MURA EGI CORRIDOR: PLANT SPECIES COMPLIANCE STATEMENT





PRODUCED ON BEHALF RED CAP



Simon.Todd@3foxes.co.za

November 2022

MURA EGI CORRIDOR

PLANT SPECIES COMPLIANCE STATEMENT



DETAILS OF THE SPECIALIST, DECLARATION OF INTEREST AND UNDERTAKING UNDER OATH

	(For official use only)
File Reference Number:	
NEAS Reference Number:	DEA/EIA/
Date Received:	

Application for authorisation in terms of the National Environmental Management Act, Act No. 107 of 1998, as amended and the Environmental Impact Assessment (EIA) Regulations, 2014, as amended (the Regulations)

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Mura EGI Corridor	

Kindly note the following:

- 1. This form must always be used for applications that must be subjected to Basic Assessment or Scoping & Environmental Impact Reporting where this Department is the Competent Authority.
- 2. This form is current as of 01 September 2018. It is the responsibility of the Applicant / Environmental Assessment Practitioner (EAP) to ascertain whether subsequent versions of the form have been published or produced by the Competent Authority. The latest available Departmental templates are available at https://www.environment.gov.za/documents/forms.
- 3. A copy of this form containing original signatures must be appended to all Draft and Final Reports submitted to the department for consideration.
- 4. All documentation delivered to the physical address contained in this form must be delivered during the official Departmental Officer Hours which is visible on the Departmental gate.
- All EIA related documents (includes application forms, reports or any EIA related submissions) that are faxed; emailed; delivered to Security or placed in the Departmental Tender Box will not be accepted, only hardcopy submissions are accepted.

Departmental Details

Postal address:

Department of Environmental Affairs

Attention: Chief Director: Integrated Environmental Authorisations

Private Bag X447

Pretoria 0001

Physical address:

Department of Environmental Affairs

Red Cap Energy (PTY) LTD

Prepared by: 3Foxes Biodiversity Solutions

Mura EGI - Plant Species Compliance Statement Revision No. 1

Attention: Chief Director: Integrated Environmental Authorisations

Environment House 473 Steve Biko Road

Arcadia

Queries must be directed to the Directorate: Coordination, Strategic Planning and Support at:

Email: EIAAdmin@environment.gov.za

D Prepared by: 3Foxes Biodiversity Solutions compliance Statement

Revision No.

1. SPECIALIST INFORMATION

Specialist Company Name:	3Foxes Biodiversity Solution	ons			
B-BBEE	Contribution level (indicate 1 to 8 or non-compliant)	4	Percenta Procurer recogniti	ment	100%
Specialist name:	st name: Simon Todd				
Specialist Qualifications:					
Professional affiliation/registration:	1 SACNASP 400425/11				
Physical address:	23 De Villiers Road, Kommetjie 7975				
Postal address:	23 De Villiers Road, Kommetjie				
Postal code:	e: 7975 Cell: 082 3326502		502		
Telephone:		Fax	X:		
E-mail:	: Simon.Todd@3foxes.co.za				

2. DECLARATION BY THE SPECIALIST

I,Simon Todd	, declare that –
--------------	------------------

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing any decision to be taken with respect to the application by the competent authority; and the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- all the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

Swedh.	
Signature of the Specialist	
3Foxes Biodiversity Solutions	
Name of Company:	
15 December 2022	

Red Cap Energy (PTY) LTD

Date:

Prepared by: 3Foxes Biodiversity Solutions

Mura EGI - Plant Species Compliance Statement Revision No. 1

Date: November 2022 Page iv

_____, swear under oath / affirm that all the information I, ___Simon Todd_____ submitted or to be submitted for the purposes of this application is true and correct.

UNDERTAKING UNDER OATH/ AFFIRMATION

Signature of the Specialist 3Foxes Biodiversity Solutions Name of Company 15 December 2022 Date Signature of the Commissioner of Oaths

Date

3.

Red Cap Energy (PTY) LTD Mura EGI - Plant Species Compliance Statement Revision No.

SHORT CV/SUMMARY OF EXPERTISE - SIMON TODD



Simon Todd Pr.Sci.Nat
Director & Principle Scientist
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23 De Villiers Road
Kommetjie

7975

People & the Environment

Simon Todd is Director and principal scientist at 3Foxes Biodiversity Solutions and has over 20 years of experience in biodiversity measurement, management and assessment. He has provided specialist ecological input on more than 200 different developments distributed widely across the country, but with a focus on the three Cape provinces. This includes input on the Wind and Solar SEA (REDZ) as well as the Eskom Grid Infrastructure (EGI) SEA and Karoo Shale Gas SEA. He is on the National Vegetation Map Committee as representative of the Nama and Succulent Karoo Biomes. Simon Todd is a recognised ecological expert and is a past chairman and current deputy chair of the Arid-Zone Ecology Forum. He is registered with the South African Council for Natural Scientific Professions (No. 400425/11).

Skills & Primary Competencies

- Research & description of ecological patterns & processes in Nama Karoo, Succulent Karoo, Thicket, Arid Grassland, Fynbos and Savannah Ecosystems.
- Ecological Impacts of land use on biodiversity
- Vegetation surveys & degradation assessment & mapping
- Long-term vegetation monitoring
- Faunal surveys & assessment.
- GIS & remote sensing

Tertiary Education:

- 1992-1994 BSc (Botany & Zoology), University of Cape Town
- 1995 BSc Hons, Cum Laude (Zoology) University of Natal
- 1996-1997- MSc, Cum Laude (Conservation Biology) University of Cape Town

Employment History

• 2009 – Present – Sole Proprietor of Simon Todd Consulting, providing specialist ecological services for development and research.

- 2007 Present Senior Scientist (Associate) Plant Conservation Unit, Department of Botany, University of Cape Town.
- 2004-2007 Senior Scientist (Contract) Plant Conservation Unit, Department of Botany, University of Cape Town
- 2000-2004 Specialist Scientist (Contract) South African National Biodiversity Institute
- 1997 1999 Research Scientist (Contract) South African National Biodiversity Institute

A selection of recent work is as follows:

Strategic Environmental Assessments

Co-Author. Chapter 7 - Biodiversity & Ecosystems - Shale Gas SEA. CSIR 2016.

Co-Author. Chapter 1 Scenarios and Activities – Shale Gas SEA. CSIR 2016.

Co-Author – Ecological Chapter – Wind and Solar SEA. CSIR 2014.

Co-Author – Ecological Chapter – Eskom Grid Infrastructure SEA. CSIR 2015.

Contributor – Ecological & Conservation components to SKA SEA. CSIR 2017.

Relevant Recent Studies Requiring Similar Expertise to the Current Project

- Beaufort West PV Facility. Fauna & Flora Assessment. SiVest Environmental 2022.
- San Solar PV Facility, Kathu. Fauna & Flora Assessment. Savannah Environmental 2022.
- Soventix Phase 3 PV Facility, De Aar. Fauna & Flora Assessment. Ecologes Environmental Consultants, 2022.
- Sadawa PV Facilities, Tankwa Karoo. Fauna & Flora Assessment. Savannah Environmental 2021.
- Kotulo Tsatsi PV 1 Facility near Kenhardt. Fauna & Flora Assessment. Savannah Environmental 2021.
- Hyperion 2 PV Facility, Kathu. Fauna & Flora Assessment. Savannah Environmental 2021.

Plant Species Compliance Statement

Contents

1.	SPECIALIST INFORMATION	IV
2.	DECLARATION BY THE SPECIALIST	IV
3.	UNDERTAKING UNDER OATH/ AFFIRMATION	V
SHOR	T CV/SUMMARY OF EXPERTISE – SIMON TODD	VI
1.	INTRODUCTION	1
1.1	Scope and Objectives	1
2.	TECHNICAL DESCRIPTION	2
2.1	Project Description	2
3.	ASSESSMENT METHODOLOGY	4
3.1	Site Visit	4
3.2	Data Sourcing and Review	5
4.	ASSUMPTIONS AND LIMITATIONS	5
5.	LEGAL REQUIREMENT AND GUIDELINES	6
5.1	National Permitting	6
5.2	Provincial Permitting	6
6.	DESCRIPTION OF THE RECEIVING ENVIRONMENT	7
6.1	Vegetation Types	7
6.2	DFFE Screening Tool Output	11
7.	PROPOSED MITIGATION ACTIONS	13
7.1	Cumulative Impacts	14
8.	COMPARATIVE ASSESSMENT OF ALTERNATIVES	14
8 1	No-Go Alternative	14

9.	CONCLUSION	14
9.1	Impact Statement	14
10	ANNEX 1 LIST OF PLANT SPECIES	0

Red Cap Energy (PTY) LTD

Mura EGI - Plant Species Compliance Statement
Revision No. 1

List of Figures

Figure 1.	Image showing the regional context and location of the proposed Mura EGI
	Corridor which links the various Mura PV projects to the Nuweveld Collector
	Substation3
Figure 2.	Map showing the sampling points within the Mura EGI Corridor as well as the
	tracks walked through the Mura PV project areas 5
Figure 3.	Vegetation map of the broader Mura Solar Project area, showing that the Mura
	EGI Corridor falls entirely within the Eastern Upper Karoo vegetation type 8
Figure 4.	Typical landscape present within the Mura EGI Corridor study area,
	corresponding with the Eastern Upper Karoo vegetation type. The cliffs in the
	distance are along the Krom Rivier which is the major feature along the southern
	grid corridor route. The typical plains of the study area are considered low
	sensitivity9
Figure 5.	Dolerite slope within the Mura EGI Corridor, along the Krom Rivier representative
	of the Upper Karoo Hardeveld vegetation type10
Figure 6.	Riparian vegetation along the Krom Rivier considered to represent the Southern
	Karoo Riviere vegetation type. The vegetation of the silty floodplains in this area
	are considered to represent suitable habitat for the Riverine Rabbit, but no plant
	species of concern were observed in this area11
Figure 7.	DFFE Screening Tool output for the study area, showing that the southern part of
	the Mura EGI Corridor falls within an area classified as Medium Sensitivity 12

Red Cap Energy (PTY) LTD

Mura EGI - Plant Species Compliance Statement
Revision No. 1

MURA EGI CORRIDOR

Plant Species Compliance Statement

1. INTRODUCTION

Red Cap Energy (Pty) Ltd is proposing to develop four solar facilities and associated grid connections, on behalf of four separate Project Applicants, collectively known as the Mura PV projects between Loxton and Beaufort West in the Beaufort West Local Municipality and Ubuntu Local Municipality and the Central Karoo District Municipality and Pixley ka Sema District Municipality. Each solar facility will connect to the Eskom grid via new 132 kV overhead lines (assessed in a separate process to the PV facilities) connecting the two onsite solar substations via adjacent Eskom switching stations to the approved Nuweveld Collector substation. An Electrical Grid Infrastructure (EGI) Corridor is proposed and includes multiple connection routes of up to two 132 kV overhead lines running in parallel and switching stations to enable the connection of the Mura Solar Developments to the approved Nuweveld Collector Substation.

As part of the required studies for the required Basic Assessment application for environmental authorisation, 3Foxes Biodiversity Solutions has been appointed to provide terrestrial ecological input for the development application. The DFFE Screening Tool indicates that the site falls within an area with Medium Sensitivity under the Plant Species Theme. The site verification was not able to find any of the species of concern present within the corridor, with the result that that corridor is considered Low Sensitivity for the Plant Species Theme. Consequently, in terms of the regulations, a Plant Species Compliance Statement is the recommended level of study for the BA process. To these ends, this Plant Species Compliance Statement for the Mura EGI Corridor, addresses the potential impacts of the project on vegetation and plant species and must be included in the BA for the development and any mitigation and monitoring measures as identified, must be incorporated into the EMPr for the development.

1.1 Scope and Objectives

In terms of the GN 1150 30 October 2020, *Procedures for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(A) and (h) and 44 of the National Environmental Management Act, 1998, when applying for environmental authorisation, the Terrestrial Plant Species Compliance Statement should include the following details:*

- The compliance statement must be prepared by a SACNASP registered specialist under one of the two fields of practice (Botanical Science or Ecological Science).
- The compliance statement must:
 - be applicable within the study area;
 - confirm that the study area is of "low" sensitivity for terrestrial plant species; and
 - indicate whether or not the proposed development will have any impact on SCC.
- The compliance statement must contain, as a minimum, the following information:
 - contact details and relevant experience as well as the SACNASP registration number of the specialist preparing the compliance statement including a curriculum vitae;
 - a signed statement of independence by the specialist;
 - a statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;

Mura EGI Corridor

- a description of the methodology used to undertake the site survey and prepare the compliance statement, including equipment and modelling used where relevant;
- where required, proposed impact management actions and outcomes or any monitoring requirements for inclusion in the EMPr;
- a description of the assumptions made and any uncertainties or gaps in knowledge or data;
- the mean density of observations/ number of samples sites per unit area; and
- any conditions to which the compliance statement is subjected.
- A signed copy of the Terrestrial Plant Species Compliance Statement must be appended to the Basic Assessment Report or the Environmental Impact Assessment Report.

2. TECHNICAL DESCRIPTION

2.1 Project Description

The infrastructure included on the grid connection application includes the following:

- Eight Eskom Switching stations: Located adjacent to the solar farm substations within the solar area footprint;
- Maximum height of 12m;
- Footprint of up to 150 m x 75 m.
- Four additional up to 150 m x 75 m switching stations located within the corridor;
- ~70 km of overhead 132 kV lines (~40 km will be single overhead 132 kV lines and ~30 km will be up
 to two overhead 132 kV lines running in parallel running between the switching stations supported by
 monopole pylons with a max height 38m); and
- Access tracks.

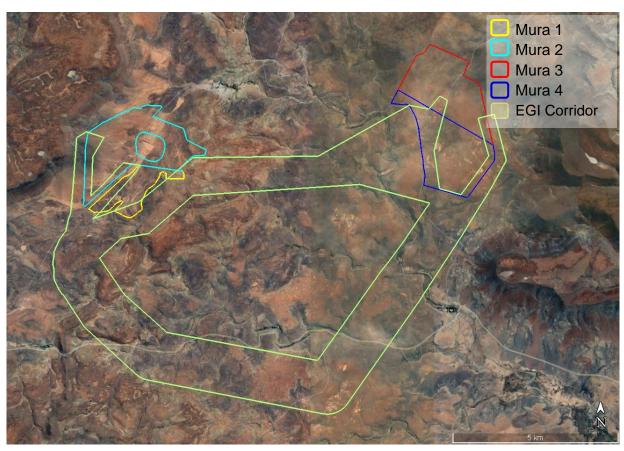


Figure 1. Image showing the regional context and location of the proposed Mura EGI Corridor which links the various Mura PV projects to the Nuweveld Collector Substation.

Table 1. Summary of the components and approximate areas of impact within the Mura Grid Connection Corridor and associated infrastructure.

Project Components	Description	Disturbance footprint
Switching stations	There will be up to two Eskom switching stations on each solar farm with a footprint of approximately $150 \times 75 \text{ m}$ ($11,250 \text{ m}^2$). The switching station area will include all the standard switching station electrical equipment/components, such as bus bars, metering equipment, switchgear, and will also house control, operational, workshop and storage buildings/areas. Additional switching stations are also proposed outside of the solar farm footprint.	13
Overhead lines and pylons	~70 km of overhead 132 kV lines (~40 km will be single overhead 132 kV lines and ~30 km will be up to two overhead 132 kV lines running in parallel running between the switching stations supported by monopole pylons with a max height 38m. The spans (distance between pylons) on the monopole pylons (without stays) are on average 260 m.	2,5

are required for all project phases. Temporary laydown areas will be identified along the alignment, with the main equipment			
Temporary areas	and construction yards being located along the alignment or based in one of the surrounding towns or at the solar site camp. It is anticipated that the total area required for the temporary laydown areas is up to 2 ha and two will be required.		
Total disturbance footprint: Temporary			
	nes feetuuint. Demonsut	48	
Total disturba	nce footprint: Permanent	1 -0	

3. ASSESSMENT METHODOLOGY

3.1 Site Visit

The Mura EGI Corridor was visited several times for the current study and numerous sections of the grid corridor have also been sampled in the past for a variety of other projects, most notably for the Gamma Grid 400kV power line project which overlaps with the current project area for the southern grid corridor linking the Mura 3 and 4 project areas to the Nuweveld Collector Substation. Specific dates of site visits for the Mura EGI Corridor assessment include the following dates:

- 22 March 2022
- 07-08 June 2022
- 19 October 2022

A full species list for the site was developed during the field sampling and attention was paid to the possible presence of any flora of concern within the corridor. Sensitive species and habitats within the corridor were recorded where present and mapped with a GPS if necessary. In addition to the sampling specifically within the corridor, the PV areas which also overlap to some degree with the corridor were also sampled in detail for the associated studies for the PV facilities (*Figure 2*). The sampling conducted within the corridor is considered sufficient to adequately assess the plant diversity patterns and likely presence of the SCC within the corridor with an adequate degree of confidence.

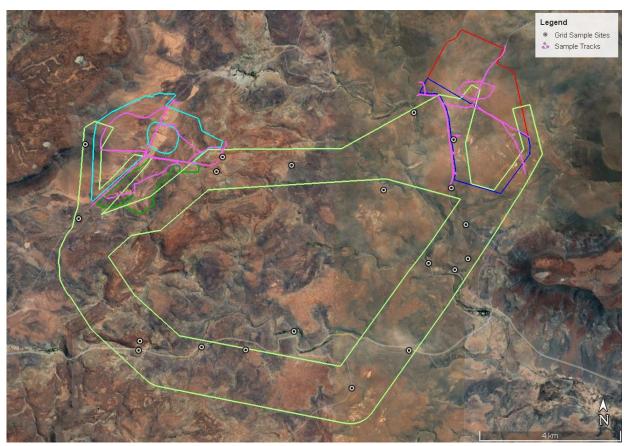


Figure 2. Map showing the sampling points within the Mura EGI Corridor as well as the tracks walked through the Mura PV project areas.

3.2 Data Sourcing and Review

Data sources from the literature consulted and used where necessary in the study includes the following:

- Vegetation types and their conservation status were extracted from the South African National Vegetation Map (2018 update).
- Information on plant species recorded for the wider area was extracted from the South African Biodiversity
 Information Facility (SABIF)/ SANBI Integrated Biodiversity Information System (SIBIS) database hosted
 by the South African National Biodiversity Institute (SANBI). Data was extracted for a significantly larger
 area than the study area, but this is necessary to ensure a conservative approach.
- The International Union for Conservation of Nature (IUCN) conservation status of the species in the list was also extracted from the database and is based on the Threatened Species Programme, Red List of South African Plants (2022).

4. ASSUMPTIONS AND LIMITATIONS

Conditions at the time of the surveys were in a relatively favourable for the field assessment as there had been rain prior to sampling and the abundance of annuals and geophytes as relatively high, with many species growing or in flower. Although not all of the corridor could be searched given its' large extent and inaccessibility of some areas, the corridor is considered to have been sufficiently well-covered and it is unlikely that there are any significant vegetation features present that would not have been observed during the study. The consultant has spent a large amount of time in the area for the current project, the Nuweveld WEFs, the

Mura EGI Corridor

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Mura EGI Corridor Plant Species Compliance Statement Revision No. 1

Hoogland series of WEFs as well as for a number of other projects in the area, with the result that the plant community patterns and habitats where plant SCC occur are well-known to the consultant in the study area and this knowledge of the area has been used to direct sampling site selection and inform the current study. Consequently, there are few limitations and assumptions required with regards to the vegetation of the site and the presence of plant SCC within the grid corridor.

5. LEGAL REQUIREMENT AND GUIDELINES

5.1 National Permitting

In terms of national permits, a protected tree clearing permit is potentially required under the National Forests Act. The Notice of the List of Protected Tree Species Under the National Forests Act, 1998 (ACT NO 84 OF 1998) can be obtained from this location: https://www.gov.za/documents/national-forests-act-list-protected-tree-species-7. This list has not been changed since it was last published in 2014. However, no protected tree species were observed present within the site and as such, no tree clearing permit would be required.

Threatened Or Protected Species (TOPS) permits for the carrying out of restricted activities in terms of the National Environmental Management: Biodiversity Act 2004 (No. 10 of 2004) may be required. However, TOPS permits are submitted to either the national minister or the provincial minister. In terms of the legislation, the relevant issuing authority for the current project would be the office of the MEC of the province.

In terms of TOPS, the Western Cape government is not currently in compliance with these regulations as it does not require or integrate TOPS permits into its own permitting requirements despite being the authority for such permits. However, in principle a TOPS permit would be required should it be necessary that a TOPS-listed species needs to be translocated, trapped or relocated.

The most recent lists of TOPS species and associated legislation is available in the National Environmental Management: Biodiversity Act, 2004 (ACT NO. 10 of 2004), Threatened or Protected Species Regulations Notice 255 of 2015. In addition to these species, SANBI maintains a national list of the IUCN conservation status of all plant species in South Africa. Any endangered (VU, EN, CR) species under this list are also subject to the TOPS regulations.

5.2 Provincial Permitting

In terms of Western Cape provincial permits, a protected flora clearing permit from CapeNature would be required. This permit must list the number and location of all individuals of protected plants as listed in the provincial ordinance (Western Cape Nature Conservation Laws Amendment Act, 2000) as well as those plants listed as being of conservation concern by the Red List of South African Plants (http://redlist.sanbi.org/index.php).

In terms of Northern Cape provincial permits, a protected flora clearing permit from DENC would be required. This permit must list the number and location of all individuals of protected plants as listed in the provincial ordinance (Northern Cape Nature Conservation Act, 2009) as well as those plants listed as being of conservation concern by the Red List of South African Plants (http://redlist.sanbi.org/index.php).

This permit requires a full walk-through of the final approved solar farm development footprint, following which the number of individuals of protected species that would be affected by the development can be quantified and used to populate the permit application. Depending on the identity of the species concerned, some would

Mura EGI Corridor

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Mura EGI Corridor Plant Species Compliance Statement Revision No. 1

be destroyed, while other species would need to be translocated within the site to a safe site outside the development footprint, based on the recommendations of the walk-through study.

6. DESCRIPTION OF THE RECEIVING ENVIRONMENT

A baseline description of the vegetation and flora of the site is provided below, starting with a description of the broad vegetation types present and the common and dominant species present, followed by the outputs of the DFFE Screening Tool.

6.1 Vegetation Types

The national vegetation map (Mucina & Rutherford 2006 & SANBI 2018 update) for the study area is depicted below in Figure 3. The whole of the Mura EGI Corridor is classified as falling within the Eastern Upper Karoo vegetation type. The results of the field assessment confirm that this is an oversimplification of the vegetation of the site and based on the fieldwork on the site and site verification, there are some dolerite hills present that can be considered to represent the Upper Karoo Hardeveld vegetation type, while the areas of riparian vegetation along the larger drainage systems of the corridor such as the Krom can be considered to represent the Southern Karoo Riviere vegetation type. These three vegetation types are described and illustrated briefly below.

Revision No. 1

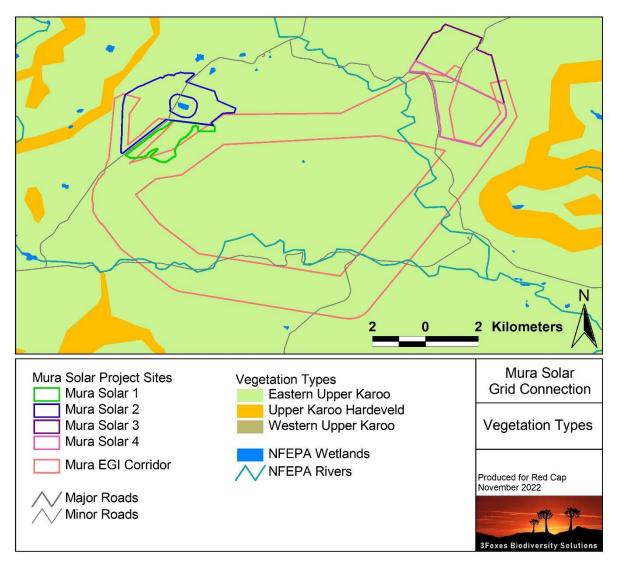


Figure 3. Vegetation map of the broader Mura Solar Project area, showing that the Mura EGI Corridor falls entirely within the Eastern Upper Karoo vegetation type.

Eastern Upper Karoo

Eastern Upper Karoo has an extent of 49 821 km² and is the most extensive vegetation type in South Africa and forms a large proportion of the central and eastern Nama Karoo Biome. This vegetation type is classified as Least Threatened, and about 2% of the original extent has been transformed largely for intensive agriculture. Eastern Upper Karoo is however poorly protected and less than 1% of the 21% target has been formally conserved. Mucina & Rutherford (2006) list eight endemic species for this vegetation type, which considering that it is the most extensive unit in the country, is not very high. As a result, this is not considered to represent a sensitive vegetation type.

Dominant and characteristic species observed within the areas of Eastern Upper Karoo vegetation include low woody shrubs such as *Pentzia globosa*, *Rosenia humulis*, *Asparagus capensis*, *Eriocephalus ericoides*,

Mura EGI Corridor

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Mura EGI Corridor Plant Species Compliance Statement Revision No. 1

Pteronia sordida, Pteronia incana, Plinthus karooicus, Helichrysum luciloides, Felicia muricata, with a varying density of low succulent shrubs such as Roepera lichtensteinii, Aridaria noctiflora and Ruschia spinosa, with a variable grass layer dominated by Aristida adscenionis, Stipagrostis ciliata, Stipagrostis obtusa, Enneapogon desvauxii and Tragus berteronianus.

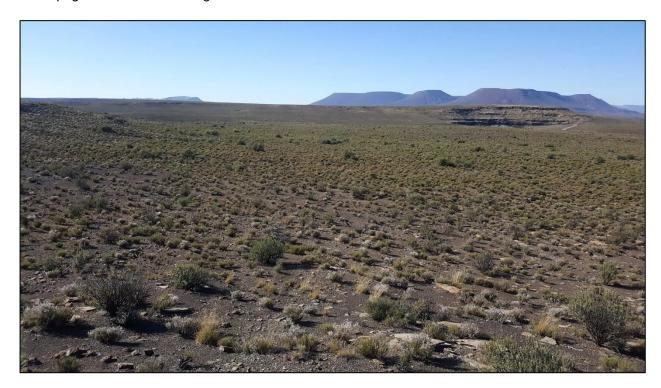


Figure 4. Typical landscape present within the Mura EGI Corridor study area, corresponding with the Eastern Upper Karoo vegetation type. The cliffs in the distance are along the Krom Rivier which is the major feature along the southern grid corridor route. The typical plains of the study area are considered low sensitivity.

Upper Karoo Hardeveld

Although there are no expansive areas of Upper Karoo Hardeveld within the grid corridor, there are several minor ridges and the dolerite hills along the Krom Rivier can generally be considered to represent this vegetation type. The Upper Karoo Hardeveld vegetation type is associated with 11 734 km² of the steep slopes of koppies, buttes mesas and parts of the Great Escarpment covered with large boulders and stones. The vegetation type occurs as discrete areas associated with slopes and ridges from Middelpos in the west and Strydenburg, Richmond and Nieu-Bethesda in the east, as well as most south-facing slopes and crests of the Great Escarpment between Teekloofpas and eastwards to Graaff-Reinet. Altitude varies from 1000-1900m. Mucina & Rutherford (2006) list 17 species known to be endemic to the vegetation type. This is a high number given the wide distribution of most karoo species and illustrates the relative sensitivity of this vegetation type compared to the surrounding Eastern Upper Karoo.

Upper Karoo Hardeveld is usually consists of very rocky ground and is often associated with steep slopes, with the result that it is considered vulnerable to disturbance as such areas may take a long time to recover if the topsoil is lost. Although this vegetation type contains a higher diversity of species than the adjacent areas of Eastern Upper Karoo, no red-listed plant species were observed within these areas during the field survey.



Figure 5. Dolerite slope within the Mura EGI Corridor, along the Krom Rivier representative of the Upper Karoo Hardeveld vegetation type.

Southern Karoo Riviere

The vegetation along the major drainage lines of the corridor can be considered to represent the Southern Karoo Riviere vegetation type. This vegetation type is associated with the rivers of the central karoo such as the Buffels, Bloed, Dwyka, Gamka, Sout, Kariega and Sundays Rivers. About 12% has been transformed as a result of intensive agriculture and the construction of dams. Although it is classified as Least Threatened, it is associated with rivers and drainage lines and as such represents areas that are considered ecologically significant. Within the grid corridor, these areas are of particular significance due to the association with the Riverine Rabbit which is a species of high conservation concern. Typical and dominant species observed from the drainage lines of the area includes *Vachellia karroo*, *Searsia lancea*, *Cenchrus ciliaris*, *Searsia burchellii*, *Melianthus comosus*, *Lycium oxycarpum*, *Sporobolus ioclados*, *Helichrysum pentzioides*, *Drosanthemum lique*, *Pentzia globosa*, *Salsola aphylla*, *Tribulis terrestris*, *Felicia muricata*, *Atriplex vestita*, *Roepera retrofractum*, *Cynodon dactylon*, *Chrysocoma ciliata*, *Stipagostis namaquensis*, *Lycium pumilum*, *Lycium cinereum*, *Artemisia africana*, *Tripteris spinescens*, *Exomis microphylla* and *Derverra denudata*.



Figure 6. Riparian vegetation along the Krom Rivier considered to represent the Southern Karoo Riviere vegetation type. The vegetation of the silty floodplains in this area are considered to represent suitable habitat for the Riverine Rabbit, but no plant species of concern were observed in this area.

6.2 DFFE Screening Tool Output

The DFFE Screening Tool output for the Mura EGI Corridor is illustrated below (**Figure 7**) and indicates that the southern part of the Mura EGI Corridor falls within an area mapped as Medium Sensitivity due to the potential presence of two plant species of concern, *Isolepis expallescens* and Sensitive species 945. Neither of these species were observed within the corridor and it is considered unlikely that either species is present, with the result that the corridor is considered Low Sensitivity for these two species.

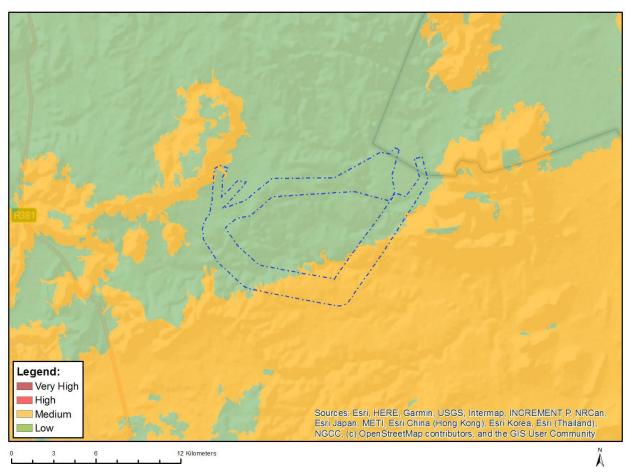


Figure 7. DFFE Screening Tool output for the study area, showing that the southern part of the Mura EGI Corridor falls within an area classified as Medium Sensitivity.

Table 2. Sensitive Species as listed by the DFFE Screening Tool for the Mura EGI Corridor. Neither of these species were observed within the corridor.

DFFE Site Status	Name	Distribution/Habitat	Possible presence within the Gamma 400kV Grid Corridor
Medium	Isolepis expallescens (Vulnerable)	Nuweveld Mountains between Fraserburg and Victoria West. Its' distribution range is botanically very poorly explored. It is a localized habitat specialist, and current records indicate that it is endemic to the Nuweveld Mountains. It is associated with damp areas along stream channels.	This species was not observed within the corridor. The habitat associated with this species would be avoided by the development with the result that the development would not pose a significant threat to this species even if present. The corridor is considered low sensitivity for this species.
Medium	Sensitive species 945 (Rare)	Rare - This seasonal geophyte species is associated with dolerite outcrops in high-lying areas of the Sneeuberg, Agter-	It was not observed within the Mura EGI Corridor and there is little to no habitat deemed suitable for this species within the corridor. As a result, this

DFFE Site Status	Name	Distribution/Habitat	Possible presence within the Gamma 400kV Grid Corridor
		Sneeuberg and Nuweveld	species is considered absent
		Mountains.	from the site and hence the site
			is considered low sensitivity for
			this species.

The only plant species of potential concern observed during the site surveys was Rhinephyllum broomii which is classified as Data Deficient. According to SANBI, this species is "A poorly known taxon from the central parts of the Karoo Basin, it has been recorded from only three collection localities with an extent of occurrence of 5388 km². Only one recent record of this species exists, nothing is known about the current status and trends of the population, it is potentially threatened by livestock overgrazing and trampling and also possibly by future shale gas fracking." Its' range has been listed as being from Carnarvon to Fraserburg Road and Beaufort West, where the habitat is listed as "bare stony, gentle slopes, in shale". This is a seldom observed species and SANBI notes that "Nothing is known about the population size and current status there is only one recent record for this species collected from Carnarvon in 2013, this record has no notes on population status or abundance. Other records predate 1950 and are from Fraserburg and Beaufort West." A small population of this species numbering approximately 30 individuals was observed near but not within the southern corridor, on a small shale outcrop near to the Krom River. Since the site falls outside of the corridor, the Mura EGI Corridor would not affect this species in any way. A record of this observation has been iNaturalist and viewed submitted to can be the following link: https://www.inaturalist.org/observations/129512390.

Given that no plant SCC were observed within the Mura EGI Corridor, the corridor is considered to be low sensitivity for the plant species theme.

7. PROPOSED MITIGATION ACTIONS

The following avoidance and mitigation measures should be included in the EMPr for the Mura EGI Corridor in order to avoid, reduce and manage impacts on vegetation and plant species:

- Develop and implement alien vegetation, soil erosion, revegetation and rehabilitation management plans based on the site attributes and environmental constraints. This can be developed post-authorisation once the project is certain to go ahead.
- Ensure that all vegetation-related preconstruction permits have been obtained, and surveys and walk-throughs have been conducted prior to the commencement of construction activity.
- Preconstruction walk-through of the final development footprint to check the final footprint areas and access road routes to verify that sensitive habitats are being avoided as much as possible and also provide certainty as to the zero expected impact on plant SCC.
- Annual rehabilitation activities in line with the Generic EMPr requirements (for example, any erosion problems observed on-site should be rectified as soon as possible using appropriate revegetation and erosion control works).

The following Monitoring and management actions should be included in the EMPr:

• Ensure that all vegetation-related preconstruction permits, surveys and walk-throughs have been conducted prior to the commencement of construction activity.

- Monitoring of vegetation clearing during construction by the ECO to ensure that any protected plant within the development footprint area are translocated to safety where necessary.
- Annual monitoring of runoff and erosion along the service road beneath the constructed power lines to
 ensure that the road is not causing degradation through runoff and erosion damage. There should be
 follow-up erosion control and alien vegetation clearing where required.

7.1 Cumulative Impacts

Cumulative impacts associated with the Mura EGI Corridor are assessed in the Terrestrial Biodiversity Assessment and are not assessed in detail here. From a plant species and vegetation perspective, the Mura EGI Corridor would have very low impact on plant SCC and the Eastern Upper Karoo vegetation type is little impacted by energy reticulation and renewable energy development to date. As a result, the contribution of the Mura EGI Corridor towards cumulative impact on plant SCC and vegetation is considered acceptable.

8. COMPARATIVE ASSESSMENT OF ALTERNATIVES

There are no alternatives to be considered with regards to the Mura EGI Corridor.

8.1 No-Go Alternative

Under the no-go alternative, the current land use consisting of extensive livestock grazing would continue. When applied correctly, such livestock grazing is considered to be largely compatible with long-term biodiversity conservation, although in practice there are some negative effects associated with such land use such as predator control and negative impacts on habitat availability for the larger ungulates that would historically have utilised the area. Under the current circumstances, the no-go alternative is considered to represent a low long-term negative impact on the environment.

9. CONCLUSION

- This compliance statement is applicable to the Mura EGI Corridor development with specific reference to the layout as provided for the assessment.
- The vegetation of the site is mapped entirely as Eastern Upper Karoo, but some Upper Karoo Hardeveld and Southern Karoo Riviere vegetation types are also present. There are no threatened vegetation types present within the corridor. There are however some habitats present that are considered sensitive but which are covered under the Combined Terrestrial Biodiversity Theme Impact Assessment Report for the project.
- No plant species of conservation concern as identified by the DFFE Screening Tool were observed within
 the Corridor, and based on the available information for these species identified as potentially present, it
 is unlikely that any of these are present within the corridor. The Corridor is therefore considered low
 sensitivity from a Plant Species Theme perspective.
- Given the low assessed sensitivity of the corridor to plant SCC and negligible likely impact of the development on plant SCC, there are no reasons that the development should not go ahead from a plant ecology perspective.

9.1 Impact Statement



10. ANNEX 1. LIST OF PLANT SPECIES

List of plant species recorded from within the Mura EGI Corridor during the assessment.

Family	Genus	Species	Rank	Subspecies	<u>IUCN</u> <u>Status</u>
Acanthaceae	Blepharis	mitrata			LC
Acanthaceae	Blepharis	capensis			LC
Aizoaceae	Delosperma	sp.			
Aizoaceae	Drosanthemum	lique			LC
Aizoaceae	Drosanthemum	hispidum			LC
Aizoaceae	Galenia	africana			LC
Aizoaceae	Galenia	secunda			LC
Aizoaceae	Galenia	sarcophylla			LC
Aizoaceae	Malephora	purpureo-crocea			LC
Aizoaceae	Mesembryanthemum	splendens	subsp.	pentagonum	
Aizoaceae	Mesembryanthemum	junceum			
Aizoaceae	Mesembryanthemum	noctiflorum	subsp.	stramineum	
Aizoaceae	Mesembryanthemum	stenandrum			LC
Aizoaceae	Mesembryanthemum	coriarium			
Aizoaceae	Mesembryanthemum	nodiflorum			LC
Aizoaceae	Mesembryanthemum	emarcidum			
Aizoaceae	Mesembryanthemum	crystallinum			LC
Aizoaceae	Plinthus	karooicus			LC
Aizoaceae	Ruschia	intricata			LC
Aizoaceae	Ruschia	spinosa			LC
Aizoaceae	Stomatium	villetii			LC
Aizoaceae	Tetragonia	spicata			LC
Aizoaceae	Tetragonia	fruticosa			LC
Aizoaceae	Trichodiadema	setuliferum			LC
Amaranthaceae	Amaranthus	deflexus			
Amaranthaceae	Atriplex	semibaccata			
Amaranthaceae	Atriplex	lindleyi	subsp.	inflata	
Amaranthaceae	Atriplex	nummularia	subsp.	nummularia	
Amaranthaceae	Atriplex	vestita	var.	appendiculata	LC
Amaranthaceae	Bassia	salsoloides			LC
Amaranthaceae	Chenopodium	album			
Amaranthaceae	Salsola	kali			
Amaranthaceae	Salsola	calluna			LC
Amaranthaceae	Salsola	aphylla			LC
Amaranthaceae	Sericocoma	avolans			LC
Amaranthaceae	Suaeda	fruticosa			LC

Anacampserotaceae	Anacampseros	ustulata			LC
Anacampserotaceae	Anacampseros	albidiflora			LC
Anacardiaceae	Searsia	undulata			LC
Anacardiaceae	Searsia	lancea			LC
Anacardiaceae	Searsia	burchellii			LC
Apiaceae	Apium	graveolens			
Apiaceae	Berula	thunbergii			LC
Apiaceae	Deverra	denudata	subsp.	aphylla	LC
Apocynaceae	Gomphocarpus	filiformis			LC
Apocynaceae	Gomphocarpus	fruticosus	subsp.	fruticosus	LC
Apocynaceae	Microloma	armatum	var.	armatum	LC
Asparagaceae	Asparagus	mucronatus			LC
Asparagaceae	Asparagus	exuvialis	forma	exuvialis	NE
Asparagaceae	Asparagus	capensis	var.	capensis	LC
Asparagaceae	Asparagus	striatus			LC
Asparagaceae	Asparagus	burchellii			LC
Asparagaceae	Asparagus	retrofractus			LC
Asparagaceae	Asparagus	aethiopicus			LC
Asparagaceae	Asparagus	suaveolens			LC
Asphodelaceae	Aloe	broomii			
Asphodelaceae	Bulbine	frutescens			LC
Asphodelaceae	Gonialoe	variegata			LC
Aspleniaceae	Asplenium	cordatum			LC
Asteraceae	Arctotis	leiocarpa			LC
Asteraceae	Berkheya	spinosa			LC
Asteraceae	Chrysocoma	obtusata			LC
Asteraceae	Chrysocoma	ciliata			LC
Asteraceae	Cineraria	lobata	subsp.	lobata	LC
Asteraceae	Conyza	scabrida			
Asteraceae	Cotula	coronopifolia			LC
Asteraceae	Crassothonna	protecta			LC
Asteraceae	Cuspidia	cernua	subsp.	annua	LC
Asteraceae	Dicerothamnus	rhinocerotis			
Asteraceae	Dicoma	capensis			LC
Asteraceae	Dimorphotheca	cuneata			LC
Asteraceae	Eriocephalus	microphyllus	var.	microphyllus	LC
Asteraceae	Eriocephalus	microcephalus			LC
Asteraceae	Eriocephalus	ericoides	subsp.	ericoides	LC
Asteraceae	Eriocephalus	decussatus			LC
Asteraceae	Eriocephalus	spinescens			LC
Asteraceae	Euryops	nodosus			LC
Asteraceae	Euryops	lateriflorus			LC

Asteraceae	Euryops	anthemoides	subsp.	anthemoides	LC
Asteraceae	Felicia	muricata	subsp.	muricata	LC
Asteraceae	Felicia	filifolia	subsp.	filifolia	LC
Asteraceae	Felicia	hirsuta			LC
Asteraceae	Gazania	krebsiana			
Asteraceae	Geigeria	filifolia			LC
Asteraceae	Gorteria	alienata			
Asteraceae	Helichrysum	rugulosum			LC
Asteraceae	Helichrysum	zeyheri			LC
Asteraceae	Helichrysum	pentzioides			LC
Asteraceae	Helichrysum	lucilioides			LC
Asteraceae	Ifloga	glomerata			LC
Asteraceae	Lasiopogon	glomerulatus			LC
Asteraceae	Leysera	tenella			LC
Asteraceae	Oedera	oppositifolia			
Asteraceae	Osteospermum	scariosum	var.	scariosum	NE
Asteraceae	Osteospermum	spinescens			LC
Asteraceae	Osteospermum	sinuatum			
Asteraceae	Osteospermum	leptolobum			LC
Asteraceae	Pegolettia	retrofracta			LC
Asteraceae	Pentzia	globosa			LC
Asteraceae	Pentzia	quinquefida			LC
Asteraceae	Pentzia	lanata			LC
Asteraceae	Pentzia	punctata			LC
Asteraceae	Pentzia	incana			LC
Asteraceae	Phymaspermum	aciculare			LC
Asteraceae	Pteronia	adenocarpa			LC
Asteraceae	Pteronia	membranacea			LC
Asteraceae	Pteronia	glauca			LC
Asteraceae	Pteronia	viscosa			LC
Asteraceae	Pteronia	glomerata			LC
Asteraceae	Senecio	burchellii			LC
Asteraceae	Ursinia	nana	subsp.	nana	LC
Bignoniaceae	Rhigozum	obovatum			LC
Boraginaceae	Anchusa	capensis			
Brassicaceae	Heliophila	suavissima			LC
Brassicaceae	Heliophila	crithmifolia			LC
Brassicaceae	Lepidium	desertorum			LC
Capparaceae	Cadaba	aphylla			LC
Caryophyllaceae	Dianthus	namaensis	var.	dinteri	LC
Caryophyllaceae	Pollichia	campestris			LC
Caryophyllaceae	Silene	undulata	subsp.	undulata	LC

Caryophyllaceae	Spergularia	media			
Colchicaceae	Colchicum	melanthoides			
Colchicaceae	Ornithoglossum	undulatum			LC
Convolvulaceae	Convolvulus	sagittatus			LC
Crassulaceae	Adromischus	maculatus			LC
Crassulaceae	Crassula	corallina	subsp.	corallina	LC
Crassulaceae	Crassula	capitella	subsp.	thyrsiflora	LC
Crassulaceae	Crassula	subaphylla	var.	subaphylla	LC
Cucurbitaceae	Cucumis	africanus			LC
Cucurbitaceae	Cucumis	myriocarpus	subsp.	leptodermis	LC
Cyperaceae	Cyperus	longus	var.	tenuiflorus	NE
Cyperaceae	Cyperus	marginatus			LC
Cyperaceae	Cyperus	usitatus			LC
Cyperaceae	Pseudoschoenus	inanis			LC
Ebenaceae	Diospyros	lycioides	subsp.	lycioides	LC
Ebenaceae	Diospyros	austro- africana	var.	austro- africana	LC
Euphorbiaceae	Euphorbia	stellispina			LC
Euphorbiaceae	Euphorbia	hypogaea			LC
Euphorbiaceae	Euphorbia	clavarioides			LC
Fabaceae	Indigofera	alternans			
Fabaceae	Lessertia	inflata			LC
Fabaceae	Lessertia	frutescens	subsp.	frutescens	LC
Fabaceae	Medicago	sativa			NE
Fabaceae	Melolobium	candicans			LC
Fabaceae	Prosopis	glandulosa	var.	glandulosa	NE
Fabaceae	Vachellia	karroo			LC
Geraniaceae	Monsonia	camdeboensis			LC
Geraniaceae	Pelargonium	minimum			LC
Hyacinthaceae	Daubenya	marginata			LC
Hyacinthaceae	Drimia	anomala			LC
Hyacinthaceae	Drimia	platyphylla			LC
Hyacinthaceae	Massonia	echinata			LC
Hyacinthaceae	Ornithogalum	juncifolium			LC
Iridaceae	Babiana	bainesii			LC
Juncaceae	Juncus	exsertus			LC
Lamiaceae	Mentha	longifolia	subsp.	capensis	LC
Lamiaceae	Salvia	disermas			LC
Lamiaceae	Salvia	verbenaca			LC
Lamiaceae	Stachys	cuneata			LC
Lamiaceae	Stachys	rugosa			LC
Lamiaceae	Teucrium	trifidum			LC
Limeaceae	Limeum	aethiopicum	var.	aethiopicum	NE

Prepared by: 3Foxes Biodiversity Solutions

Mura EGI Corridor Plant Species Compliance Statement Revision No. 1

Lobeliaceae	Lobelia	erinus			LC
Loranthaceae	Septulina	glauca			LC
Malvaceae	Hermannia	filifolia	var.	filifolia	NE
Malvaceae	Hermannia	pulchella			LC
Malvaceae	Hermannia	coccocarpa			LC
Malvaceae	Hermannia	cuneifolia	var.	cuneifolia	LC
Malvaceae	Hermannia	desertorum			LC
Malvaceae	Hermannia	pulverata			LC
Malvaceae	Hibiscus	pusillus			LC
Malvaceae	Malva	parviflora	var.	parviflora	
Malvaceae	Radyera	urens			LC
Melianthaceae	Melianthus	comosus			LC
Ophioglossaceae	Ophioglossum	polyphyllum	var.	polyphyllum	LC
Oxalidaceae	Oxalis	heterophylla			LC
Pedaliaceae	Sesamum	capense			LC
Plantaginaceae	Veronica	anagallis-aquati	са		LC
Poaceae	Aristida	diffusa	subsp.	diffusa	LC
Poaceae	Bromus	pectinatus			LC
Poaceae	Cenchrus	ciliaris			LC
Poaceae	Cynodon	dactylon			LC
Poaceae	Cynodon	incompletus			LC
Poaceae	Digitaria	argyrograpta			LC
Poaceae	Digitaria	eriantha			LC
Poaceae	Enneapogon	desvauxii			LC
Poaceae	Enneapogon	cenchroides			LC
Poaceae	Enneapogon	scaber			LC
Poaceae	Eragrostis	chloromelas			LC
Poaceae	Eragrostis	lehmanniana	var.	lehmanniana	LC
Poaceae	Eragrostis	obtusa			LC
Poaceae	Fingerhuthia	africana			LC
Poaceae	Heteropogon	contortus			LC
Poaceae	Leptochloa	fusca			LC
Poaceae	Melica	decumbens			LC
Poaceae	Oropetium	capense			LC
Poaceae	Phragmites	australis			LC
Poaceae	Polypogon	monspeliensis			NE
Poaceae	Sporobolus	ioclados			LC
Poaceae	Sporobolus	fimbriatus			LC
Poaceae	Stipagrostis	ciliata	var.	capensis	LC
Poaceae	Stipagrostis	obtusa		-	LC
Poaceae	Stipagrostis	namaquensis			LC
Poaceae	Tenaxia	disticha			-

Poaceae	Themeda	triandra			LC
Poaceae	Tragus	koelerioides			LC
Poaceae	Tragus	racemosus			LC
Poaceae	Tragus	berteronianus			LC
Polygalaceae	Polygala	leptophylla	var.	leptophylla	LC
Polygalaceae	Polygala	ephedroides			LC
Polygonaceae	Polygonum	aviculare			
Pteridaceae	Pellaea	calomelanos	var.	calomelanos	LC
Rubiaceae	Nenax	microphylla			LC
Scrophulariaceae	Aptosimum	procumbens			LC
Scrophulariaceae	Aptosimum	spinescens			LC
Scrophulariaceae	Aptosimum	indivisum			LC
Scrophulariaceae	Chaenostoma	halimifolium			LC
Scrophulariaceae	Diascia	capsularis			LC
Scrophulariaceae	Jamesbrittenia	tysonii			LC
Scrophulariaceae	Jamesbrittenia	atropurpurea	subsp.	atropurpurea	LC
Scrophulariaceae	Limosella	grandiflora			LC
Scrophulariaceae	Manulea	karrooica			LC
Scrophulariaceae	Nemesia	fruticans			LC
Scrophulariaceae	Peliostomum	leucorrhizum			LC
Scrophulariaceae	Selago	albida			LC
Scrophulariaceae	Selago	saxatilis			LC
Scrophulariaceae	Selago	acocksii			LC
Scrophulariaceae	Selago	geniculata			LC
Solanaceae	Lycium	oxycarpum			LC
Solanaceae	Lycium	cinereum			LC
Solanaceae	Lycium	horridum			LC
Solanaceae	Solanum	nigrum			
Solanaceae	Solanum	tomentosum			
Solanaceae	Withania	somnifera			LC
Thymelaeaceae	Gnidia	meyeri			LC
Zygophyllaceae	Roepera	lichtensteiniana			
Zygophyllaceae	Tetraena	chrysopteron			
Zygophyllaceae	Tribulus	terrestris			LC