Red List or equivalent as a criterion, which automatically excludes the many species not yet assessed.*

| Overarching goal | List of alternatives | Criteria for selection/scoring | Resulting priorities |
|---|---|---|---|
| **Initiative: Alliance for Zero Extinction (AZE) (88 NGOs. National Alliances now also exist.) See http://www.zeroextinction.org** | | | |
| **To defend against the most predictable species losses.** | All species for which endangerment and distribution are known. | Endangered or Critically Endangered (IUCN) AND restricted to a single remaining site | 920 species prioritised to date - mammals, birds, amphibians, reptiles, conifers, and reef-building corals. |
| **Asian Species Action Partnership (ASAP) http://www.speciesonthebrink.org/** | | | |
| **Reversing declines in the wild of Asian species on the brink of extinction.** | Southeast Asian species | Critically Endangered, freshwater and terrestrial vertebrates, occurring regularly in Southeast Asia | 174 species |
| **Initiative: Evolutionarily Distinct and Globally Endangered (EDGE) (Zoological Society of London) (see Isaac et al., 2007)** | | | |
| **To maximise conservation of phylogenetic diversity.** | All species for which phylogenetic uniqueness has been assessed: mammals, amphibians, corals reptiles and birds. | Score = Evolutionary Distinctiveness (ED) X Global Endangerment (IUCN).<br><br>EDGE species have a greater than average score (Isaac et al., 2007) | Portfolio approach includes the top 100 scoring species in each of the major taxonomic groups considered |
| **Initiative: Method for the Assessment of Priorities for International Species Conservation (MAPISCo)** | | | |
| **To identify species for which targeted conservation action would have the broadest co-benefits for other species, habitats, wider ecosystems, and ecosystem services.** | Species in the IUCN Red List database for which sufficient data exist to allow assessment against the criteria (?). | Ability to contribute to: (1) habitat and area conservation (2) sustainable harvesting of fish, invertebrates and aquatic plants, (3) conservation of genetic diversity of wild relatives of cultivated plants and domesticated animals, (4) protection of the provisioning of ecosystem services (5) the prevention of species extinctions. | ? |
| **Initiative: National prioritisation scheme for conservation action planning (New Zealand Dept. of Conservation) (NZ DOC) (see Joseph et al., 2009)** | | | |
| **To optimise allocation of conservation planning resources** | All species native to New Zealand. | Assessed (using NZ RL-equivalent) as | ≈700 species prioritised for |

| **Overarching goal** | List of alternatives | Criteria for selection/scoring | **Resulting priorities** |
|---|---|---|---|
| **towards the goal of ensuring the persistence of all New Zealand species somewhere.** | | conservation dependent OR as threatened and declining, with threats understood and conservation action considered feasible. | management planning out of ≈10,000 assessed. |