



The Red List of South African plants – A global first

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The *Red List of South African plants* published in 2010, the International Year of Biodiversity, assessed for the first time the conservation status of all 20 456 of South Africa's described indigenous plant taxa. This assessment, led by the South African National Biodiversity Institute in partnership with a range of organisations and experts, uses the International Union for the Conservation of Nature's (IUCN) Red List 3.1 system,¹ which provides internationally endorsed scientific criteria for assessing the risk of extinction to species.

This endeavor is a significant contribution to biodiversity conservation – both nationally and internationally – as it is the first time that any of the world's mega-diverse countries (those that collectively house 70% of the world's biodiversity) has fully assessed the status of its entire flora. The assessment is of global significance as it includes 13 265 endemic taxa (taxa that occur only in South Africa). The assessment of endemic taxa has been submitted to the IUCN Red List programme. They are currently being processed and once included should double the number of plants on the IUCN Global Red List.

South Africa is a signatory to the Convention on Biological Diversity. In 2002 the Parties to the Convention adopted a Global Strategy for Plant Conservation (GSPC), a framework guiding conservation action with the objective of halting the continuing loss of plant diversity. The GSPC contains 16 specific outcome-oriented targets. In producing the *Red List of South African plants*, South Africa has become one of the few countries to meet Target 2, 'an assessment of the conservation status of all known plant species, to guide conservation action'.

What sets this Red List apart from previous Red Lists?

Previous plant Red Lists comprised just lists of taxa together with their IUCN Red List status. This publication differs in that explanations of why a specific taxon has been listed as of conservation concern – taxa that qualify as threatened, near threatened or data deficient against the IUCN criteria and those that are recognised as rare based on criteria developed for the South African conservation context – are included. The publication includes over 5000 detailed accounts of South Africa's plant taxa that fall into this category. Such detail lends a high level of transparency to the listing process and means that biologists are able to evaluate the accuracy of assessments based on their own experience of a particular taxon. In cases where users are aware of additional information that would change the status of a taxon, they are able to send this information to the Threatened Species Programme at the South African National Biodiversity Institute, to include in annual updates online. This process will ensure that the plant Red List from now on remains up to date, and accurately reflects the current conservation status of South Africa's plants.

Also a first for plant Red List publications is the inclusion of quantitative analyses of the threats impacting South African plants. These analyses were done at national, biome and provincial levels; and allow conservation authorities to identify the main causes of loss to plant diversity within their areas of jurisdiction. At a national level, the analyses show clearly that loss of natural habitat (as a result of cultivation, urban development and mining) is the biggest threat impacting plants.

A chapter on the applications of the Red List for conservation practitioners is also novel and provides recommendations on how the Red List of South African plants should be used in spatial biodiversity planning (also known as conservation planning), to contribute to the identification of geographic priority areas for biodiversity conservation. Also important are potential uses in environmental impact assessments, to inform decision-making about development applications. In addition, concentrations of threatened plants are an important criterion for identifying threatened ecosystems in the listing of threatened ecosystems in terms of the National Environmental Management: Biodiversity Act (Act 10 of 2004).

Other potential applications are to inform prioritisation of sites for Biodiversity Stewardship Programmes to expand protected areas, to contribute to global indicators of biodiversity health including the Convention on Biological Diversity indicators and to monitor trends in species status as part of reporting both on national biodiversity and the state of the environment.



Siphonochilus aethiopicus wild ginger, a Critically Endangered medicinal plant. Copyright Colin Paterson-Jones.

The chapter on applications also explores the relationship of the Red List to other international, national and provincial species lists included in legislation to protect plant species. This analysis has already proved useful and is currently being used to help South Africa review and amend the national list of threatened or protected species published in terms of the Biodiversity Act, as well as lists of threatened species published in terms of provincial conservation ordinances.

While conducting assessments of all of South Africa's plant taxa, many individual taxa and taxonomic groups were encountered that could not be adequately assessed because of lack of data. The publication therefore concludes with a section that identifies the priorities for systematic and ecological research required to support ongoing Red List assessment work for plants.

The history of plant Red Lists in South Africa

South Africa has a strong history of conducting Red Lists, with three previous plant assessments: Hall et al.² assessed 1893 taxa in 1980, Hilton-Taylor^{3,4,5} assessed 3916 taxa in 1997 and Golding⁶ assessed 948 taxa in 2002. Despite including only a small proportion of the flora these publications laid an important foundation for the current plant Red List. Over the 30 years since the first Southern African plant Red List was published in 1980, the IUCN Red List system has been repeatedly refined in terms of improving objective categorisation of taxa. Quantitative criteria, first introduced in 1994 (IUCN 1994), have increased the need for data to

support and justify assessments. All four plant Red Lists produced in South Africa have used different IUCN Red List categories and criteria, and increasing amounts of supporting documentation have been included. Early lists relied almost completely on expert input. While the current list was produced with extensive inputs from 200 botanists – professional and amateur – it was also based on comprehensive electronic datasets of plant specimens and spatial land cover.

These differences in assessment methodologies make comparisons between the lists challenging. Because of the significant changes in the IUCN Red List system, lists are compared not by determining movement of taxa between individual categories within the different systems but by the movement between broadly defined conceptual categories including extinct, threatened, insufficient information, and rare. As the list produced by Hilton-Taylor^{3,4,5} represents the most comprehensive of the previous lists, the current Red List is compared to Hilton-Taylor's assessment.

How has the status of plant species changed?

There was a 254% increase in the number of threatened taxa listed between 1997 and 2009. This increase is the result of 1092 threatened taxa being listed for the first time; and 909 taxa moving from unthreatened categories (insufficient information, rare and not threatened) to threatened categories.

Overall, 2577 (13%) of South Africa's plant taxa are threatened with extinction. A further 2232 (11%) are listed under other categories of conservation concern. Combining the number of threatened taxa with those listed under other categories of conservation concern brings the proportion of the South African flora that we urgently need to conserve to 24%, or one in every four species. The work for plant conservation has only just begun.

Where can you find the Red List?

The publication is available at the Pretoria National Botanical Garden and the Kirstenbosch Botanical Garden's bookshop. Copies can be ordered online from www.sanbi.org.za. Introductory analyses chapters are also available in pdf format from this website.

References

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