

	<b>Standard</b>	<b>Technology</b>
---	-----------------	-------------------

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

Unique Identifier: **240-70172585**

Alternative Reference Number: **32-247**

Area of Applicability: **Engineering**

Revision: **1**

Total Pages: **17**

Next Review Date: **January 2019**

Disclosure Classification: **Controlled Disclosure**

<p><b>Compiled by:</b></p>  <p><b>Inba Pillay</b> Senior Environmental Advisor Date: 26/11/2013</p>	<p><b>Approved by:</b></p>  <p><b>Rudi Kruger</b> Vegetation Care Group Convenor Date: 26/11/2013</p>	<p><b>Supported by: SCOT SC</b></p>  <p><b>Sebastian Pasquallie</b> Maintenance Management Steering Committee Chair Date: 10/12/2013</p>
<p><b>Authorised by:</b></p>  <p><b>Prince Moyo</b> Power Delivery Engineering GM Date: 13/01/2014</p>		

PCM Reference: <xxxxxx>

SCOT Study Committee Number/Name: <Number or name>

## Content

	Page
1. Introduction.....	3
2. Supporting clauses .....	3
2.1 Scope .....	3
2.1.1 Purpose .....	3
2.1.2 Applicability.....	3
2.2 Normative/informative references .....	3
2.2.1 Normative .....	3
2.2.2 Informative.....	4
2.3 Definitions.....	4
2.3.1 General.....	4
2.3.2 Disclosure classification.....	6
2.4 Abbreviations .....	6
2.5 Roles and responsibilities .....	6
2.6 Process for monitoring.....	7
2.7 Related/supporting documents .....	7
3. Standard .....	7
4. Authorisation.....	10
5. Revisions .....	10
6. Development team.....	10
7. Acknowledgements.....	10
8. Annexures .....	11
Annex A – Impact assessment.....	12
Annex B - Implementation timeframe .....	13
Annex C - Training or communication .....	15
Annex D - Special tools, equipment, software.....	16
Annex E : Biomes and Vegetation types.....	17

## **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)

**ESKOM COPYRIGHT PROTECTED**

- [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] Business and Biodiversity Offset Programme (BBOP) – Biodiversity Offset Design Handbook
- [2] Commercial Timber Growers Guideline for: Maintenance and management agreement in forest plantation areas and servitude areas
- [3] ISO 14001:2004 Environmental Management System Standard
- [4] ISO 9001 Quality Management System Standard
- [5] National Biodiversity Framework (NBF), January 2008
- [6] National Protected Area Expansion Strategy (NPAES)
- [7] National Spatial Biodiversity Assessment (NSBA) 2011
- [8] Provincial Guideline on Biodiversity Offsets, Western Cape, Revised Draft – March 2007
- [9] South Africa’s National Biodiversity Strategy and Action Plan (2005)
- [10] 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
<b>Alien species</b>	(a) a species that is not an indigenous species; or (b) 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).
<b>Commercial timber growers</b>	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).
<b>Critically endangered</b>	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)
<b>Ecosystem</b>	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).
<b>Eskom land</b>	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.
<b>Habitat</b>	A place where a species or ecological community naturally occurs (National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)

**ESKOM COPYRIGHT PROTECTED**

Definition	Description
<b>Indigenous species</b>	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. <sup>1</sup>
<b>Land user</b>	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).
<b>National Park</b>	<p>(a) 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</p> <p>(b) 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.</p>
<b>Plantation</b>	Any trees planted and managed by commercial timber growers for commercial purposes (see Commercial Timber Growers' Guideline).
<b>Servitude</b>	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.
<b>Special nature reserve</b>	<p>(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</p> <p>(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;</p> <p>(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.</p>
<b>Species</b>	A kind of animal, plant or other organism that does not normally interbreed with individuals of another kind, and includes any subspecies, cultivar, variety, geographic race, strain, hybrid or geographically separate population (National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).
<b>Way leave</b>	Permission to cross or a right of way across land.

<sup>1</sup> NEMPA, 2003 (Act No 57 of 2003)

Definition	Description
<b>Weed</b>	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
<b>A &amp; F</b>	Assurance and Forensics
<b>BSC</b>	Board Sustainability Committee
<b>CARA</b>	Conservation of Agricultural Resources Act
<b>EIA</b>	Environmental Impact Assessment
<b>ELC</b>	Environmental Liaison Committee
<b>EMPr</b>	Environmental Management Programme
<b>Exco</b>	Executive Management Committee
<b>kV</b>	kilovolt
<b>MVCD</b>	Minimum Vegetation Clearance Distance
<b>NEMA</b>	National Environmental Management Act
<b>ORHVS</b>	Operating regulations for high-voltage systems
<b>PCO</b>	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 the appropriate biodiversity management systems in their respective divisions.
- c) The **Environmental Manager: Sustainability Division** shall establish mechanisms to ensure an Eskom co-ordinated and aligned approach to biodiversity management and shall ensure that issues relating to biodiversity performance are monitored and recorded. All areas of the organisation shall report on biodiversity issues, and the Environmental Manager of Sustainability Division shall complement the assurance function provided by A&F to the Exco, and the BSC.

**ESKOM COPYRIGHT PROTECTED**

## **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**

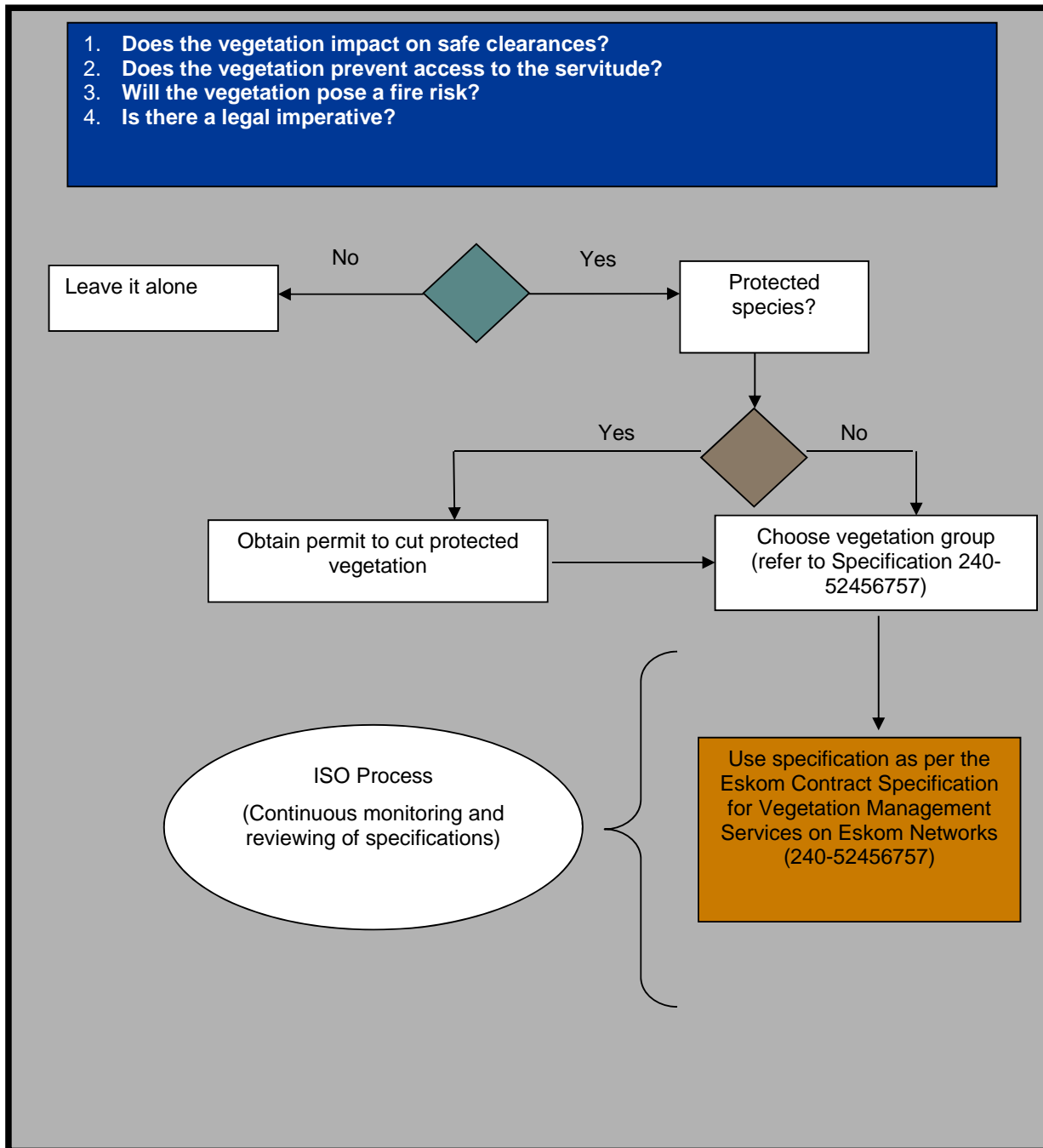
- Eskom Contract Specification For Vegetation Management Services On Eskom Networks (240-52456757)
- Land and Biodiversity Policy 32-736
- Land and Biodiversity Standard 32-815

## **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:



**ESKOM COPYRIGHT PROTECTED**



### 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
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)

**ESKOM COPYRIGHT PROTECTED**

		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 the Vegetation Care Group.

Name and surname	Designation
Richard Chinzvende	Senior Manager Transmission Division
Hein Vosloo	Senior Manager Transmission Division
Louis Maleka	Senior General Manager Distribution Division
Deidre Herbst	Eskom Environmental Manager Sustainability Division

#### 5. Revisions

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

#### 6. Development team

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

Vegetation Care Group

- R Kruger
- I Pillay
- H Vosloo
- K Kraft
- M Michael
- C Pelser
- R Chinzvende
- N Ockhuis

#### 7. Acknowledgements

Vegetation Care Group

**ESKOM COPYRIGHT PROTECTED**

## **8. Annexures**

- A. Impact Assessment
- B. Implementation Timeframe
- C. Training or Communication
- D. Special tools, equipment or software
- E. Biomes and Vegetation Types

## **Annex A – Impact assessment**

(Normative – for Eskom internal use only)

[Impact assessment form to be completed for all documents.](#)

### **A.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.

### **A.2 Critical points**

**A.2.1** This standard prescribes the minimum requirements for vegetation management in Eskom.

### **A.3 Impact on stock holding and depletion of existing stock prior to switch over.**

Comment: None

### **A.4 When will new stock be available?**

Comment: Not applicable

### **A.5 Has the interchangeability of the product or item been verified - i.e. when it fails is a straight swop possible with a competitor's product?**

Comment: Not applicable

### **A.6 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

### **A.7 Provide details of any comments made by the Regions regarding the implementation of this document.**

Comment: (N/A during commenting phase)

## **Annex B - Implementation timeframe**

### **B.1 Time period for implementation of requirements.**

Comment: Vegetation contracting in the 2013 financial year

### **B.2 Deadline for changeover to new item and personnel to be informed of DX wide change-over.**

Comment: 2015

### **B.3 Buyers Guide and Power Office**

#### **B.3.1 Does the Buyers Guide or Buyers List need updating?**

Comment: No

#### **B.3.2 What Buyer's Guides or items have been created?**

Comment: None

#### **B.3.3 List all assembly drawing changes that have been revised in conjunction with this document.**

Comment: None

#### **B.3.4 If the implementation of this document requires assessment by CAP, provide details under 5**

#### **B.3.5 Which Power Office packages have been created, modified or removed?**

Comment: Not applicable CAP / LAP Pre-Qualification Process related impacts

### **B.4 Is an ad-hoc re-evaluation of all currently accepted suppliers required as a result of implementation of this document?**

Comment: Not applicable

### **B.5 If NO, provide motivation for issuing this specification before Acceptance Cycle Expiry date.**

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

### **B.6 Are ALL suppliers (currently accepted per LAP), aware of the nature of changes contained in this document?**

Comment: Not applicable

### **B.7 Is implementation of the provisions of this document required during the current supplier qualification period?**

Comment: No

### **B.8 If Yes to B.7, what date has been set for all currently accepted suppliers to comply fully?**

Comment: Not applicable

### **B.9 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

**B.10 Can the changes made, potentially impact upon the purchase price of the material/equipment?**

Comment: Not applicable

**B.11 Material group(s) affected by specification: (Refer to Pre-Qualification invitation schedule for list of material groups)**

Comment: Not applicable

## **Annex C - Training or communication**

**C.1 Is training required?**

Comment: No

**C.2 State the level of training required to implement this document. (E.g. awareness training, practical / on job, module, etc.)**

Comment: Not applicable

**C.3 State designations of personnel that will require training.**

Comment: Not applicable

**C.4 Is the training material available? Identify person responsible for the development of training material.**

Comment: Not applicable

**C.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

**C.6 Was Technical Training Section consulted w.r.t module development process?**

Comment: Not applicable

**C.7 State communications channels to be used to inform target audience.**

Comment: Not applicable

### **Annex D - Special tools, equipment, software**

**D.1 What special tools, equipment, software, etc will need to be purchased by the Region to effectively implement?**

Comment: None

**D.2 Are there stock numbers available for the new equipment?**

Comment: Not applicable

**D.3 What will be the costs of these special tools, equipment, software? N/A**

**D.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 provided for in the Strategic Sourcing for vegetation management at national level Allocation to Operating Units will arise from the National Contract establishment

Impact assessment completed by:

Name: Rudi Kruger

Designation: Corporate Specialist



## Annex E: 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.

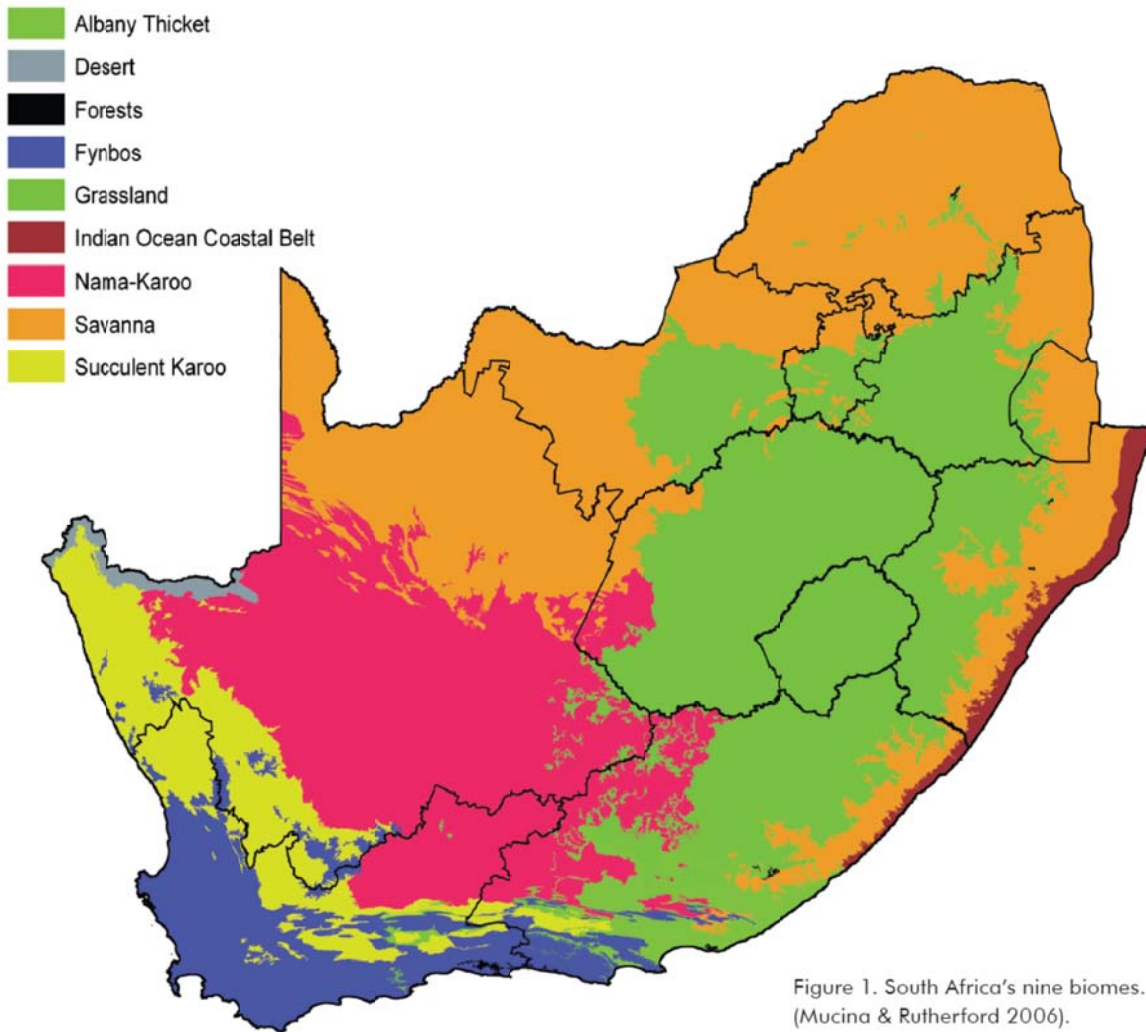


Figure 1. South Africa's nine biomes. (Mucina & Rutherford 2006).

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

**ESKOM COPYRIGHT PROTECTED**