



Eskom

Standard

Technology

Title: **VEGETATION MANAGEMENT AND MAINTENANCE WITHIN ESKOM LAND, SERVITUDES AND RIGHTS OF WAY**

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Compiled by

Inba Pillay

Senior Environmental Advisor (BCoE)

Date: 27 May 2019.

Approved by

Rudi Kruger

Vegetation Care Group Convenor

Date: 10 June 2019

Authorized by

Vinod Singh

Acting Senior Manager - DBOUS

Date: 24 June 2019

Supported by PD MSC

AN Jaykaran

Chairman

Date: 19 June 2019

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1. Introduction

This standard specifically deals with vegetation management in Eskom land including servitudes and rights of way, specifying general requirements and servitude widths to assist in the development of Scope of Work for servitude maintenance. It sets out the manner in which all initial servitude route clearing, and any subsequent vegetation maintenance is to be performed on Eskom servitudes. It sets the minimum standards for vegetation clearing and maintenance of Eskom land.

It is notable that all vegetation management within commercial forestry areas shall be done in terms of the Timber Growers Agreement (the maintenance and management agreement in forest plantation areas and servitude areas (where applicable)). This particular document has however not been accepted by all foresters, but can be used as a guideline for future agreements.

2. Supporting clauses

2.1 Scope

2.1.1 Purpose

The purpose of this standard is to set requirements for initial servitude route clearing and any subsequent vegetation management performed within Eskom land.

The objective of vegetation management within Eskom land is to ensure the safe mechanical and/or electrical operation of infrastructure to meet Eskom's legal, business, social and environmental obligations.

2.1.2 Applicability

This standard shall apply throughout Eskom Holdings SOC Limited and its Divisions, subsidiaries, and entities in which Eskom has a controlling interest, including identified contractors, suppliers and service providers of Eskom where significant vegetation management impacts and risks may occur.

Where Eskom has influence in entities and/or operations, including instances where Eskom may have contractors, this standard will be applied in those areas directly under the control of Eskom, and due process will be followed to influence the entity or operation to comply with the requirements of this standard.

2.2 Normative/informative references

Parties using this document shall apply the most recent edition of the documents listed in the following paragraphs.

2.2.1 Normative

- [1] Conservation of Agricultural Resource Act, 1989 (Act No. 43 of 1989)
- [2] Eskom Land and Biodiversity Policy (32-736)
- [3] Eskom Land and Biodiversity Standard (32-815)
- [4] Eskom Contract Specification For Vegetation Management Services On Eskom Networks (240-52456757)
- [5] National Environmental Management Act, 1998 (Act No. 107 of 1998)
- [6] National Environmental Management: Biodiversity Act (NEMBA), 2004 (Act No. 10 of 2004)
- [7] National Environmental Management: Protected Areas Act (NEMPA), 2003 (Act No. 57 of 2003)
- [8] National Environmental Management: Waste Act (NEMWA), 2008 (Act No. 59 of 2008)
- [9] National Forests Act, 1998 (Act No. 84 of 1998) (List of protected Tree species)
- [10] National Parks Act, 1976 (Act No. 57 of 1976)

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- [11] National Veld & Forest Fire, 1998 (Act 1998 (Act 101 of 1998)
- [12] Occupational Health and Safety Act, 1993 (Act No. 85 of 1993)

2.2.2 Informative

- [1] Commercial Timber Growers Guideline for: Maintenance and management agreement in forest plantation areas and servitude areas
- [2] ISO 14001:2004 Environmental Management System Standard
- [3] ISO 9001 Quality Management System Standard
- [4] National Biodiversity Framework (NBF), January 2008
- [5] National Protected Area Expansion Strategy (NPAES)
- [6] Provincial Guideline on Biodiversity Offsets, Western Cape, Revised Draft – March 2007
- [7] South Africa's National Biodiversity Strategy and Action Plan (2005)
- [8] The Electrical Machinery Regulations, 2011 under Section 43 of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993).

2.3 Definitions

2.3.1 General

| Definition | Description |
|----------------------------------|--|
| Alien species | A species that is not an indigenous species; or an indigenous species translocated or intended to be translocated to a place outside its natural distribution range in nature, but not an indigenous species that has extended its natural distribution range by natural means of migration or dispersal without human intervention (National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004). |
| Commercial timber growers | Timber growers, both individually or as represented by the Forest Owners Association, South African Wattle Growers Union or the South African Timber Growers Association and their staff (Commercial Timber Growers' Guideline). |
| Critically endangered | Ecosystems that have undergone severe degradation of their ecological structure, function or composition as a result of human intervention and are subject to an extremely high risk of irreversible transformation (National Environmental Management: Biodiversity Act (Act No. 10 of 2004) |
| Ecosystem | A dynamic system of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit (National Environmental Management Act, 1998 (Act No. 107 of 1998). |
| Eskom land | Any land and/or servitude and/or any real right registered in the Deeds Office in Eskom's name or favour. It also includes rights of way granted to Eskom. |
| Habitat | A place where a species or ecological community naturally occurs (National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) |
| Indigenous species | In relation to a specific protected area, means a species that occurred, naturally in a free state in nature within that specific protected area, but excludes a species introduced in that protected area as a result of human activity. ¹ |

¹ NEMPA, 2003 (Act No 57 of 2003)

| Definition | Description |
|-------------------------------|---|
| Land user | Refers to the Eskom Business Unit (BU) or function accountable for the Eskom land, at the time, and its associated infrastructure (for example a power station and a field service centre). |
| National Park | an area which was a park in terms of the National Parks Act, 1976 (Act No. 57 of 1976), immediately before the repeal of that Act by section 90(1) of this Act, and includes a park established in terms of an agreement between a local community and the Minister which has been ratified by Parliament; or an area declared or regarded as having been declared in terms of section 20 as a national park, and includes an area declared in terms of section 20 as part of an area referred to in paragraph (a) or (b) of the National Environmental Management: Protected Areas Act 57 Of 2003. |
| Plantation | Any trees planted and managed by commercial timber growers for commercial purposes (see Commercial Timber Growers' Guideline). |
| Servitude | A servitude is a real right (i.e. registered in the Deeds Office against the title deed of an erf), the content of which is to allow limited access to an erf for a specific purpose. It does not entail ownership and must be exercised in a reasonable way, within the boundaries of the specific purpose. In this standard, the reference is specifically to servitudes which allow Eskom only to build, operate and maintain infrastructure for the generation and conveyance of electricity, and ancillary purposes. |
| Special nature reserve | <ul style="list-style-type: none"> a) an area which was a special nature reserve in terms of the Environment Conservation Act, 1989 (Act No. 73 of 1989), immediately before the repeal of section 18 of that Act by section 90 of the National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003); or b) an area declared, or regarded as having been declared, in terms of section 18 of the National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003) as a special nature reserve; c) and includes an area declared in terms of section 18 of the National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003) as part of an area referred to in paragraph (a) or (b) above. |
| Species | A group of living organisms consisting of similar individuals capable of exchanging genes or interbreeding. The species is the principal natural taxonomic unit |
| Way leave | Permission to cross or a right of way across land. |
| Weed | Any kind of plant which has under section 2 (3) been declared a weed, and includes the seed of such plant and any vegetative part of such plant which reproduces itself asexually (Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983). |

2.3.2 Disclosure classification

Controlled disclosure: controlled disclosure to external parties (either enforced by law, or discretionary).

2.4 Abbreviations

| Abbreviation | Description |
|--------------|-------------------------|
| A & F | Assurance and Forensics |

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| Abbreviation | Description |
|--------------|--|
| CARA | Conservation of Agricultural Resources Act |
| EIA | Environmental Impact Assessment |
| EMPr | Environmental Management Programme |
| Exco | Executive Management Committee |
| kV | kilovolt |
| MVCD | Minimum Vegetation Clearance Distance |
| NEMA | National Environmental Management Act |
| ORHVS | Operating Regulations for High-Voltage Systems |
| PCO | Pest Control Officer |

2.5 Roles and responsibilities

- a) The Chief Executive has the responsibility for ensuring that this standard is implemented.
- b) Divisional Executives shall be responsible and accountable for the development, implementation and performance of systems to integrate this standard into business practises.
- c) The Vegetation Management Care Group shall provide the platform to direct Eskom on corporate governance, interpretation of statutory and regulatory requirements and specification for vegetation management and maintenance within Eskom land, servitudes and rights of way and ensure vegetation management practises within Eskom land is undertaken in a manner to ensure the safe mechanical and/or electrical operation of infrastructure to meet Eskom's legal, business, social and environmental obligations.

2.6 Process for monitoring

A monitoring process to determine the effectiveness of this standard will be developed through existing internal audits (ISO 14001) and in collaboration with the A&F department.

2.7 Related/supporting documents

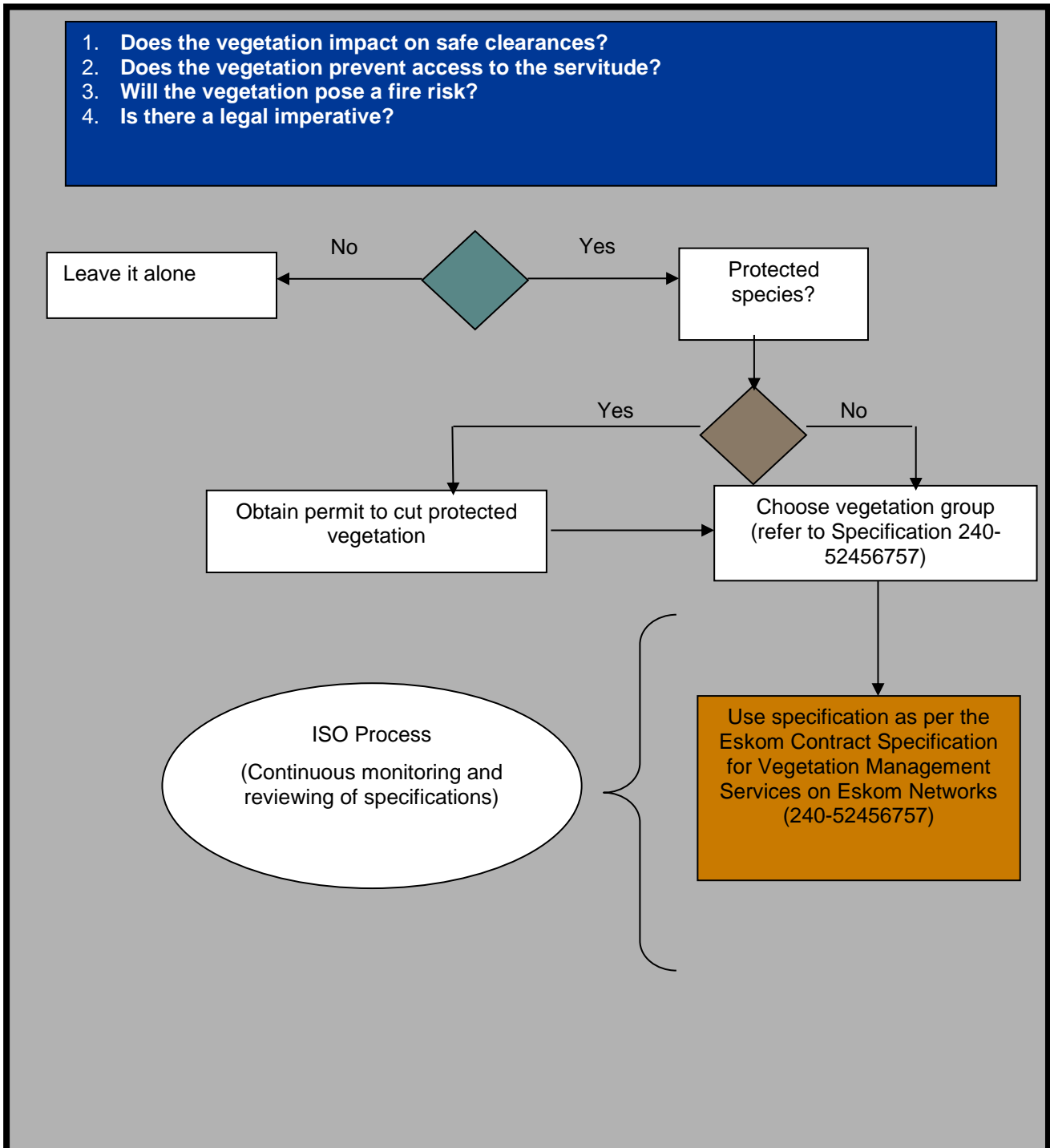
- Eskom Contract Specification For Vegetation Management Services On Eskom Networks (240-52456757)

3. Standard

This section sets the minimum standards for vegetation clearing and maintenance of all Eskom land in accordance with four key aspects. Should one or more of the four aspects be applicable, problematic vegetation must be managed in terms of Section 3.5 and in accordance to the Eskom Contract Specification for Vegetation Management Services on Eskom Networks (240-52456757):

- Where the vegetation poses a **safety clearance risk**,
- When **access** to the Eskom land is hindered,
- When the vegetation poses a **fire risk**,
- To comply with legal imperatives.

The following process must be followed when assessing vegetation should one of the above aspects hold true:



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3.1 Where the Vegetation Poses a Safety Clearance Risk

Vegetation should be controlled where it intrudes on the minimum vegetation clearance distance, (MVCD) or will intrude on this distance before the next scheduled clearance as per Item 3.5 and The Eskom Contract Specification for Vegetation Management Services on Eskom Networks (240-52456757).

Trees and any other vegetation, that could, if they fall over or negatively impact the safe operation of the line or damage the infrastructure, must be identified and managed.

3.2 When Access to the Eskom Land is Hindered

Vegetation should be cleared to allow vehicles access below power lines and related infrastructure as per Item 3.5 and The Eskom Contract Specification for Vegetation Management Services on Eskom Networks (240-52456757).

3.3 When the Vegetation Poses a Fire Risk

Where vegetation poses a potential fire risk to Eskom's infrastructure or to the operation of power lines, there must be a specific fire management programme to reduce this risk and vegetation must be controlled as per Item 3.5 and The Eskom Contract Specification for Vegetation Management Services on Eskom Networks (240-52456757).

3.4 Legal Compliance

Eskom must clear vegetation if required by any national or provincial legislation as per Item 3.5 and The Eskom Contract Specification for Vegetation Management Services on Eskom Networks (240-52456757) to.

3.5 Standard for Maximum Vegetation Clearances

The following table (from 240-52456757) shall be used as a standard for Vegetation Clearance for new and existing powerlines for access purposes (inspection, repair and maintenance), safety clearance, and prevention of fires in Servitudes and Wayleaves.

Note: Where there is a specific risk to operations as a result of equipment design or environmental condition - the Operating Unit will manage vegetation on merit. The justification for this shall only be in exceptional circumstances and shall be open to scrutiny and review.

| Nominal voltage | Servitude building restriction widths (measured from the centre line of the power line) * | Maximum Vegetation Clearance |
|------------------------|--|--|
| 11 kV | 9 m | 4m on either side of the centre line will be cleared. Grass and scrubs will be managed in accordance with Annex B (refer to 240-52456757) which is biome and land use dependant |
| 22 kV | 11 m | 4m on either side of the centre line will be cleared. Grass and scrubs will be managed in accordance with Annex B (refer to 240-52456757) which is biome and land use dependant |
| 88 kV | 11 m | 5 m on either side of the centre line will be cleared. Grass and scrubs will be managed in accordance with Annex B (refer to 240-52456757) which is biome and land use dependant |

| Nominal voltage | Servitude building restriction widths (measured from the centre line of the power line) * | Maximum Vegetation Clearance |
|-----------------|---|---|
| 132 kV | 15,5 m | 8 m on either side of the centre line will be cleared. Grass and scrubs will be managed in accordance with Annex B (refer to 240-52456757) which is biome and land use dependant |
| 220 to 765 kV | 22 m to 40 m | Clear from the centre of the power line up to the outer conductor, plus an additional 10 meters on either side. Grass and scrubs will be managed in accordance with Annex B (refer to 240-52456757) which is biome and land use dependant. |
| 533 kV DC | 15 m | 8 m either side of the centre line will be cleared. Grass and scrubs will be managed to a width of 15 meter either side of the centre of the line |

4. Authorisation

This document has been seen and accepted by:

| Name and surname | Designation |
|----------------------|---|
| Rudi Kruger | Risk and Sustainability Division, Chair of VMCG |
| Inba Pillay | Risk and Sustainability Division: Biodiversity Centre of Excellence |
| Koos Krafft | Power Delivery Engineering – Design Base and Operating Unit Support (PDE: DB&OUS) |
| Michael Michael | Research, Testing & Development |
| John Geeringh | Group Capital: Land Development |
| Nolan Ockhuis | Distribution |
| Herman Mhlongo | Group Commercial |
| Moses Tebele | Transmission |
| Phuti Makweya | Eskom Real Estate |
| Marius Atterbury | Sustainability Systems: OHS: Fire Management |
| Tshinanne Mutshatshi | Group Capital: Power Delivery Projects: Environmental Management |
| Drikus De Beer | Assurance and Forensics |

5. Revisions

| Date | Rev | Compiler | Remarks |
|-----------|-----|----------|---|
| June 2019 | 2 | I Pillay | Scheduled review of document |
| Jan 2014 | 1 | I Pillay | Scheduled review of document and number changed to 240-70172585 |
| Sept 2007 | 0 | D Lucas | Document changed to standard |

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6. Development team

The following people were involved in the development of this document:

- I Pillay
- R Kruger
- K Kraft

7. Acknowledgements

Vegetation Care Group members

Annex A – Impact assessment

(Normative – for Eskom internal use only)

Impact assessment form to be completed for all documents.

1) Guidelines

- All comments must be completed.
- Motivate why items are not applicable (n/a).
- Indicate actions to be taken, persons or organizations responsible for actions and deadline for action.
- Change control committees to discuss the impact assessment and, if necessary, give feedback to the compiler regarding any omissions or errors.

2) Critical points

This standard prescribes the minimum requirements for vegetation management in Eskom.

2.1 Impact on stock holding and depletion of existing stock prior to switch over.

Comment: None

2.2 When will new stock be available?

Comment: Not applicable

2.3 Has the interchangeability of the product or item been verified - i.e. when it fails is a straight swap possible with a competitor's product?

Comment: Not applicable

2.4 Identify and provide details of other critical (items required for the successful implementation of this document) points to be considered in the implementation of this document.

Comment: Not applicable

2.5 Provide details of any comments made by the Regions regarding the implementation of this document.

Comment: (N/A during commenting phase)

3) Implementation timeframe

3.1 Time period for implementation of requirements.

Comment: Vegetation contracting in the applicable financial year

3.2 Deadline for changeover to new item and personnel to be informed of DX wide change-over.

Comment: None

4) Buyers Guide and Power Office

4.1 Does the Buyers Guide or Buyers List need updating?

Comment: No

4.2 What Buyer's Guides or items have been created?

Comment: None

4.3 List all assembly drawing changes that have been revised in conjunction with this document.

Comment: None

4.4 If the implementation of this document requires assessment by CAP, provide details under 5

4.5 Which Power Office packages have been created, modified or removed?

Comment: CAP / LAP Pre-Qualification Process related impacts

4.6 Is an ad-hoc re-evaluation of all currently accepted suppliers required as a result of implementation of this document?

Comment: Not applicable

4.7 If NO, provide motivation for issuing this specification before Acceptance Cycle Expiry date.

Comment: This process is a Strategic Sourcing by Commercial and Procurement.

4.8 Are ALL suppliers (currently accepted per LAP), aware of the nature of changes contained in this document?

Comment: Not applicable

4.9 Is implementation of the provisions of this document required during the current supplier qualification period?

Comment: No

4.10 If Yes to B.7, what date has been set for all currently accepted suppliers to comply fully?

Comment: Not applicable

4.11 If Yes to B.7, have all currently accepted suppliers been sent a prior formal notification informing them of Eskom's expectations, including the implementation date deadline?

Comment: Not applicable

4.12 Can the changes made, potentially impact upon the purchase price of the material/equipment?

Comment: Not applicable

4.13 Material group(s) affected by specification: (Refer to Pre-Qualification invitation schedule for list of material groups)

Comment: Not applicable

5) Training or communication

5.1 Is training required?

Comment: No

5.2 State the level of training required to implement this document. (E.g. awareness training, practical / on job, module, etc.)

Comment: Not applicable

5.3 State designations of personnel that will require training.

Comment: Not applicable

5.4 Is the training material available? Identify person responsible for the development of training material.

Comment: Not applicable

5.5 If applicable, provide details of training that will take place. (E.G. sponsor, costs, trainer, schedule of training, course material availability, training in erection / use of new equipment, maintenance training, etc).

Comment: Not applicable

5.6 Was Technical Training Section consulted w.r.t module development process?

Comment: Not applicable

5.7 State communications channels to be used to inform target audience.

Comment: Not applicable

6) Special tools, equipment, software

6.1 What special tools, equipment, software, etc will need to be purchased by the Region to effectively implement?

Comment: None

6.2 Are there stock numbers available for the new equipment?

Comment: Not applicable

6.3 What will be the costs of these special tools, equipment, software?

N/A

6.4 What total costs would the Regions be required to incur in implementing this document? Identify all cost activities associated with implementation, e.g. labour, training, tooling, stock, obsolescence

Comment:

Budgets will be provided for in the Strategic Sourcing for vegetation management at national level. Allocation to divisions and business units will arise from National Contract (under revision).

Impact assessment completed by:

Name: Rudi Kruger

Designation: Corporate Specialist

Annex B – : Biomes and Vegetation types (Informative)

Different vegetation species pose different threats and require different treatments. Refer to the Eskom Contract Specification for Vegetation Management Services on Eskom Networks (240-52456757) for vegetation management within specific biomes.

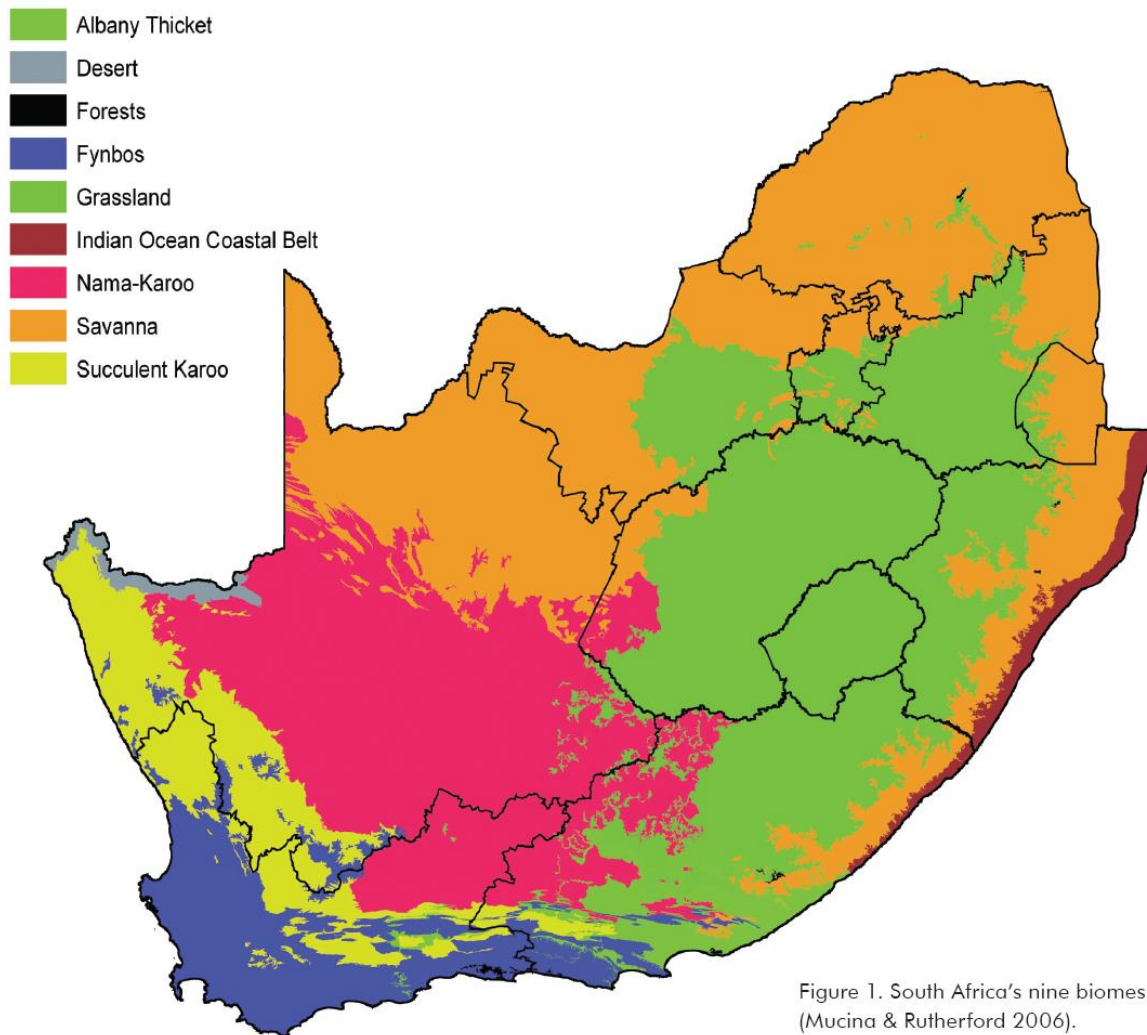


Figure 1. South Africa's nine biomes.
(Mucina & Rutherford 2006).

(Source: National Protected Areas Expansion Strategy, Department of Environmental Affairs, May 2010)

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