

Resource assessments and monitoring – a key economic and ecological feature of a sector development plan

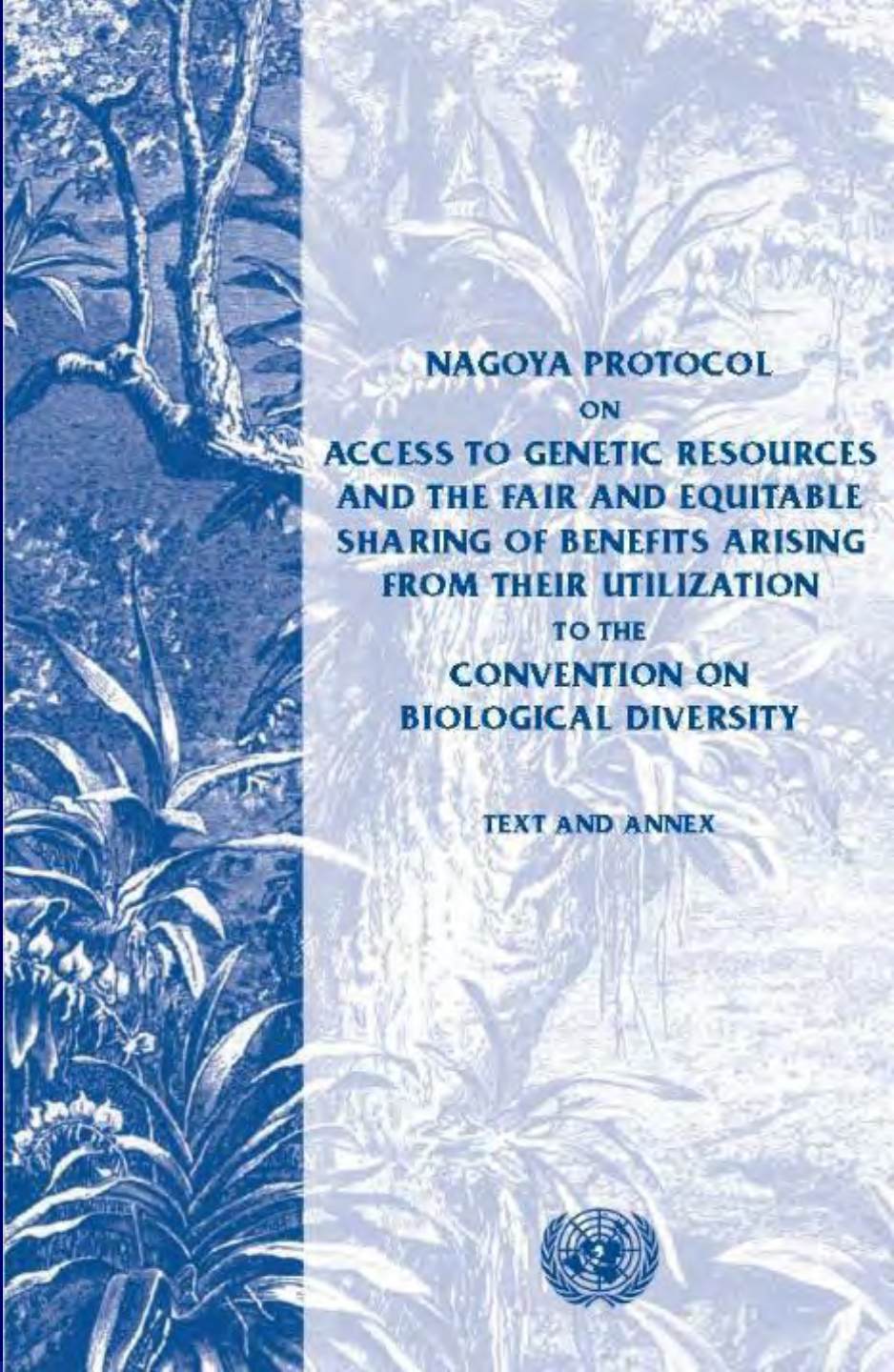
Neil Crouch, SANBI,
3 November 2019



1st Regional Workshop on a Marula Sector Development Plan

Nagoya Protocol (NP)

- Article 11:
TRANSBOUNDARY COOPERATION
1. In instances where the same genetic resources are found in situ within the territory of more than one Party, those Parties shall endeavour to cooperate, as appropriate, with the involvement of indigenous and local communities concerned, where applicable, with a view to implementing this Protocol.

The image shows the cover of the Nagoya Protocol document. The background is a blue-tinted photograph of a lush forest with various plants and trees. The text is centered and reads: "NAGOYA PROTOCOL ON ACCESS TO GENETIC RESOURCES AND THE FAIR AND EQUITABLE SHARING OF BENEFITS ARISING FROM THEIR UTILIZATION TO THE CONVENTION ON BIOLOGICAL DIVERSITY".

NAGOYA PROTOCOL
ON
ACCESS TO GENETIC RESOURCES
AND THE FAIR AND EQUITABLE
SHARING OF BENEFITS ARISING
FROM THEIR UTILIZATION
TO THE
CONVENTION ON
BIOLOGICAL DIVERSITY

TEXT AND ANNEX



- ‘**Sustainable**’, in relation to the use of a biological resource, means the use of such resource in a way and at a rate that-

- (a) would not lead to its long-term decline;
- (b) would not disrupt the ecological integrity of the ecosystem in which it occurs; and
- (c) would ensure its continued use to meet the needs and aspirations of present and future generations of people.


Act 10 of 2004 (NEMBA)





OP-ED

South Africa pushes for trade in endangered wildlife

By Andreas Wilson-Spath • 19 August 2019 

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South Africa, DRC, Namibia and Zimbabwe believe they should be able to sell threatened wildlife species on global markets, just like mass-produced trinkets.

An



24. Environment.-Everyone has the right-

(b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that-

(i) prevent pollution and ecological degradation;
(ii) promote conservation; and
(iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

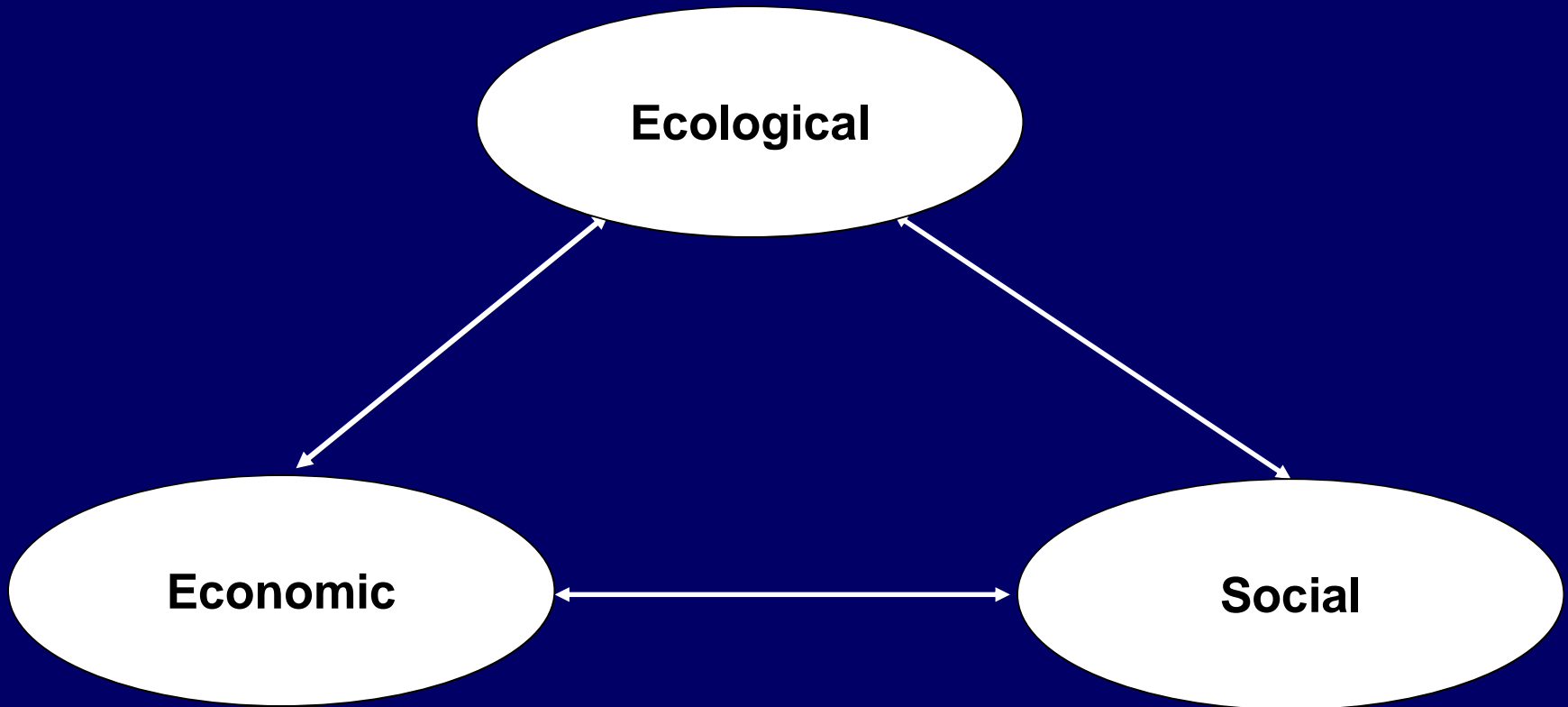


The Constitution

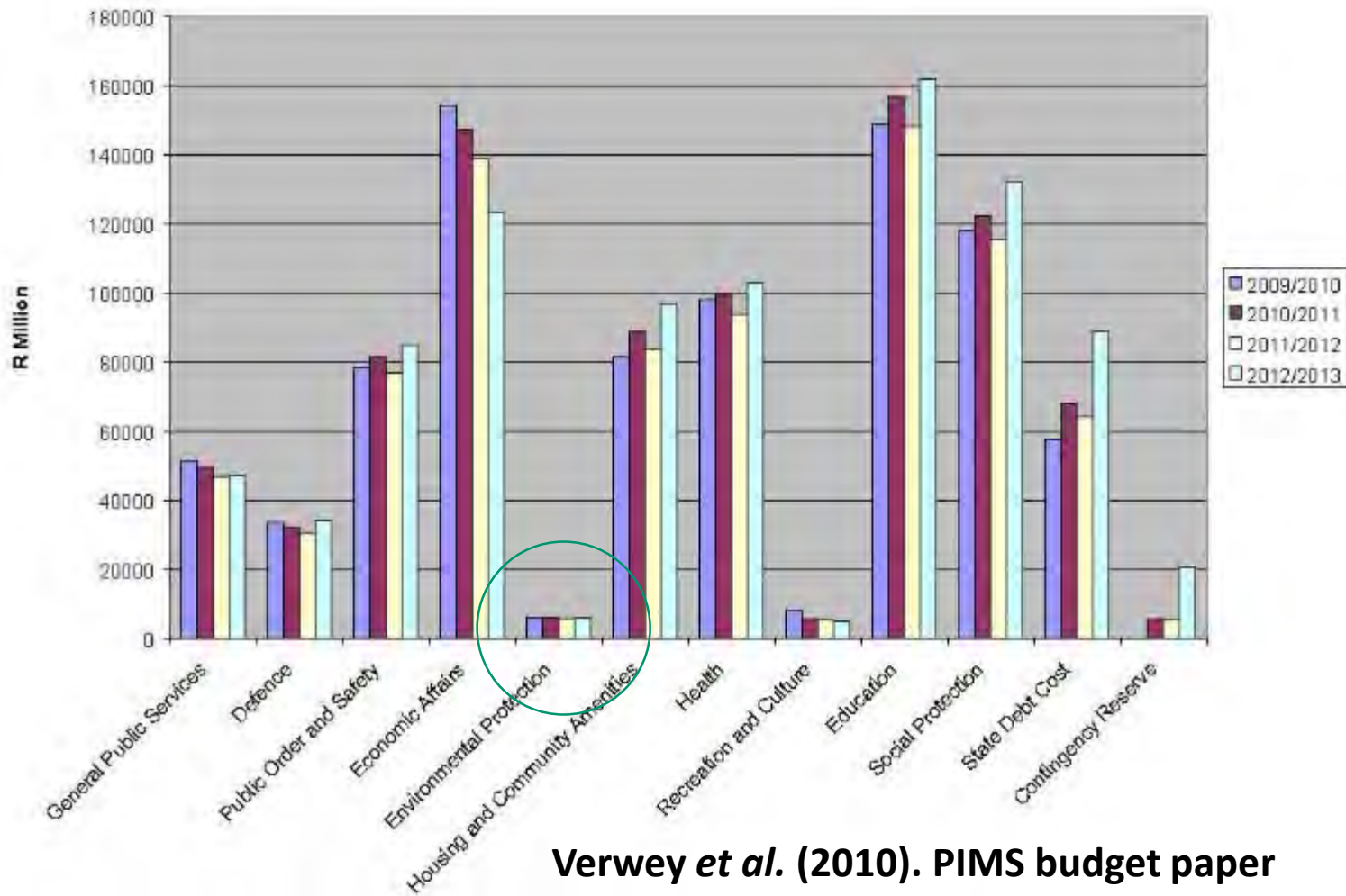
of the Republic of South Africa, 1996



Sustainability elements



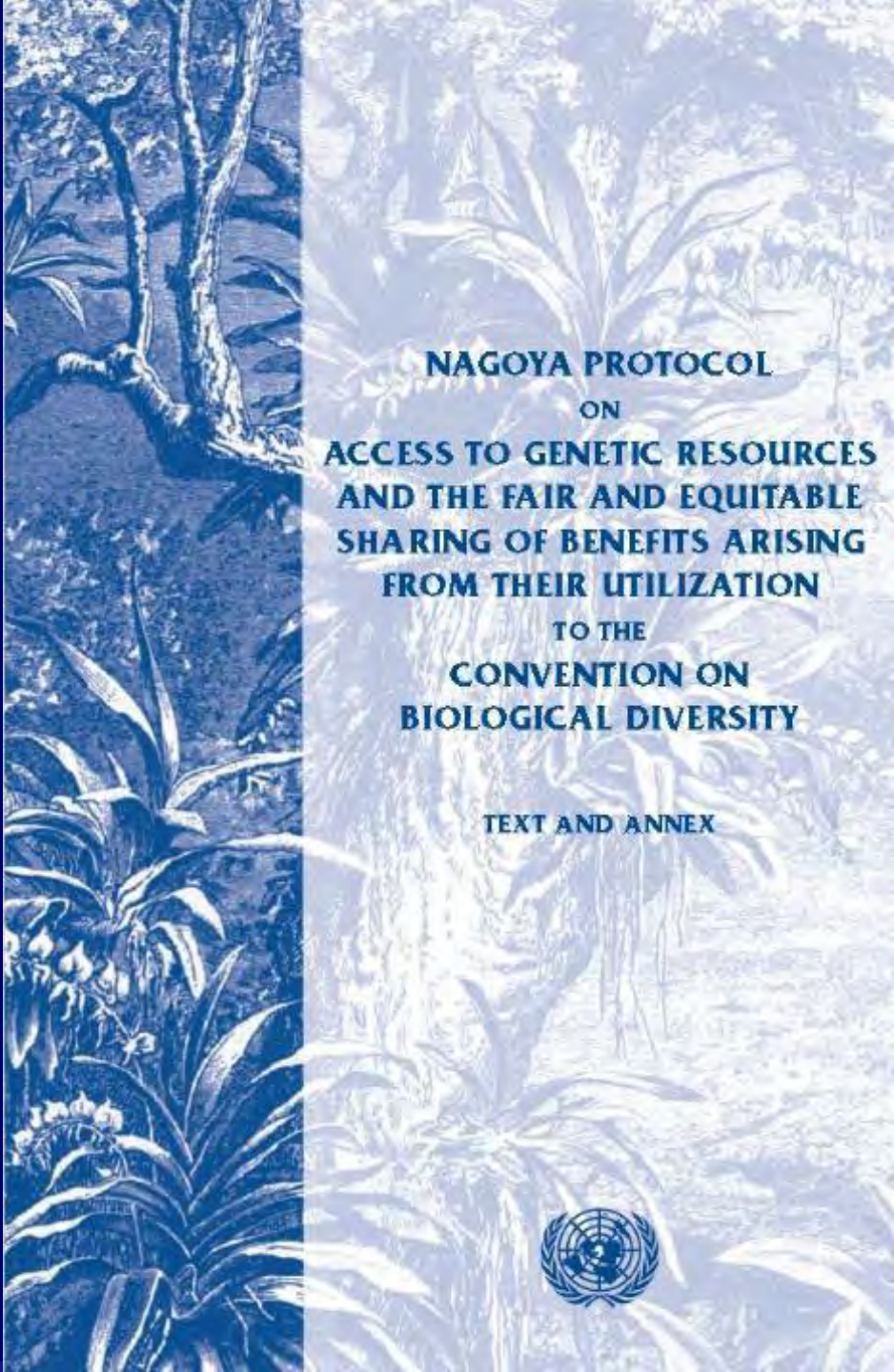
Trends in real consolidated spending by function in South Africa



Verwey *et al.* (2010). PIMS budget paper

Nagoya Protocol (NP)

- **Article 9:**
CONTRIBUTION TO CONSERVATION AND SUSTAINABLE USE
- The Parties shall encourage users and providers to **direct benefits arising from the utilization of genetic resources towards the conservation of biological diversity and the sustainable use of its components.**

The image shows the cover of the Nagoya Protocol document. The background is a blue-tinted photograph of a lush forest with various plants and trees. The text is centered and reads: "NAGOYA PROTOCOL ON ACCESS TO GENETIC RESOURCES AND THE FAIR AND EQUITABLE SHARING OF BENEFITS ARISING FROM THEIR UTILIZATION TO THE CONVENTION ON BIOLOGICAL DIVERSITY".

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TEXT AND ANNEX



Presentation elements

- Credible methodologies for key biotrade value chains
- Building on existing knowledge
- Aligning methodologies/reporting across the region
- Preview of 2020 resource assessment workshop



Sclerocarya birrea (A.Rich.) Hochst. subsp. *caffra* (Sond.) Kokwaro

Different perceptions

- People, cultures and religions perceive nature, wildlife and landscapes differently. Even the value of science is perceived differently.
- Why is it important to understand this in preparing for any scale of assessment and monitoring - regional, national and local levels?



Landscape and biodiversity valuation

- **People value different things because they think in different ways. Diverse peoples, religions, languages and histories.**
- **The sustainable use of biodiversity / conservation message often fails because conservationists assume their audiences think like they do.**
- **But is this really so?**

Framing biodiversity conservation for decision makers: insights from four South African municipalities

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Keywords

Audience research; communication; implementation; land use planning; social marketing; sustainability; systematic conservation planning

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Abstract

Priority maps for biodiversity conservation are increasingly aimed at their implementation by local governments in their land use decision making. However, these biodiversity planning products usually rely on the implicit assumption that biodiversity and related concepts are the appropriate ones for communicating the need to safeguard nature. We investigated the level of understanding of the terms “biodiversity” and “sustainability” of decision makers in four South African coastal municipalities and identified the prevalent frames of interpretation they held regarding nature conservation in land use planning. We demonstrate that understanding of the term “biodiversity” is very limited; however, the term is well linked to the natural environment. Conversely, the concept of “sustainability” is clearly established—but only marginally connected to nature. The frame analysis showed that the preservation of nature is regarded as fundamentally in opposition to socio-economic development. Conservation is frequently interpreted as being a socially unjust endeavor, disrespectful toward people and lacking realism. We use these insights to provide recommendations on how conservationists should proceed to reframe biodiversity issues in order to more effectively mainstream conservation plans into local land-use decision making.

Four South African municipalities – local land use decision makers

Identified prevalent frames of interpretation:

“The frame analysis showed that the preservation of nature is regarded as fundamentally in opposition to socio-economic development.

Conservation is frequently interpreted as being a socially unjust endeavor, disrespectful toward people and lacking realism”.

Wilhelm-Rechmann & Cowling (2010)

Four South African municipalities – local land use decision makers

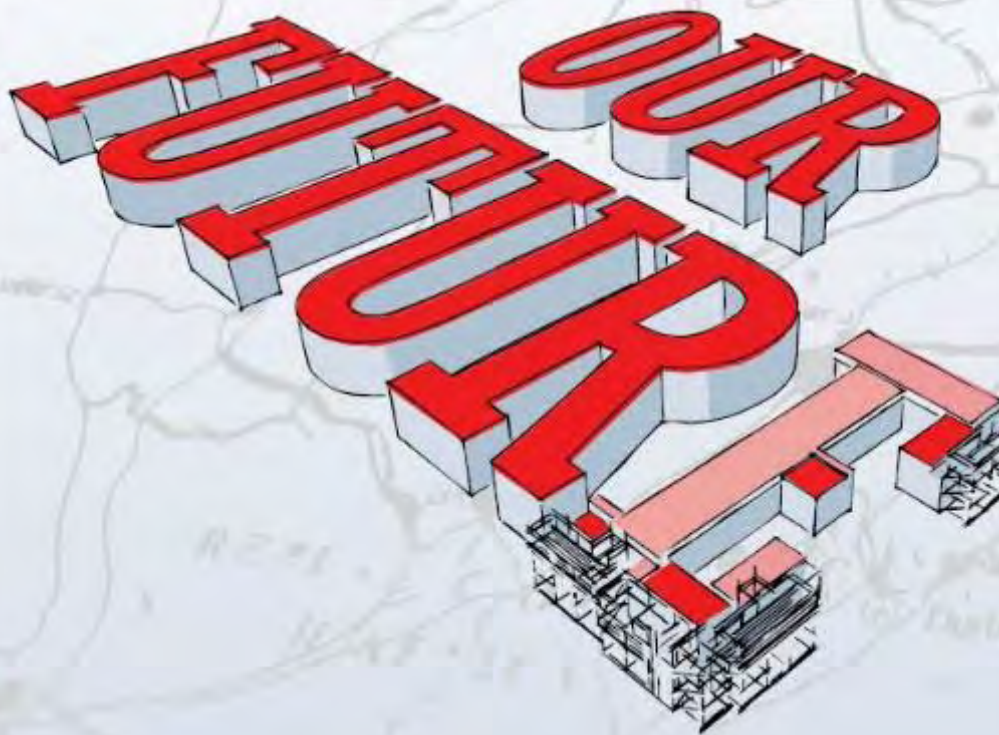
“A co-operative, respectful, and proactive involvement of conservationists in land use planning processes will support a re-framing towards less suspicious and negative perceptions of conservation.”

Wilhelm-Rechmann & Cowling (2010)

Different imperatives: SA

- Operation Phakisa Biodiversity Economy Laboratory outcomes (2016)
- Biodiversity Economy Strategy (2015 in draft)

Our future -
make it work



NDP (2012)

Critical actions (10):

- Interventions to ensure environmental sustainability and resilience to future shocks.
- A strategy to address poverty and its impacts by broadening access to employment, strengthening the social wage...and raising rural incomes.





Biodiversity Economy Strategy

BIODIVERSITY ECONOMY STRATEGY (BES) FOR THE DEPARTMENT OF ENVIRONMENTAL AFFAIRS



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

BES objectives...

- **Biodiversity Economy Growth**
- **Growth in GDP**
- **Increase in employment**
- **Sustainability**
- **Transformation**



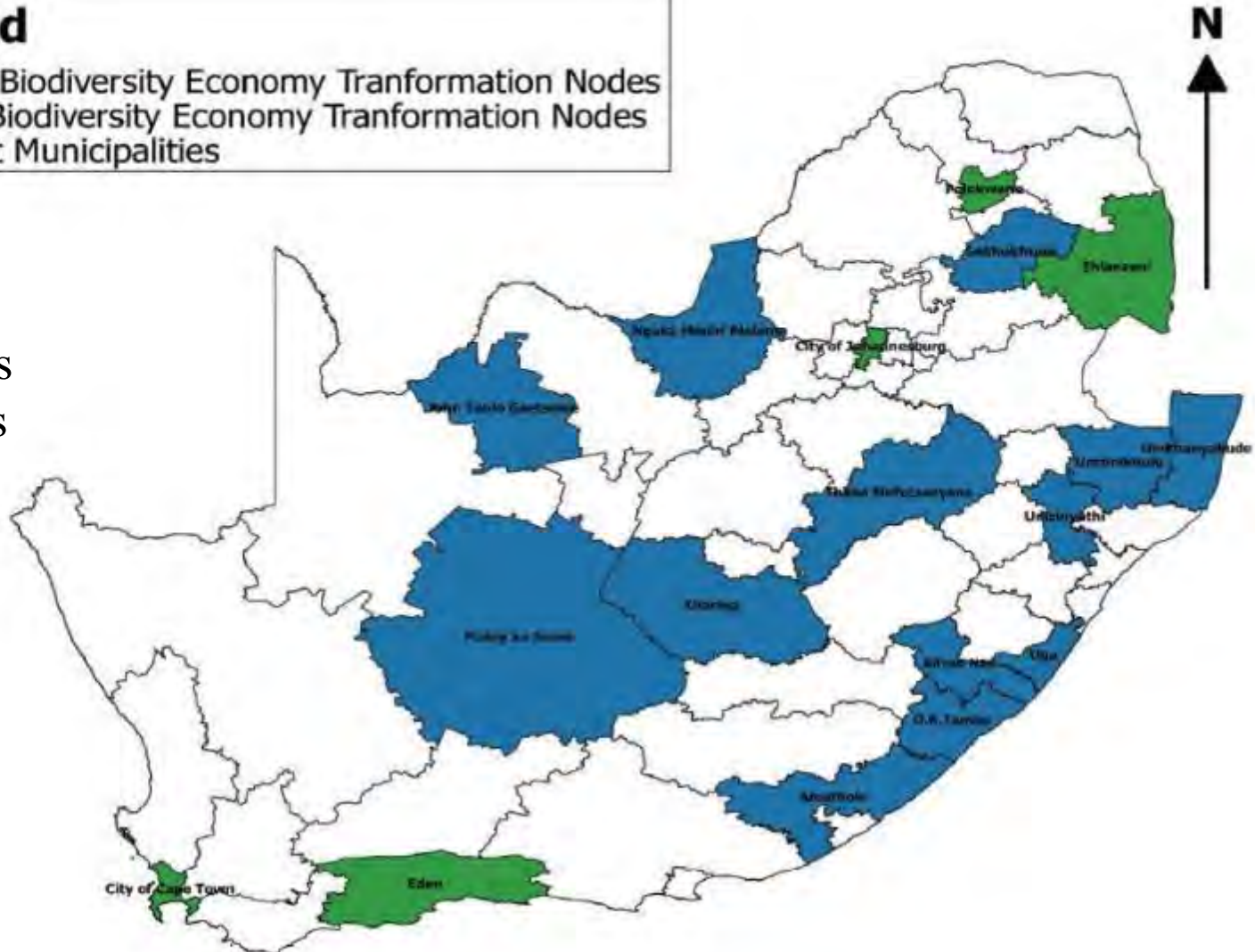
Do we need a strategy?

“BES is required to guide the sustainable growth of the wildlife and bioprospecting industries and to provide a basis for addressing constraints to growth, **ensuring sustainability**, identifying clear stakeholders’ responsibilities and monitoring progress of the Enabling Actions”.

Based on the criteria, Figure 9 shows the 18 BET nodes which are the focus of the Biodiversity Economy Strategy.

Legend

- Urban Biodiversity Economy Transformation Nodes
- Rural Biodiversity Economy Transformation Nodes
- District Municipalities



9 provinces
13 rural districts
5 urban districts

Biodiversity Economy Transformation (BET) nodes

Node identification criteria:

- **Manufacturing potential**
- **National priorities (Presidential Poverty Nodes)**
- **Land tenure**
- **Projects prioritised by local and province**
- **Available infrastructure**
- **Potential for participation by poor**

Biodiversity Economy Transformation (BET) nodes

Node identification criteria:

- Resource abundance – developing wildlife and bioprospecting cultivation, harvesting and production enterprises and community initiatives in the BET nodes will require access to indigenous biological/genetic resources

Social and Ecological Characteristics of an Expanding Natural Resource Industry: *Aloe* Harvesting in South Africa

A. MELIN^{*,1,2,3}, O. M. GRACE⁴, G. D. DUCKWORTH⁵, J. S. DONALDSON^{1,2}, AND E. J. MILNER-GULLAND^{3,6}

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³Department of Life Sciences, Imperial College London, Silwood Park Campus, London, UK

⁴Comparative Plant & Fungal Biology, Royal Botanic Gardens, Kew, Surrey, TW9 3AB, UK

⁵Statistics in Ecology, Environment and Conservation, Department of Statistical Sciences, University of Cape Town, Cape Town, South Africa

⁶Department of Zoology, University of Oxford, South Parks Road, Oxford, OX1 3PS, UK

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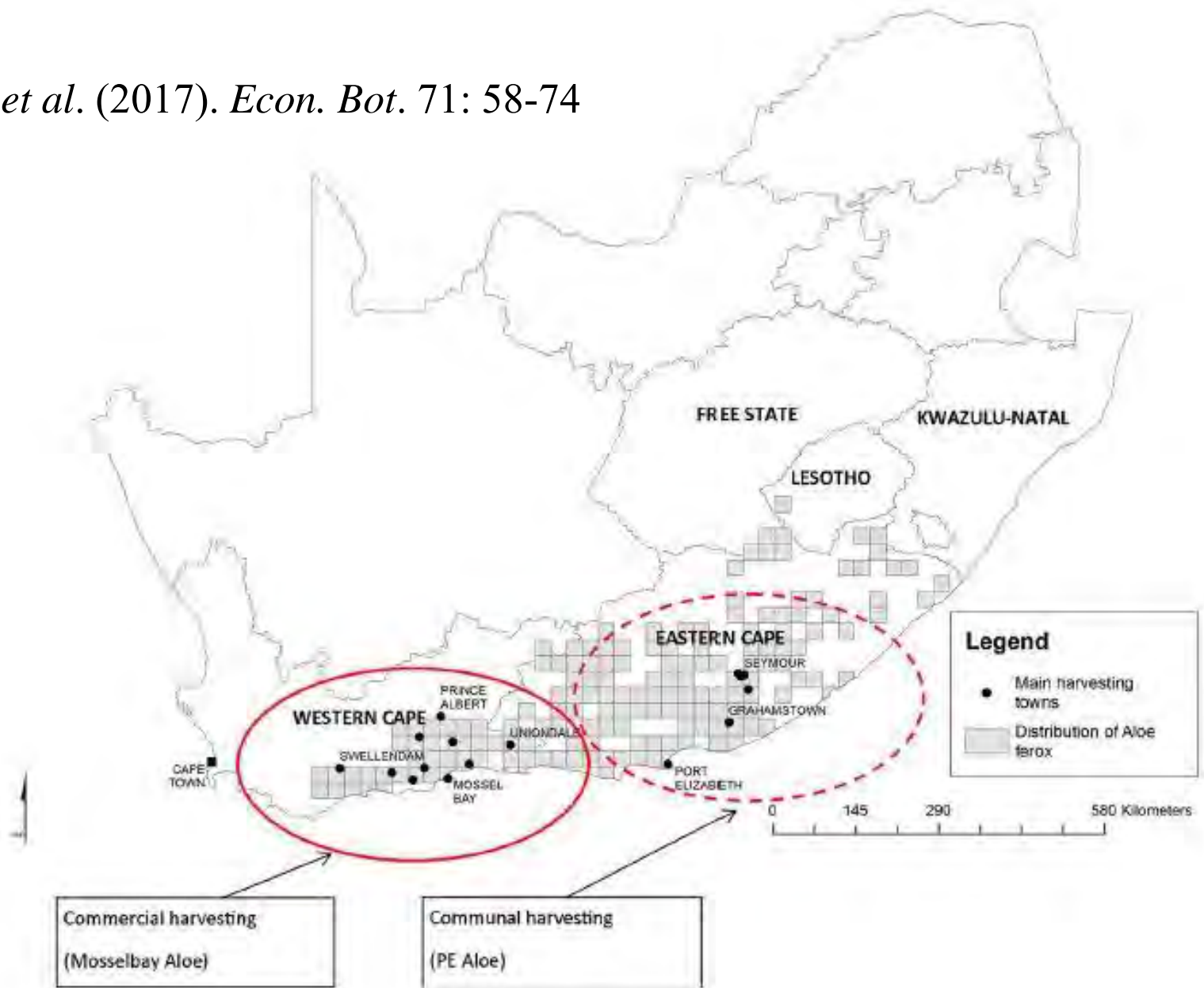
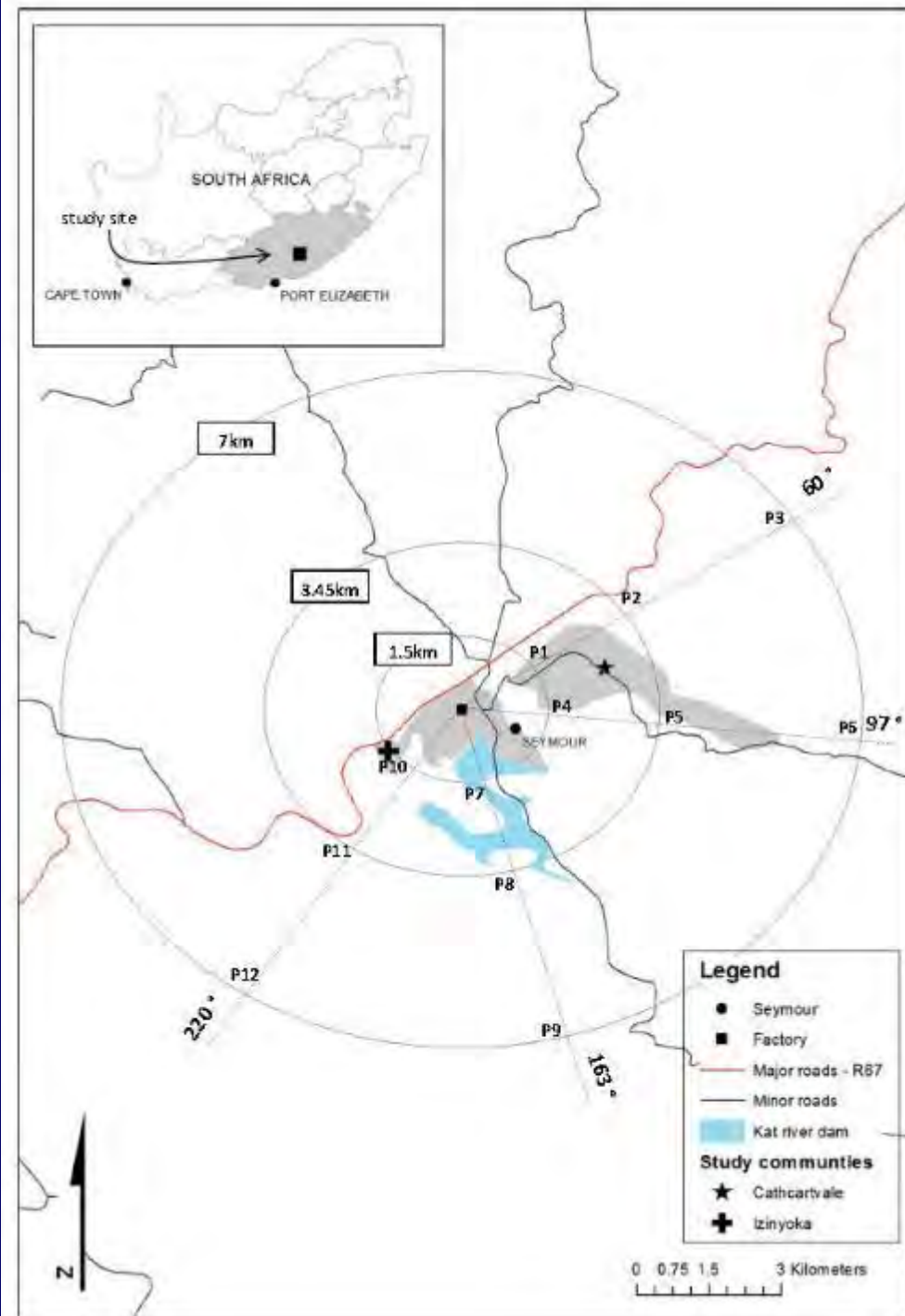


Fig.1. Map of Southern Africa showing natural distribution of *Aloe ferox*, provinces, the main harvesting areas, and study sites with annotations.

Melin *et al.* (2017).
Econ. Bot. 71: 58-74

Illustrated guidelines on sustainable harvesting practices and related training were provided to co-operative

Outcome: overharvesting: short term profits gained by overharvesting vs. long term sustainability practises



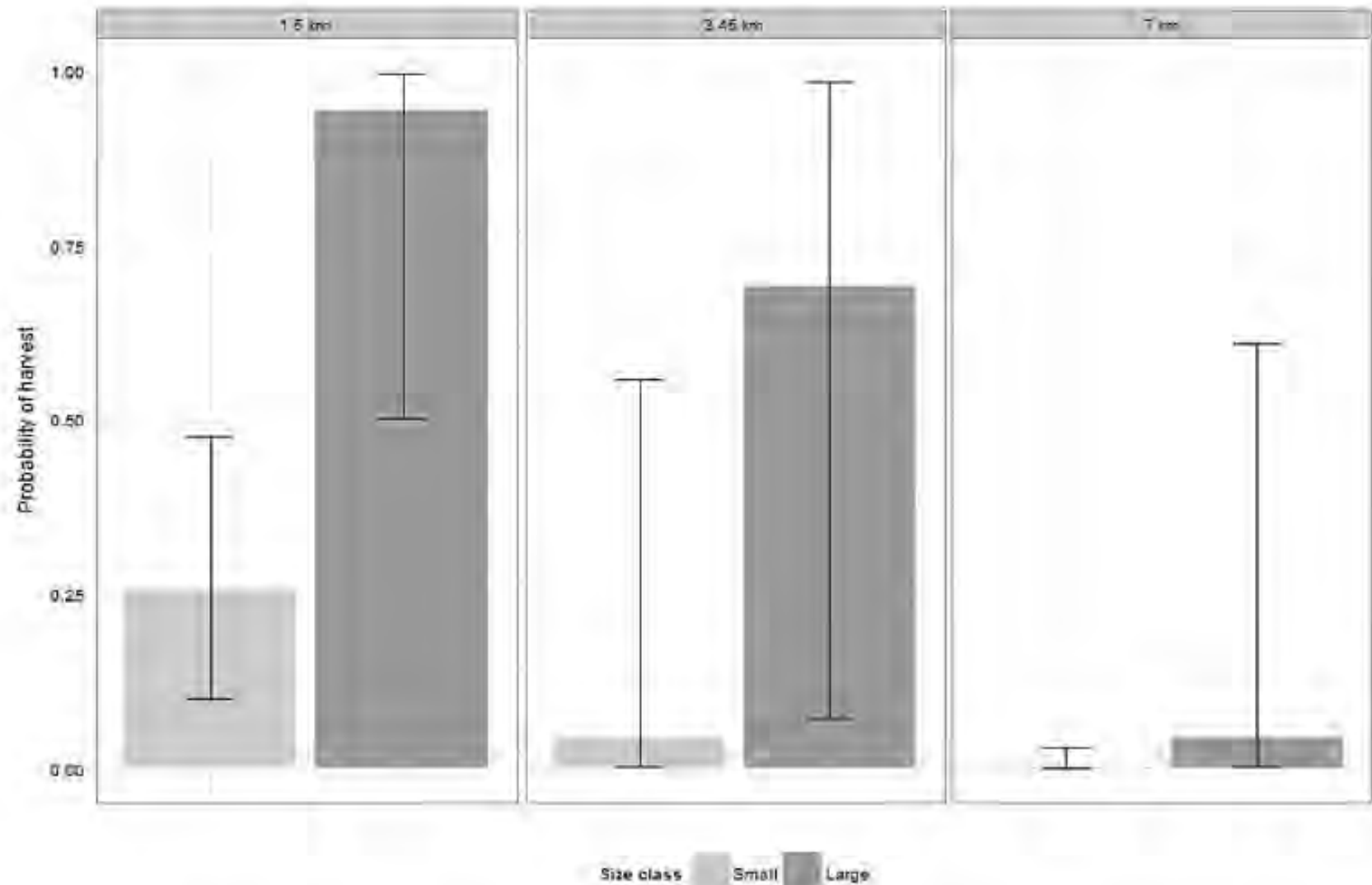


Fig.5. Predicted values (and 95% CIs) for the probability of harvest of wild populations of *Aloe ferox* populations in the Eastern Cape, South Africa. Predicted values are taken from model 1 in Table 3. *Light gray bars* indicate small plants (<0.5 m) and *darker gray bars* indicate large plants (>0.5 m). Proximity to the processing factory: Near = 1.5 km, Mid = 3.45 km, Far = 7 km.

“To ensure *A. ferox* is harvested at sustainable levels in the region, an effective resource management plan needs to be implemented including:

- Harvest quotas
- Restricting harvest to certain size classes
- System of rotation between harvests”

Melin *et al.* (2017). *Econ. Bot.* 71: 58-74

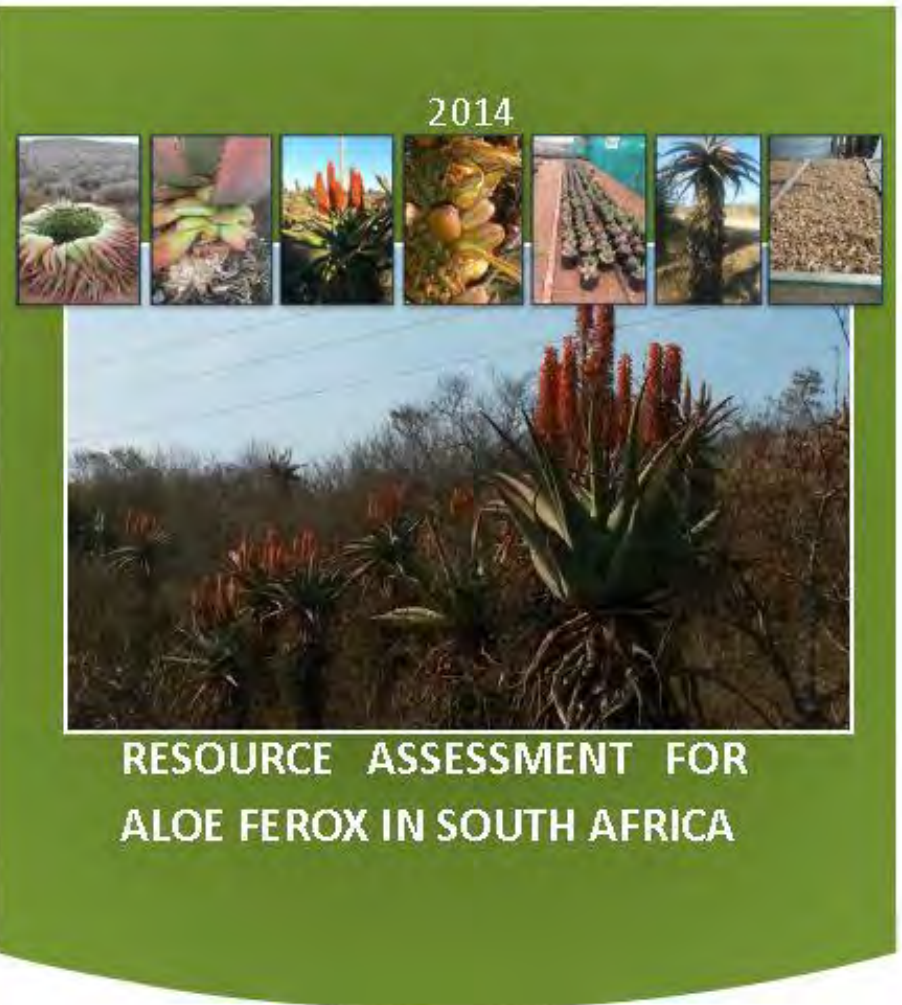
A review of the trade in *Aloe ferox*,
with a focus on the role of the
European Union

August 2006



Amélie Knapp

TRAFFIC
EUROPE



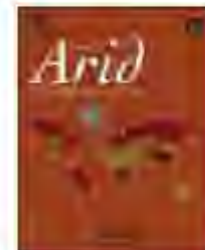
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Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA



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Journal of Arid Environments

journal homepage: www.elsevier.com/locate/jaridenv

Review

African aloe ecology: A review

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Seeds

ABSTRACT

Aloe L. is the largest genus in the Asphodelaceae, a family of succulent-leaved, petaloid monocots, geographically restricted to the Old World. Aloes exhibit remarkable morphological variability and range in size from dwarf species only a few centimetres tall, to tree aloes reaching heights of up to 20 m. Aloes form a striking and important component of many arid and semi-arid African landscapes. Most *Aloe* species occur in arid savanna, which is widespread over subtropical southern and eastern Africa. In southern Africa, aloes receive considerable interest from both scientists and succulent plant enthusiasts. World-renowned for their medicinal properties, aloes are used in numerous natural products traded in the health and cosmetic industries. There is a wealth of popular literature on the genus, as well as various scientific publications, although these have tended to focus on aloe pollination biology and medicinal use. Knowledge on aloe ecology is vital for the management and conservation of wild populations as well as the arid and semi-arid lands in which they occur. Sound ecological understanding of the genus is also important for making decisions regarding sustainable utilization, as well as predictions relating to possible threats posed by climate change. Furthermore, by better understanding the genus, its utility in practical applications such as ecosystem restoration can be explored further. Hence, this review provides a synthesis of a wide range of available information on several aspects of aloe ecology, and highlights important opportunities for future research. The key aspects covered include aloe distribution, ecophysiology, functional role in the ecosystem, population dynamics, fire tolerance, resprouting, pollination ecology, seed biology, economic botany and conservation.

Different realities: SA

- Post-apartheid era reconstruction and development / Transformation
- Economic challenges
- Rapid land-cover change and habitat loss
- Climate change impacts

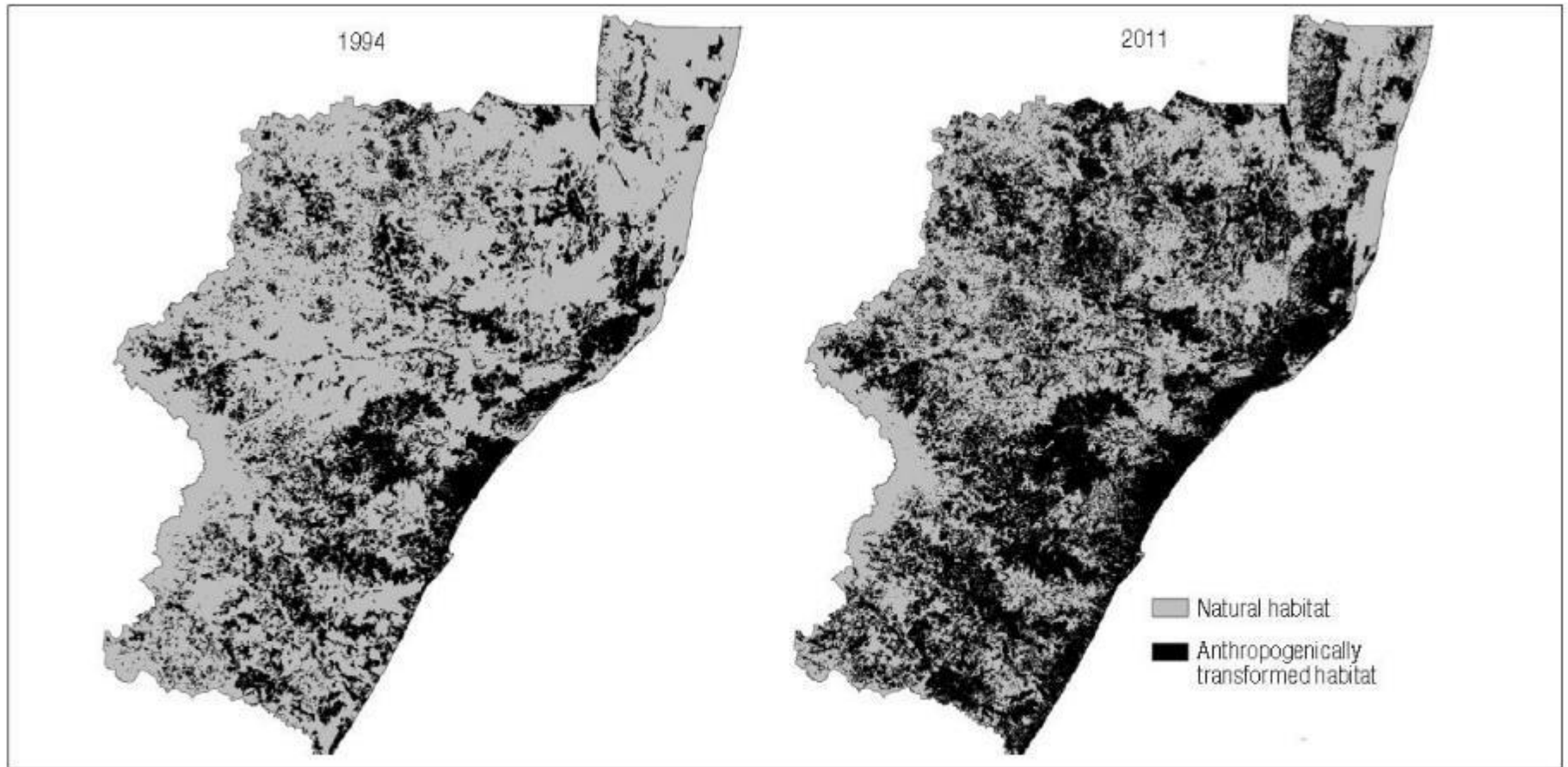


Figure 5: Accumulated transformation in KwaZulu-Natal from 1994 to 2011. The black areas represent anthropogenically transformed areas whilst the grey areas represent natural habitat.

From Jewitt *et al.* (2015);

60. Establishment of scientific authority

- (1) The Minister must establish a scientific authority for the purpose of assisting in regulating and restricting the trade in specimens of **listed threatened or protected species and species to which an international agreement regulating international trade applies.**



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- ▶ CITES and livelihoods
- ▶ International Consortium on Combating Wildlife Crime
- ▶ Introduction from the sea
- ▶ Wildlife trade policy reviews

Non-detriment findings



The preamble to the Convention recognizes that international cooperation is essential for the protection of certain species of wild fauna and flora against over-exploitation through international trade, and recognizes also the urgency of taking appropriate measur... [See more](#)

Current policies on NDFs

In Resolution Conf. 13.2 on *Sustainable use of biodiversity: Addis Ababa Principles and Guidelines*, Parties were urged, when adopting NDF...

[See more](#)

Guidance on NDFs

In 1992, the CoP adopted Resolution Conf. 8.6 on the *Role of the Scientific Authority* which arose initially from a document by the United States of America discussed at the fifth... [See more](#)

Convention Requirements

In detail, the NDF requirements in the text of the Convention are:

a) Article III (Appendix-I species):

i) An export pe... [See more](#)

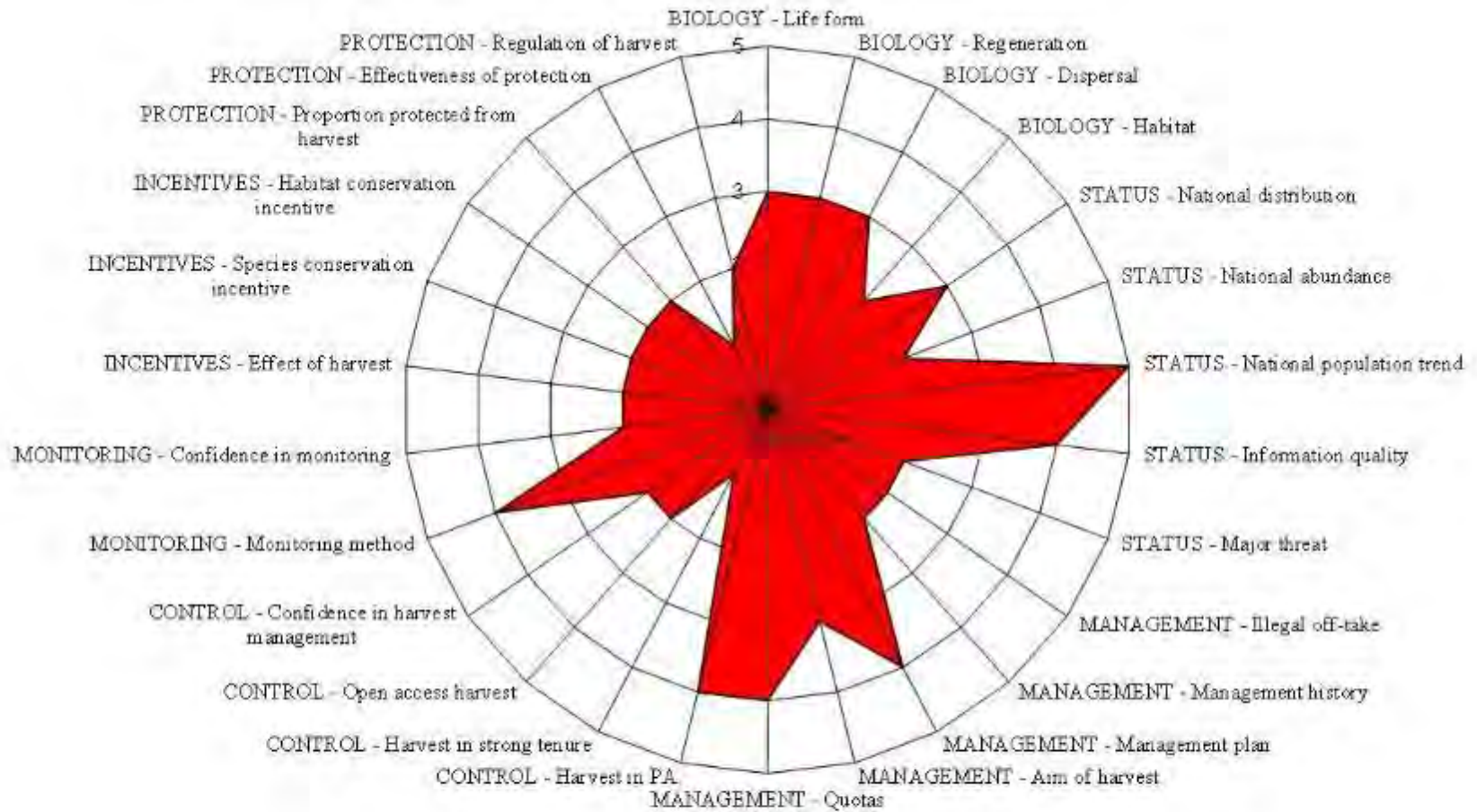


Figure 1: Radar chart summarizing the non-detriment finding assessment for *A. ferox* in accordance with the CITES NDF checklist. Explanations of scores given are detailed in Table 1. Higher scores are indicative of higher risks to the species. The area shaded in the radar chart indicates an overall low to moderate risk to the species.

...Sustainability of bioresource extraction -NDF

- **Regenerative and/or productive capacity**
- **Distribution**
- **Abundance**
- **Population structure**
- **Accessibility / Ownership**
- **Autecology**
- **Management**
- **Monitoring**



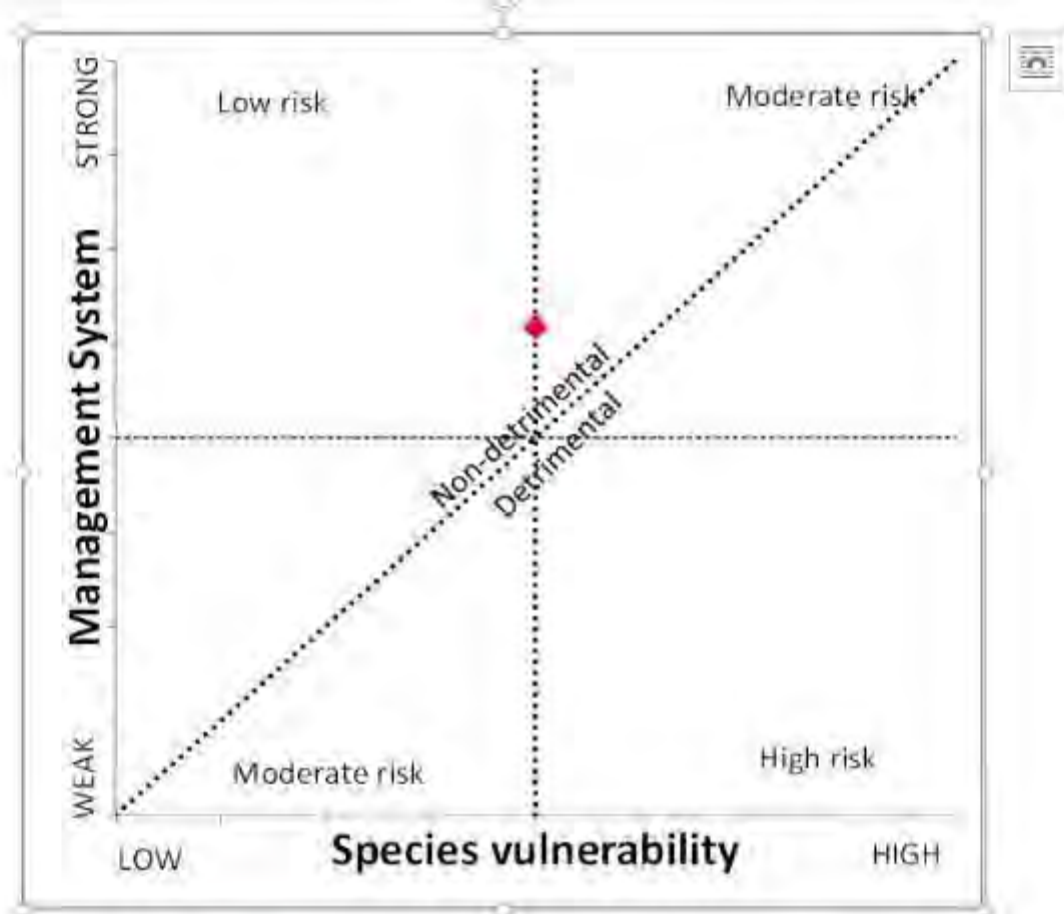


Figure 2: The risk of trading in *A. ferox*, as represented by the relationship between species vulnerability (biology and status) and the management system to which the species is subjected (management, control, monitoring, incentives and protection). The figure shows that the species is currently at a low to moderate risk and trade is non detrimental.



Eighteenth meeting of the Conference of the Parties
Colombo (Sri Lanka), 23 May – 3 June 2019

CONSIDERATION OF PROPOSALS FOR AMENDMENT OF APPENDICES I AND II

A. Proposal

Amend the listing of *Aloe ferox* in Appendix II.

Amend Annotation #4 with the underlined text:

All parts and derivatives, except:

- a) seeds (including seedpods of Orchidaceae), spores and pollen (including pollinia). The exemption does not apply to seeds from Cactaceae spp. exported from Mexico, and to seeds from *Beccariophoenix madagascariensis* and *Dypsis decaryi* exported from Madagascar;
- b) seedling or tissue cultures obtained *in vitro*, in solid or liquid media, transported in sterile containers;
- c) cut flowers of artificially propagated plants;
- d) fruits, and parts and derivatives thereof, of naturalized or artificially propagated plants of the genus *Vanilla* (Orchidaceae) and of the family Cactaceae;
- e) stems, flowers, and parts and derivatives thereof, of naturalized or artificially propagated plants of the genera *Opuntia* subgenus *Opuntia* and *Selenicereus* (Cactaceae); and
- f) finished products¹ of *Aloe ferox* and *Euphorbia artisiphilitica* packaged and ready for retail trade.

GOVERNMENT NOTICE

DEPARTMENT OF ENVIRONMENTAL AFFAIRS AND TOURISM

No. R. 214

3 March 2009

NATIONAL ENVIRONMENTAL MANAGEMENT: BIODIVERSITY ACT, 2004 (ACT 10 OF 2004)

NORMS AND STANDARDS FOR BIODIVERSITY MANAGEMENT PLANS FOR SPECIES

I, Marthinus Christoffel Johannes van Schalkwyk, Minister of Environmental Affairs and Tourism, hereby publish the Norms and Standards for Biodiversity Management Plans for Species in terms of section 9(1)(a)(i) and 43 of the National Environmental Management: Biodiversity Act, 2004 (Act no 10 of 2004). as contained in the Schedule.

Marthinus van Schalkwyk





environmental affairs

Department
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

SCHEDULE

Biodiversity Management Plan for *Pelargonium sidoides* DC.

Compiled by David Newton¹, Domitilla Raimondo², Lisebo Motjiji¹, and Christine Lippai¹ in extensive collaboration with the Pelargonium Working Group³.



¹ TRAFFIC East/Southern Africa, Private Bag X11, Parkview 2122, South Africa.

² South African National Biodiversity Institute, Private Bag X101, Pretoria 0001, South Africa.

³ The Pelargonium Working Group, started in 2007, is represented by government, industry and the NGO sector. The group was chaired during the process of drawing up this management plan by the South African National Biodiversity Institute.

Harvesting Guidelines for *Pelargonium sidoides*



Based on the Recommendations
in the Biodiversity Management
Plan for *Pelargonium sidoides*
Government Gazette No 36411
of 26th April 2013

Designed by Parvati • June 2018 version #1



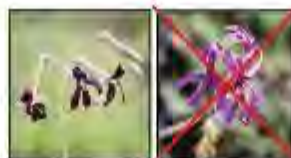
Remove all soil from the roots.



Break off the leaves together with a little bit
of root.

What can be harvested?

Only *Pelargonium sidoides* – with the dark
red to black flowers – must be harvested. The
pink flowered *Pelargonium reniforme* must
not be harvested. Make sure you know which
species you are harvesting!



Harvest only the main root and leave the
smaller side roots behind – they will grow into
mature roots over time and can be harvested
in the future.

Roots must be red to dark red when broken –
light coloured roots will not be purchased as
they are too young and do not make good
medicine.



Remove some of the leaves from the root.



Re-plant the leaves and root. Make sure that
the hole is fully closed again. Compact the soil
around the plant lightly with your foot.

When can it be harvested?

Pelargonium can be harvested a 1 year round.
It is however preferably harvested in the
rainy months of October to May when plants
can be replanted easily and will re-sprout for
future harvesting.

How must it be harvested?



Use a pick, a hoe or a fork to dig up the plant.

Be careful not to disturb too many plants and
soil around the plant you harvest. If other
plants are affected, re-plant them into the
harvesting hole and compact the soil around
them so they can continue to grow.



How do I transport and store the *Pelargonium*?

Place the roots into a clean PE woven bag and
take to your home.



At your home, store the *Pelargonium* in a shady
and cool place without direct sunlight. Open the
bag so that the roots can breathe. Moisture will
reduce the quality and the price paid for the
roots.

Do not store for more than 1 week – make sure
they are collected regularly. The bags should be
transported in a closed vehicle e.g. bakkie with
canopy to avoid any contamination or damage.

How often and how long can I harvest *Pelargonium*?

Mostly, after 2-3 years of harvesting in an area,
the number of mature and therefore harvestable
plants are becoming less. This is a good time to
stop harvesting. Ideally, the next harvesting in
the same area takes place 7 – 10 years later
again.



DE CASTRO & BRITS
ECOLOGICAL CONSULTANTS

Field survey of the distribution of *Pelargonium sidoides* DC and size of selected sub-populations



Authors: A. de Castro, J. Vlok and W. McLellan

Date: 10-08-2010



DE CASTRO & BRITS
ECOLOGICAL CONSULTANTS


Second field survey of selected sub-populations of *Pelargonium sidoides* DC in the Free State and Eastern Cape



Author: A. de Castro

Date: 2nd September 2018

Status: Draft

 **ROOIBOS**

The Red Tea



Uniquely South African

- Caffeine Free
- Antioxidant rich

 **ROOIBOS**

The Red Tea



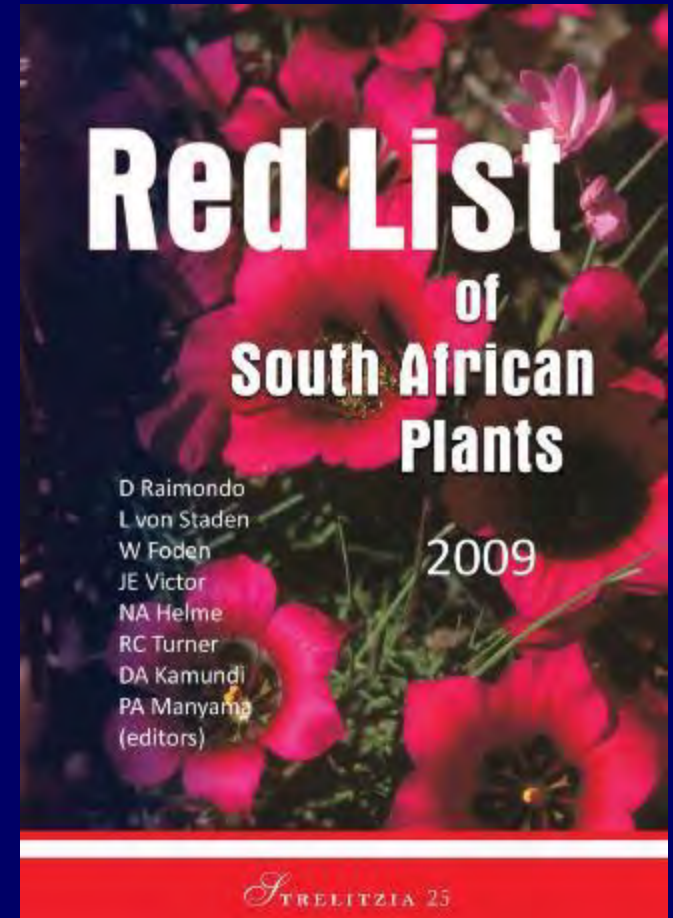
Uniquely South African

- Caffeine Free
- Antioxidant rich



Rooibos cultivation impacts

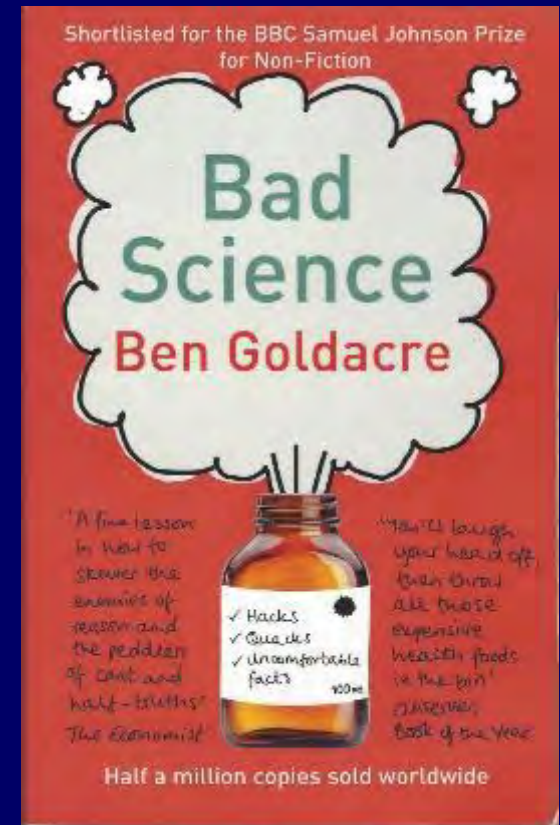
- From 14,000 ha in 1991 to 60,000 ha in 2016
- In 12 years, 300% increase in Red Listed taxa
- 149 taxa threatened with extinction
- Increased industry awareness
- Expected expansion of industry



Wynberg (2016); SAJB

Resource Assessments and Monitoring and Evaluation

- Tools...good science: provide defensible evidence
- Means to an end: informed resource management
- Maintain ecological integrity
- Sustainable value chain / business development



Resource Assessments and Monitoring and Evaluation

- “Principles, uniformity, standards, reliability”
- Plans and strategies: easy but are they executable? Want more than a vision.
- What instruments and modalities to implement plan or strategy? Resources?
- What, how and when? (ILCs, scientists, industry, regulators, development agencies)
- **Workshop February 2020**

Thank you for your attention

Acknowledgement:

Organisers of the 1st Regional Workshop on a Marula Sector Development Plan; GIZ, ABioSA