
GOVERNMENT NOTICE

DEPARTMENT OF ENVIRONMENTAL AFFAIRS

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NATIONAL ENVIRONMENTAL MANAGEMENT: BIODIVERSITY ACT, 2004 (ACT NO. 10 OF 2004)

NATIONAL LIST OF ECOSYSTEMS THAT ARE THREATENED AND IN NEED OF PROTECTION

I, Bomo Edith Edna Molewa, Minister of Water and Environmental Affairs, hereby publish, in terms of section 52(1)(a) of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004), a national list of ecosystems that are threatened and in need of protection, in the Schedule hereto.



BOMO EDITH EDNA MOLEWA
MINISTER OF WATER AND ENVIRONMENTAL AFFAIRS

SCHEDULE

Threatened Terrestrial Ecosystems in South Africa

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Acronyms

BGIS	Biodiversity GIS (http://bgis.sanbi.org)
BMP-E	Biodiversity management plans for ecosystems
BMP-S	Biodiversity management plans for species
CR	Critically endangered
DAFF	Department of Agriculture, Forestry and Fisheries
DEA	Department of Environmental Affairs
DWA	Department of Water Affairs
DWAF	Department of Water Affairs and Forestry
EIA	Environmental Impact Assessment
EIP	Environmental Implementation Plan
EMF	Environmental Management Framework
EMP	Environmental Management Plan
EN	Endangered
IDP	Integrated Development Plan
IUCN	International Union for Conservation of Nature
NBA	National Biodiversity Assessment
NEMA	National Environmental Management Act
NLC	National Land Cover
NSBA	National Spatial Biodiversity Assessment
SANBI	South African National Biodiversity Institute
SDF	Spatial Development Framework
SEA	Strategic Environmental Assessment
TOPS	Threatened or Protected Species
VU	Vulnerable

Executive Summary

This document contains the first national list of threatened terrestrial ecosystems and provides supporting information to accompany the list, including the purpose and rationale for listing ecosystems, the criteria used to identify listed ecosystems, the implications of listing ecosystems, and summary statistics and national maps of listed terrestrial ecosystems. It also includes individual maps and detailed information for each listed ecosystem. **This document, together with spatial data for listed ecosystems, can be accessed on SANBI's Biodiversity GIS (BGIS) website (<http://bgis.sanbi.org>).**

References are not provided in this executive summary, but can be found in footnotes in the main document.

The National Environmental Management: Biodiversity Act (Act 10 of 2004) provides for listing of threatened or protected ecosystems in one of the following categories:

- **critically endangered (CR) ecosystems**, being ecosystems that have undergone severe degradation of ecological structure, function or composition as a result of human intervention and are subject to an extremely high risk of irreversible transformation;
- **endangered (EN) ecosystems**, being ecosystems that have undergone degradation of ecological structure, function or composition as a result of human intervention, although they are not critically endangered ecosystems;
- **vulnerable (VU) ecosystems**, being ecosystems that have a high risk of undergoing significant degradation of ecological structure, function or composition as a result of human intervention, although they are not critically endangered ecosystems or endangered ecosystems;
- **protected ecosystems**, being ecosystems that are of high conservation value or of high national or provincial importance, although they are not listed as critically endangered, endangered or vulnerable

All stakeholders agreed early on that a **phased approach** should be taken to listing ecosystems, given the complexity of the process. The **first list of ecosystems consists of threatened ecosystems in the terrestrial environment**; future phases will deal with threatened ecosystems in the freshwater, estuarine and marine environments, and with protected

ecosystems in all environments. According to the Biodiversity Act, published lists of ecosystems must be reviewed at least every five years.

At the request of the Department of Environmental Affairs (DEA), SANBI has led the process of identifying threatened ecosystems to be listed, working in close collaboration with DEA, provincial conservation authorities, the Branch: Forestry previously of the Department of Water Affairs and Forestry (DWAF) now located in the Department of Agriculture, Fisheries and Forestry (DAFF), and relevant experts. **All listed ecosystems have been identified based on carefully developed and consistently applied national criteria.** There has been strong emphasis on the use of best available science as well as on the realities of implementation, to ensure that the list of threatened ecosystems is both scientifically rigorous and implementable.

The Biodiversity Act allows the Minister or an MEC to list ecosystems. The current list consists of national threatened terrestrial ecosystems identified based on national criteria, and is thus listed by the Minister. A province may develop additional provincial criteria and identify additional ecosystems to be listed by the MEC. However, to avoid confusion this is discouraged until the process of listing national ecosystems has been well established.

The National Spatial Biodiversity Assessment (NSBA) 2004 included early attempts to identify threatened ecosystems. However, the identification of threatened terrestrial ecosystems for the current phase of listing has been much more detailed and comprehensive, using additional criteria and data. This means that the **list of threatened terrestrial ecosystems presented here supersedes the information regarding terrestrial ecosystem status in the NSBA 2004.** When the National Biodiversity Assessment (NBA) 2011 is published, it will be aligned and consistent with this published list of threatened terrestrial ecosystems.

Why list ecosystems?

The White Paper on the Conservation and Sustainable Use of South Africa's Biodiversity (1997) noted that little attention had historically been paid to protection of ecosystems outside protected areas. This laid the basis for the Biodiversity Act to introduce a suite of new legal tools for biodiversity conservation outside protected areas, including listing of threatened or protected ecosystems, listing of threatened or protected species, bioregional plans, biodiversity management plans for ecosystems or species, and biodiversity management agreements.

The **purpose of listing threatened ecosystems** is primarily to reduce the rate of ecosystem and species extinction. This includes preventing further degradation and loss of structure, function and composition of threatened ecosystems. The **purpose of listing protected ecosystems** is primarily to preserve witness sites of exceptionally high conservation value. For both threatened and protected ecosystems, the purpose includes enabling or facilitating proactive management of these ecosystems. It is likely that ecosystem listing will also play a symbolic and awareness-raising role; however, this is not the primary purpose of listing ecosystems.

The purpose of listing threatened or protected ecosystems is *not* to ensure the persistence of landscape-scale ecological processes or to ensure the provision of ecosystem services, even though listing ecosystems may contribute towards these important goals.

Bioregional plans published in terms of the Biodiversity Act identify critical biodiversity areas, which will include landscape-scale ecological features (such as ecological corridors and important catchments) which are crucial for biodiversity conservation but which will not be protected through listing of threatened or protected ecosystems. *A Guideline Regarding the Determination of Bioregions and the Preparation and Publication of Bioregional Plans* was gazetted in March 2009.

Biodiversity management plans will be a useful tool for active management of threatened ecosystems. Norms and standards for biodiversity management plans for ecosystems are in the process of being developed.

How were listed ecosystems identified?

As a starting point, several **principles** were established for identifying threatened or protected ecosystems:

- The approach must be explicit and repeatable;
- The approach must be target-driven¹ and systematic, especially for threatened ecosystems;

¹ Biodiversity targets, also known as biodiversity thresholds, are explicit quantitative targets that tell us how much of an ecosystem (or other biodiversity feature) needs to be conserved in order to meet our biodiversity goals of representation and persistence. Biodiversity targets are expressed as, for example, numbers of hectares of an ecosystem.

- The approach must follow the same logic as the IUCN approach to listing threatened species, whereby a number of criteria are developed and an ecosystem is listed based on its highest ranking criterion;
- The identification of ecosystems to be listed must be based on scientifically credible, practical and simple criteria, which must translate into spatially explicit identification of the ecosystems concerned.

In deciding on the appropriate **spatial scale** for identifying threatened or protected ecosystems, it was important to consider the purpose and rationale for listing ecosystems as well as the legal implications. These two considerations combined require that **listed ecosystems be defined at the local rather than the regional scale**. For the current phase of listing, threatened terrestrial ecosystems have been delineated based on one of the following: the South African Vegetation Map, national forest types recognised by DAFF, priority areas identified in a provincial systematic biodiversity plan, or high irreplaceability forests patches or clusters systematically identified by DAFF. For future phases of listing, ecosystems may be identified at a finer spatial scale than these units, but will not be identified at a broader spatial scale than these units.

The development of **criteria** for identifying threatened terrestrial ecosystems was done through extensive engagement and consultation with provincial conservation authorities, the Branch: Forestry previously of DWAF and now located in DAFF, and relevant experts, and was based on best available science. The criteria and thresholds for critically endangered, endangered and vulnerable ecosystems are summarised in Table 1 and explained in more detail in the main document. If an ecosystem meets any one of the criteria, it should be listed. If an ecosystem meets more than one criterion, it should be listed based on its highest ranking criterion. For example, if an ecosystem meets the threshold for vulnerable on one criterion and the threshold for endangered on another criterion, it should be listed as endangered.

Table 1: Criteria used to identify threatened terrestrial ecosystems, with thresholds for critically endangered (CR), endangered (EN) and vulnerable (VU) ecosystems

Criterion	CR	EN	VU
A1: Irreversible loss of natural habitat	Remaining natural habitat \leq biodiversity target	Remaining natural habitat \leq (biodiversity target + 15%)	Remaining natural habitat \leq 60% of original area of ecosystem
A2: Ecosystem degradation and loss of integrity*	\geq 60% of ecosystem significantly degraded	\geq 40% of ecosystem significantly degraded	\geq 20% of ecosystem significantly degraded
B: Rate of loss of natural habitat**			
C: Limited extent and imminent threat*	--	Ecosystem extent \leq 3 000ha, and imminent threat	Ecosystem extent \leq 6 000ha, and imminent threat
D1: Threatened plant species associations	\geq 80 threatened Red Data List plant species	\geq 60 threatened Red Data List plant species	\geq 40 threatened Red Data List plant species
D2: Threatened animal species associations**			
E: Fragmentation**			
F: Priority areas for meeting explicit biodiversity targets as defined in a systematic biodiversity plan	Very high irreplaceability and high threat	Very high irreplaceability and medium threat	Very high irreplaceability and low threat

* Because of data constraints, Criteria A2 and C have been applied to forests but not to other vegetation types.

** Because of data constraints, Criteria B and D2 are dormant at this stage and thresholds have not been set for these criteria. Further testing of Criterion E is needed to determine whether it is a workable criterion for terrestrial ecosystems.

What are the Implications of listing an ecosystem?

There are four main types of implications of listing an ecosystem:

- Planning related implications, linked to the requirement in the Biodiversity Act for listed ecosystems to be taken into account in municipal IDPs and SDFs;
- Environmental authorisation implications, in terms of NEMA and EIA regulations;
- Proactive management implications, in terms of the Biodiversity Act;
- Monitoring and reporting implications, in terms of the Biodiversity Act.

The **environmental authorisation implications** are summarised here. The other implications are discussed in the main document.

The Environmental Impact Assessment (EIA) Regulations include three lists of activities that require environmental authorisation:

- Listing Notice 1: activities that require a basic assessment (R544 of 2010),
- Listing Notice 2: activities that require scoping and environmental impact report (EIR) (R545 of 2010),
- Listing Notice 3: activities that require a basic assessment in specific identified geographical areas only (R546 of 2010).

Activity 12 in Listing Notice 3 relates to the clearance of 300m² of more of vegetation, which will trigger a basic assessment within any critically endangered or endangered ecosystem listed in terms of S52 of the Biodiversity Act. This means **any development that involves loss of natural habitat in a listed critically endangered or endangered ecosystem is likely to require at least a basic assessment** in terms of the EIA regulations.

It is important to note that **while the original extent of each listed ecosystem has been mapped, a basic assessment report in terms of the EIA regulations is triggered only in remaining natural habitat within each ecosystem** and not in portions of the ecosystem where natural habitat has already been irreversibly lost.

Summary statistics and maps of listed ecosystems

As shown in Table 2, remaining natural areas in threatened terrestrial ecosystems make up 9.5% of the country, with critically endangered and endangered ecosystems together accounting for 2.7% and vulnerable ecosystems a further 6.8%. The table shows how the ecosystems are distributed by province, and gives approximate areas. The area figures refer to the remaining natural habitat in listed ecosystems, not their original extent. Figure 1 and Figure 2 show the original and remaining extent of the ecosystems respectively.

Table 2: Summary statistics for listed ecosystems

	CR		EN		VU		TOTAL	
	000 ha	%	000 ha	%	000 ha	%	000 ha	%
Eastern Cape	4	0.0	51	0.3	588	3.5	643	3.8
Free State	2	0.0	383	3.0	1 049	8.1	1 433	11.0
Gauteng	99	6.0	95	5.8	189	11.4	384	23.2
KZN	224	2.4	464	5.0	1 164	12.5	1 852	19.9
Limpopo	9	0.1	123	1.0	536	4.3	668	5.3
Mpumalanga	6	0.1	634	8.3	2 226	29.1	2 866	37.5
Northern Cape			35	0.1	109	0.3	144	0.4
North West	186	1.8	452	4.3	1 309	12.3	1 947	18.3
Western Cape	374	2.9	154	1.2	1 083	8.4	1 611	12.5
South Africa	903	0.7	2 392	2.0	8 252	6.8	11 547	9.5

Table notes:

- Area figures refer to remaining natural area. They have been rounded to nearest thousand hectares so totals may not add up exactly.
- A blank cell indicates that no ecosystems were identified. A zero indicates that one or more ecosystems have been identified but that their total remaining area is less than 1 000ha.

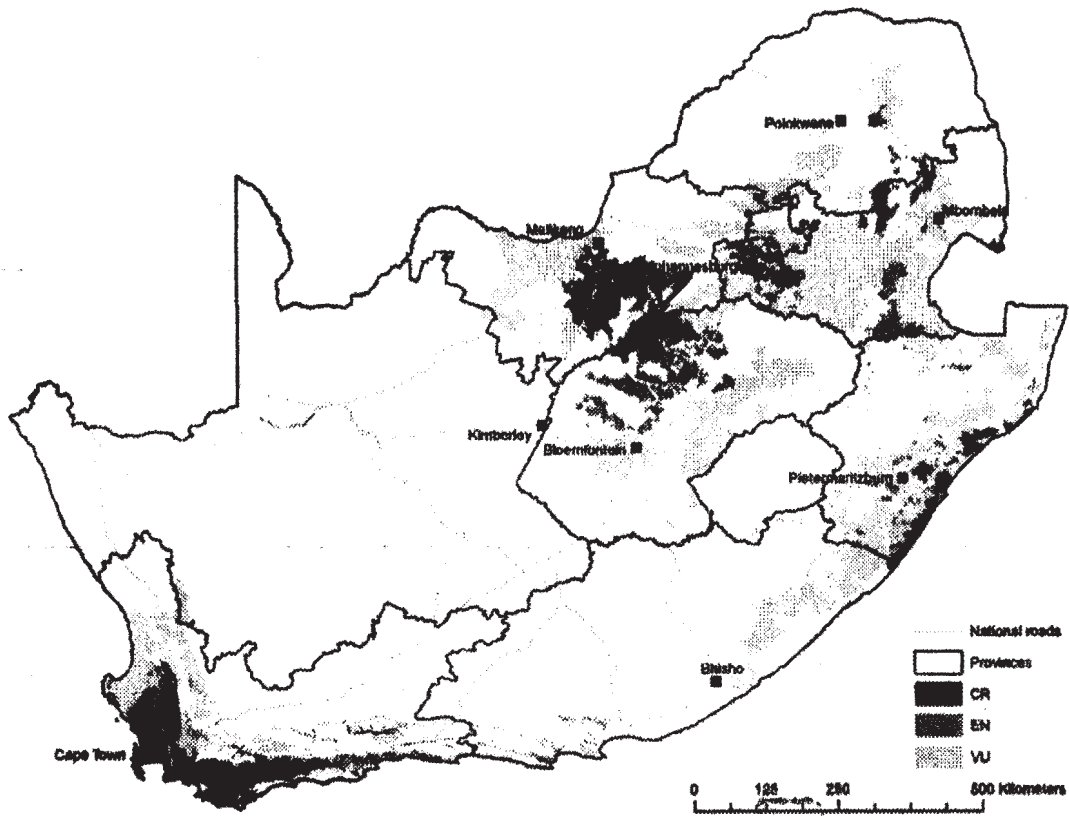


Figure 1: Map of listed ecosystems, showing original extent of ecosystems

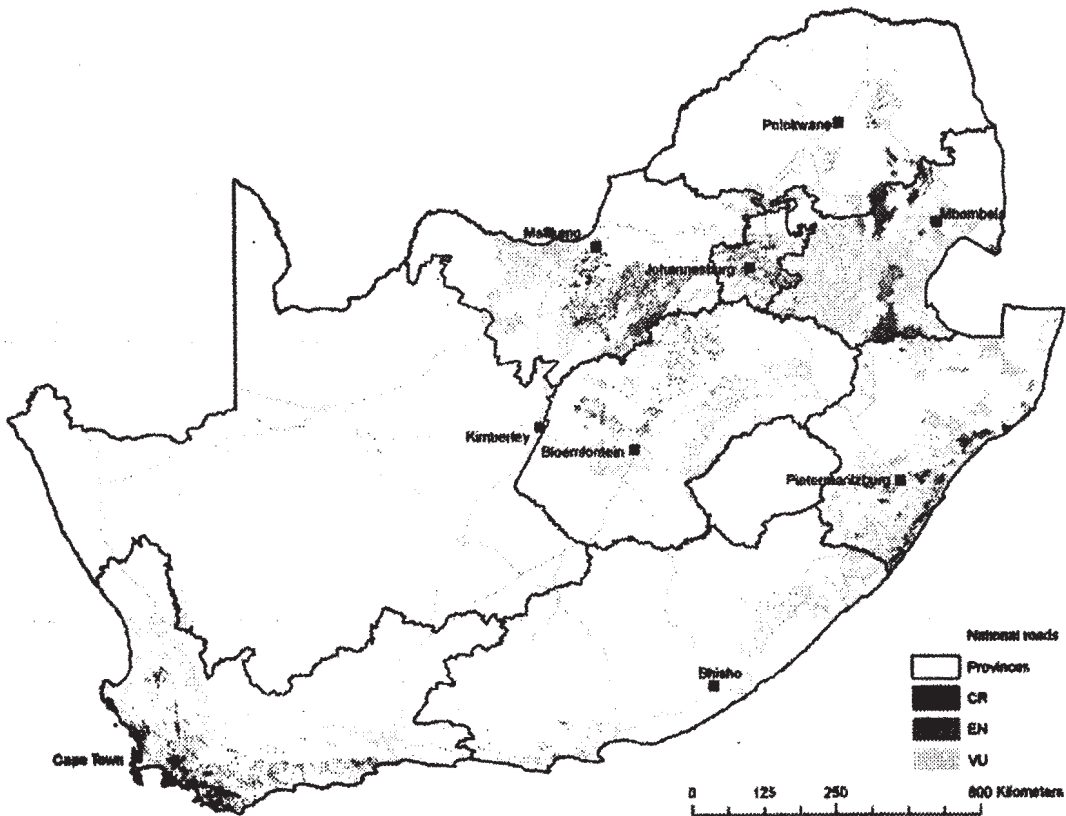


Figure 2: Map of listed ecosystems, showing remaining extent of ecosystems