

CHAPTER 6

The Orange List: a safety net for biodiversity in South Africa

J.E. Victor* & M. Keith

Threatened Species Programme, National Botanical Institute, Pretoria 0001, South Africa.

**Author for correspondence. E-mail: victor@nbi.ac.za*

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Abstract

We introduce the concept of an Orange List as a way of assessing and recording the conservation importance of rare and special concern taxa that are not on the Red List. We highlight the necessity for additional recognition of taxa at risk of becoming threatened, including organisms that are Near Threatened, Data Deficient, Rare or Declining but do not meet the IUCN criteria for Red List categories. The Orange List will comprise taxa that require anticipatory conservation planning endeavours, to prevent future Red Listing. We propose a systematic method for assessing rarity of plant taxa that should be listed on the Orange Lists. The Orange List therefore aims to be used in addition to the Red List to highlight additional taxa of special concern that should be conserved to pre-empt the possibility of such species becoming threatened in the future.

Introduction

In 1996, Hilton-Taylor's publication of the Red Data List of southern African plants provided the most widely used and comprehensive list of threatened plants and their threat status to date.^{1,2,3} This compilation used subjective criteria that had been in place for more than 20 years.^{1,2,3,4,5} The Species Survival Commission (SSC) developed a new objective approach for determining the status of threatened taxa which was formally adopted by the World Conservation Union (IUCN) Council in 1994^{6,7,8} and the revised version 3.1 was adopted in 2001.⁹ The main change that came about with the introduction of this new system was the improved objectivity, and resulted in exclusion of many taxa formerly included in the Rare category, so that only extremely rare taxa that have a potential threat of becoming extinct now qualify for a category of threat.

Red lists are usually the only tools available for use by conservationists that are based on substantial sound ecological knowledge.^{10, 11} In many cases, the Red Lists are regarded as an easy to use conservation priority list or as a benchmark to influence Environmental Impact Assessments (EIAs) or resource allocation for conservation of certain taxa.^{11, 12} It is generally accepted that if a taxon is on the Red List, it will (or should) be a conservation priority. Likewise the assumption follows that if a taxon does not qualify for Red Listing, it will be dismissed and therefore would not be subjected to conservation efforts. Some taxa listed as Least Concern (LC) are extremely rare but are not declining or facing possible future decline, and therefore do not meet the criteria for a category of threat in the Red Listing process. A frequent response to the LC listing such rare species are awarded, is scepticism as to the value of the Red Listing process. However the Red List is not intended as the sole means with which to set conservation priorities,^{6,9,10,11} therefore the implication of listing rare taxa as "Least Concern" should not be to create the impression that these taxa are not worthy of consideration for conservation. There is currently no method in place for assessing and recording the conservation importance of rare and special concern taxa that are not on the Red List. For this reason the IUCN system could be, and often is, misused through incorrect interpretation (deliberate or subconscious) of the IUCN criteria or data to ensure that rare and other taxa of special concern are afforded protection through having Red List status.

To improve the information provided for end-users such as conservationists or EIA consultants, an additional step taken by Victor & Dold¹³ in providing a Red List for the Albany Centre of Endemism, was to provide an indication of rarity for taxa listed as LC. These are the taxa that do not qualify for a

category of threat but are in essence Rare, either small stable populations, or sparsely distributed severely fragmented populations of a taxon. The aim of doing this was to highlight additional taxa that should be considered for conservation protection over and above those that are threatened according to the IUCN.

The IUCN system for assessing extinction risk has a more narrow focus than the pre-1994 system, in being concerned only with taxa facing immediate risk of extinction. This has resulted in eliminating the Rare category and numerous taxa on the Red List with it. The concept of the “Rare” category defined by Davis et al.¹⁴ and as used by Hilton-Taylor^{1,2,3} is therefore now upheld and quantified. These Rare taxa, along with any other taxa for which there is some concern (e.g. due to medicinal harvesting, horticultural interest) will form the basis of the Orange List. We are not attempting to prioritise or rank taxa in order of importance for conservation purposes, but rather to provide a complete list of all taxa that should be afforded a measure of protection according to the Biodiversity Act.¹⁵ Because of their rarity, decline in population numbers of Orange List taxa could result in the criteria for a category of threat to be met. The Orange List will therefore be a list of taxa that need to be protected and sometimes monitored.

Procedure

The Orange List for plants is currently proposed to consist of four categories, but this can be expanded or modified as more insight is gained into its use and effectiveness. These Orange List categories are defined as follows:

1. Near Threatened

A taxon is Near Threatened when it has been evaluated against the IUCN criteria for threat but does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future.⁹

2. Data Deficient

A taxon is Data Deficient when there is inadequate information to make an assessment of its risk of extinction based on its distribution and/or population status.⁹ This category is not a category of threat but acknowledges the possibility that future research will show that threatened classification is appropriate.

3. Rare

Various methods of assessing rarity have been proposed, the most notable being that of Rabinowitz¹⁶ in which she proposed seven forms of rarity based on abundance and size of distribution area. These principles have been indirectly incorporated into the IUCN system⁹ by way of specifying maximum values in measurement of extent of occurrence (total distribution area of the population), area of occupancy (total area occupied by each separate subpopulation of a taxon added together), number of locations and number of mature individuals. These quantifiable limits indirectly conform to the principles of analysing rarity but in the IUCN system they are used in conjunction with rates of decline to measure extinction probability. The criteria as set out by the IUCN,⁹ have been applied across a large range of taxonomic groups,⁹ and have been shown to be suitable and adequate, capturing pertinent information for assessment of extinction risk. Here we propose the use the same quantified values as used in the IUCN system, as an indication of rarity, including the additional factor of relative abundance (as indicated by fragmentation) to capture sparsely distributed taxa. This technique combines assessment of rarity (in terms of quantitatively delimiting critical cut-off levels for distribution area and/or population size) with rates of decline.

Three categories of rarity, with criteria based on IUCN version 3.1,⁹ are proposed as follows:

Rare—Critically (RC): A taxon is critically rare (RC) when it has an extremely small world population, typically with an area of occupancy of $< 10 \text{ km}^2$ or an extent of occurrence of $< 100 \text{ km}^2$, and known from only one location or is severely fragmented.

Rare (R): A taxon is rare (R) when it has a small world population, typically with an area of occupancy of $< 500 \text{ km}^2$ or an extent of occurrence of $< 5\,000 \text{ km}^2$, and known from no more than five locations or is severely fragmented.

Rare—Sparse (RS): A taxon is rare in terms of its sparse distribution when it is severely fragmented or is known from < 10 locations in an area of occupancy of $< 20\,000 \text{ km}^2$ or an extent of occurrence of $< 20\,000 \text{ km}^2$.

Definitions used are adapted from IUCN,⁹ as follows:

Area of occupancy: the area occupied by the taxon within the total distributional area, taking into consideration the fact that the taxon will not occupy all the area throughout its distribution range.

Extent of occurrence: total distributional area in which the taxon occurs.

Location: Geographically or ecologically distinct area in which a single threatening event could affect all individuals of the taxon present.

Severely fragmented: most individuals are found in small isolated subpopulations or are solitary. As a guideline for the Rare-Sparse category, no subpopulation should contain more than 50 individuals.

4. Declining taxa

Plant or animal taxa that are not on the Red List and are declining, will be listed on the Orange List. This will enable all taxa that do not meet the IUCN requirements (because of having large population numbers or distributional areas) to be listed and monitored until such time that the levels fall below a critical point (defined by the IUCN criteria) that would then result in being listed on the Red List. Plant taxa sought after for horticultural purposes, such as some widespread *Lithops* species, are an example; as well as many insect species are captured and sold commercially (e.g. *Colophon izardi*) and various mammals that are declining for various reasons. The African Wild Cat (*Felis sylvestris*) is declining through its hybridisation with the domestic house cat (*Felis catus*), but since it has a very large extent of occurrence, it does not meet the criteria for listing as threatened according to the IUCN; however its decline would warrant it being listed on the Orange List.

Discussion

The Orange List is an effective way of dealing with many taxa that would have formerly been included as R (Rare), K (Insufficiently Known) and I (Indeterminate) according to the pre-1994 system of determining threat status and are now excluded from the Red List. The intention of proposing the Orange List is not to solve the problems of priority setting for conservation purposes, or to replace the function of the Red List. This is a proposal to provide lists from which conservationists and decision makers can prioritise what to conserve according to all factors that need to be considered e.g. financial feasibility, practicality, urgency.^{4,6,17} In some ways the Orange List proposed here is similar to the “amber list” concept proposed by Avery et al.¹⁸ for birds, however it differs in that the intention here is not priority setting.

The Red List is often relied upon by consultants doing surveys for threatened taxa for Environmental Impact Assessments (EIAs) or scoping reports.¹² However the impacts of developments on rare taxa or other taxa of special concern are also (or should also be) considered, and the Orange List will facilitate this process by guiding the taxa that also need to be considered. This is unlikely to

increase the numbers of taxa taken into consideration significantly because the new IUCN system for determining threat status is currently resulting in the exclusion of numerous taxa that were previously included, and the Orange List will be comprise mostly these taxa.

It is recommended that, should subpopulations of Orange List taxa particularly those in the Rare and Near Threatened categories be encountered during the EIA process, the burden of proof should be placed upon the developer/consultant¹⁹ to provide proof that the impact of the development on the subpopulation(s) does not effect the total population. This information should then be used to re-evaluate the taxon to assess whether the impact would cause the taxon to qualify for a Red List category. If such an impact would change the status of the taxon then mitigation measures or conservation efforts should be put into place. If not, no mitigation measures would be necessary.

A further recommendation is that if a Data Deficient taxon is encountered by consultants during the EIA process, the Threatened Species Programme should be contacted so that a proper assessment can be made.

Conclusions

The Threatened Species Programme intends to compile an Orange List for South Africa and invites commentary on the proposed methodology. We hope that in this way we will achieve our aims of providing guidance regarding taxa in need of conservation, as well as facilitating the work of all end users of conservation related information. We believe that the Orange List can provide a valuable system in which we can protect South Africa's heritage of a rich biodiversity.

Amendment to Victor & Keith 2004

A preliminary list of potential Orange List taxa has been drawn up (Appendix 3). Relevant information were extracted from the South African Red List for mammals²⁰, to identify taxa that could be possibly listed according to the Orange List criteria and categories set out by the current work. Although being a preliminary list, all regionally IUCN Near Threatened (38) and Data Deficient (53) taxa automatically qualified to be Orange Listed (see Appendix 1 for NT and DD listed taxa). Taxa listed as LC by Friedmann & Daily²⁰ were scrutinised for possible inclusion onto the Orange List, under either the Rare or Declining categories, highlighting 42 of the 147 LC assessed taxa. Information from the Red List assessments, all pointed to these taxa undergoing some and varying levels of decline

in either population numbers or suitable habitat. Most of the taxa were however placed into the LC categories, but noting that many of them are undergoing “unknown levels of decline” and often based on inference²⁰. The current list needs to be verified by experts, and is therefore only preliminary. Three potential Orange List taxa previously identified as Rare by the previous Red Data Book²¹, were the African weasel, *Poecilogale albinucha* and red duiker, *Cephalophus natalensis* and the hippopotamus *Hippopotamus amphibious*. Various LC taxa were placed on the Orange List, as they were known to be “scarce” and to have very restricted area of occupancy, yet were allegedly stable within this area (e.g. Woosnam's desert rat, *Zelotomys woosnami*).

However compiling the preliminary Orange List for mammals, the process was hampered by incomplete and limited information, to extract even relevant Orange List assessments. A more detailed analysis of the implications of the Orange List assessments for South African mammals will be undertaken once the preliminary list has been verified. This will allow for more informative conservation strategies to assist in effective mammal conservation. We hope that in this way we will achieve our aims of providing direction regarding mammal taxa in need of conservation.

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