

South Africa



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Introduction

To date, 3,268 species have been recorded as “threatened with extinction” in South Africa (Hilton-Taylor 1996a). This new Red Data List (RDL) is an attempt to provide updated assessments according to the 1994 IUCN system as a starting point from which progress can be made. It is important to realise that the list presented here is preliminary and can therefore only be used in conjunction with Hilton-Taylor (1996a, b, 1997) and should not be seen as a replacement. Only 949 (about 25%) of the taxa listed by Hilton-Taylor (1996a, b, 1997) have so far been updated. Where possible, whole families were completed, but in four cases (Aizoaceae, Apocynaceae, Aloaceae, and Asteraceae), only parts of the families are complete. Genera within these four families are, however, complete.

Since the main contributors to the RDL were systematists with research knowledge of their particular taxonomic groups, a taxonomic, rather than geographic, approach was adopted for the compilation of the RDL. Although it is incomplete, I hope that this RDL will show clear trends that will be similar to the final, complete RDL.

The *Red Data List of southern African plants* (Hilton-Taylor 1996a, b, 1997) lists provincial assessments (Cape, Orange Free State, Natal and Transvaal) for each geopolitical area, along with national and global RDL assessments. The assessments in this new list are at the national level, but are obviously also global assessments where taxa are endemic to South Africa. Provincial assessments are not provided in this account of the South African RDL, because of the artificial nature of demarcating natural areas according to political boundaries.

Methods

The approach taken towards producing a new RDL for South Africa within a limited

period was to elicit co-operation from as many people as possible. National workshops were held to give potential collaborators an overview of the methodology of the IUCN (1994) system of assessing conservation status. The anticipated outcome of these workshops was to equip people with the knowledge required to provide useful information for the RDL. After these training workshops, I undertook follow-up visits with individual collaborators so that the information could be consolidated.

The following procedures were conducted for each taxonomic group:

- The names of the taxa already assessed in each taxonomic group included in this list were obtained from the SARARES database, an electronic version of Hilton-Taylor (1996a, b, 1997). This database is a compilation of plant species on the RDL, their assessments and accompanying notes, and is available on the SABO-NET website (<http://www.sabonet.org/reddatalist/database.html>).
- Nomenclatural updates were made. The most up-to-date scientifically correct names were provided by each specialist according to the latest revisions. These names match those used in the PRECIS database at the National Herbarium, Pretoria (PRE).
- Label information of all plant species collected in South Africa that are housed in PRE and stored in PRECIS provided distribution information to supplement data used in the assessments.
- Distributions were updated according to the new provincial boundaries.
- Additions (new or previously overlooked taxa) were incorporated.

Results and Discussion

A total of 948 taxa were assessed, of which 414 are threatened with extinction (Table 1). Most species fall into the *Vulnerable* (VU) category; some 270 of these (81%)

Capital: Pretoria (administrative capital), Cape Town (legislative capital)

Area: 1,220,088 km²

Languages: English, Xhosa, Zulu, Afrikaans, Ndebele, North Sotho, Sesotho, Swazi, Tsonga, Tswana, Venda (all official)

Currency: Rand

Total plant species: 23,420

Total plant endemics: no available information

Total RDL plants: 948

Focal RDL institutions: PRE

Number of Protected Areas: 18 National Parks, including two Transfrontier Parks (Lesotho–South Africa and Mozambique–South Africa–Zimbabwe), numerous other protected areas, and several proposed protected areas (including Transfrontier Parks).

Population: 42,106,200 **Growth Rate:** 1.7% **Density:** 33.3 people/km²

Phytogeography: Cape in the south and southwest, Karoo–Namib in the west, Kalahari–Highveld Regional Transitional Zone in the centre, Zambeian elements in the north and east, Afromontane patches scattered in enclaves, and Tonga–Pondoland Regional Mosaic along the eastern coast.

Flora: Fynbos and its variants in the southwest, arid (Succulent Karoo) and semi-arid karoo shrubland and grassy shrubland in northern and central Cape, highveld grassland over much of the central plateau, open savanna woodland on the eastern plateau, montane forest and grasslands in enclaves, savanna and low-lying forest on the east coast.

Sources: Anonymous 2000, Cowling & Hilton-Taylor 1994, Low & Rebelo 1998

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are classified according to the D2 criterion, based on a narrow distribution area. Many species known only from their type localities—some of which may not even be taxonomically valid—fall into this category. It is expected that the number of species classified in this category will be reduced as future taxonomic work clarifies uncertainty or additional populations of rare species are discovered. *Data Deficient* (DD) listings are almost always due to taxonomic uncertainty.

Comparison of the RDL Assessments

As the new IUCN system is designed to target species that are going extinct rather than simply rare, many species previously listed as *Rare* (R) or *Insufficiently Known* (K) (Hilton-Taylor 1996a, b, 1997) are now listed as *Lower Risk* or VU D. The old R and K categories were applied to taxa with narrow distribution ranges and when populations were not known to be in decline or increasing; on the other hand, in this RDL compilation, only exceptionally narrowly restricted taxa qualify (and only as VU D) if the populations are stable, otherwise the *Lower-Risk* category applies.

Another important comparison is that taxa previously assessed as *Endangered* (E) have often been re-assessed as CR or EN, and those previously assigned as V are now usually EN or VU. Taxa previously listed as I have often been re-assessed as VU. The few *Critically Endangered* assessments are usually due to a continuing decline coupled with an extremely small distribution area.

Trends

The most commonly used criteria for assessing plant taxa are the B and D criteria, since these are based on size of distribution range rather than population num-

bers, the latter being very difficult to estimate for plants. Criterion D was used in cases where no decline was known; Criterion B was usually used in cases where an ongoing decline was suspected.

For each family assessed so far, there are fewer DDs than there were of the equivalent K and I categories in Hilton-Taylor's work. For example, in the Rutaceae there are now ten taxa listed as DD, whereas in Hilton-Taylor (1996a) seven taxa were listed as K and seven as I; this is because the IUCN (1994) system forces one to make a decision based on a minimum amount of available data. Estimating the exact extent of distribution has been problematic for the compilation of this RDL and thus, when no reasonable estimate could be made, the distribution was taken as the maximum area the species could reasonably inhabit. Then, if there was any reason to suspect a continuing decline to the population, Criterion B was applied.

Threatening Processes

So far, the major threats to the survival of the threatened species in South Africa appear to be agricultural activities that have historically done the most damage (in the grassland and lowland fynbos biomes), and at present, ongoing urbanisation. Whereas agricultural threats now operate on a much smaller scale than before, as most arable land is already transformed, harvesting of medicinal plants is on the increase because of greater accessibility (better roads and transport), growing population, and increase in economic potential. However, the effects of harvesting for medicinal purposes operate on a smaller scale and are often (but not always) targeted towards more common species. Very few medicinal plants have been assessed in this RDL compilation, and once this has been done, one

would be able to more fully interpret the effects of harvesting.

Illegal collecting for commercial trade is targeted towards specific taxonomic groups. It is still the main threat faced by sought-after groups such as cycads and many succulent groups, but fortunately, other taxa such as aloes are in reprieve.

Conclusion

This RDL is far from complete and ongoing collaboration with specialists in a wide variety of fields is necessary to fill the present voids. Systematic researchers have proven to be very knowledgeable and have contributed greatly towards the first phase of the new RDL, but more co-operation from specialists with regional knowledge (conservationists, ecologists, and so forth) and knowledge in other disciplines (ethnobotany) is required to ensure the compilation of a comprehensive RDL.

Constant updating of information is necessary, requiring continual communication with the experts. Co-operation and communication are therefore vital for the success of the RDL, and to ensure the survival of South Africa's threatened plants.

Citation Taxonomic groups in the following list were assessed by the specialists who are currently most actively involved in researching or curating each group. When citing information pertaining to assessments of a particular family, the citation should list the family author in addition to J.E Victor, for example, for the Cyperaceae, the correct citation is Archer, C. & Victor, J.E. 2002. Cyperaceae. In: J.S. Golding (ed.), Southern African Plant Red Data Lists. SABONET Report No 14: 100. C. Archer (Cyperaceae), J. Beyers (Thymelaeaceae), C.L. Bredenkamp (Thymelaeaceae), N. Govender (Gentianaceae), S.A. Hammer (Aizoaceae *pro parte*), P.P.J. Herman (Asteraaceae *pro parte*), H. Kurzweil (Orchidaceae), B. Liltved (Orchidaceae), R. Peckover (Apocynaceae *pro parte*), P.B. Phillipson (Lobeliaceae), G.F. Smith (Aloaceae *pro parte*), Y. Singh (Apocynaceae *pro parte*), D. Snijman (Amaryllidaceae and Hypoxidaceae), T. Trinder-Smith (Rutaceae), H.J.T. Venter (Apocynaceae *pro parte*), W.G. Welman (Campanulaceae, Convolvulaceae, Cucurbitaceae, Dipsacaceae and Solanaceae), and C. Whitehouse (Rosaceae).

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Table 1. Number of taxa in each RDL category in South Africa.

RDL status	Number of taxa
Extinct (EX)	15
Critically Endangered (CR)	19
Endangered (EN)	58
Vulnerable (VU)	322
Lower-Risk near threatened (LR-nt)	92
Lower-Risk least concern (LR-lc)	334
Data Deficient (DD)	108
Total	948



***Serruria aemula*, found growing on acid sands in fynbos, is categorised as *Endangered*. (Hilton-Taylor, 1996a) (Photo J.S. Golding)**