

SPECIES OF CONSERVATION CONCERN ASSESSMENT

ACWA Power SolarReserve Redstone PV Power Project

April 2018

Prepared for:

ACWA Power SolarReserve Redstone Solar Thermal Power Plant RF (Pty) Ltd

Prepared by:



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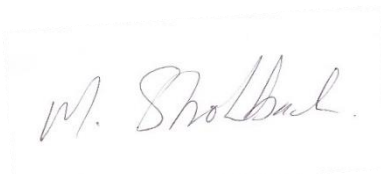
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DECLARATION

I, **Marianne Strohbach**, declare that -

- I act as the independent specialist;
- 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 National Environmental Management Act, 1998 (Act No. 107 of 1998), regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I will take into account, to the extent possible, the matters listed in Regulation 8;
- 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 71 and is punishable in terms of section 24F of the Act.



Marianne Strohbach Pr. Sci. Nat. (400079/10 Botany and Ecology)

25 April 2018

Date

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ACRONYMS

AIP	Alien Invasive Plant
BGIS	Biodiversity Geographic Information System (from SANBI)
BODATSA	Botanical Database of Southern Africa
CARA	Conservation of Agricultural Resources Act (Act No. 43 of 1983)
DAFF	Directorate of Agriculture, Forestry and Fisheries
EMPr	Environmental Management Programme LC Least Concern
NCNCA	Northern Cape Nature Conservation Act (Act No 9 of 2009)
NEMBA	National Environmental Management: Biodiversity Act (No. 10 of 2004)
SANBI	South African National Biodiversity Institute
VU	Vulnerable

1 INTRODUCTION

1.1 Project Description and Location

The ACWA Power SolarReserve Redstone Solar Thermal Power Plant RF (Pty) Ltd (the Applicant), is assessing the addition of Photovoltaic (PV) Power Project with a generation capacity of up to 20MW (the “**PV Power Project**”) to its ACWA Power SolarReserve Redstone Solar Thermal Power Plant RF (Pty) Ltd (the “**Redstone CSP Project**”) east of Metsimatala, Northern Cape Province. Possible development areas earmarked for this PV Power Project lie west of the proposed Redstone CSP Project heliostat field, between the R385 and Lime Acres Roads (D3381) (Figure 1). Collectively these areas will be referred to as the Study Area.

A walkthrough of areas proposed for development is required to include any species of conservation concern that may be affected in the Environmental Management Programme (EMPr). The Applicant has assigned the co-ordination of such specialist studies to Environmental Management Assistance (Pty) Ltd.

1.2 Terms of Reference

The assessment of the study area was required to:

- Detect all threatened and/or protected species occurring in the area as well as those expected to occur;
- Map the area of occurrence of such species; and
- Provide an approximate number of each species that could be relocated to designated conservation and/or rehabilitation areas within the grounds of Redstone CSP Project site.

1.3 Limitations

Plant species resprouting from storage tubers (geophytes) emerge at different times throughout the growing season, depending on a specific species’ phenological cycle as well as timing and amount of rainfall. Most of the plant species can only be fully identified if they are actively growing *and* have either flowers or fruit, and not all species potentially present may have been observable at the time of the walkthrough survey, carried out on 25 April 2018.

1.4 Conditions of this Report

Findings and recommendations provided in this report are based on the author’s best scientific and professional knowledge, as well as information available at the time of compilation. The author, however, accepts no liability for any actions, claims, demands, losses, liabilities, costs, damages and expenses arising from or in connection with services rendered, and by the use of the information contained in this document. No form of this report may be amended or extended without the prior written consent of the author.

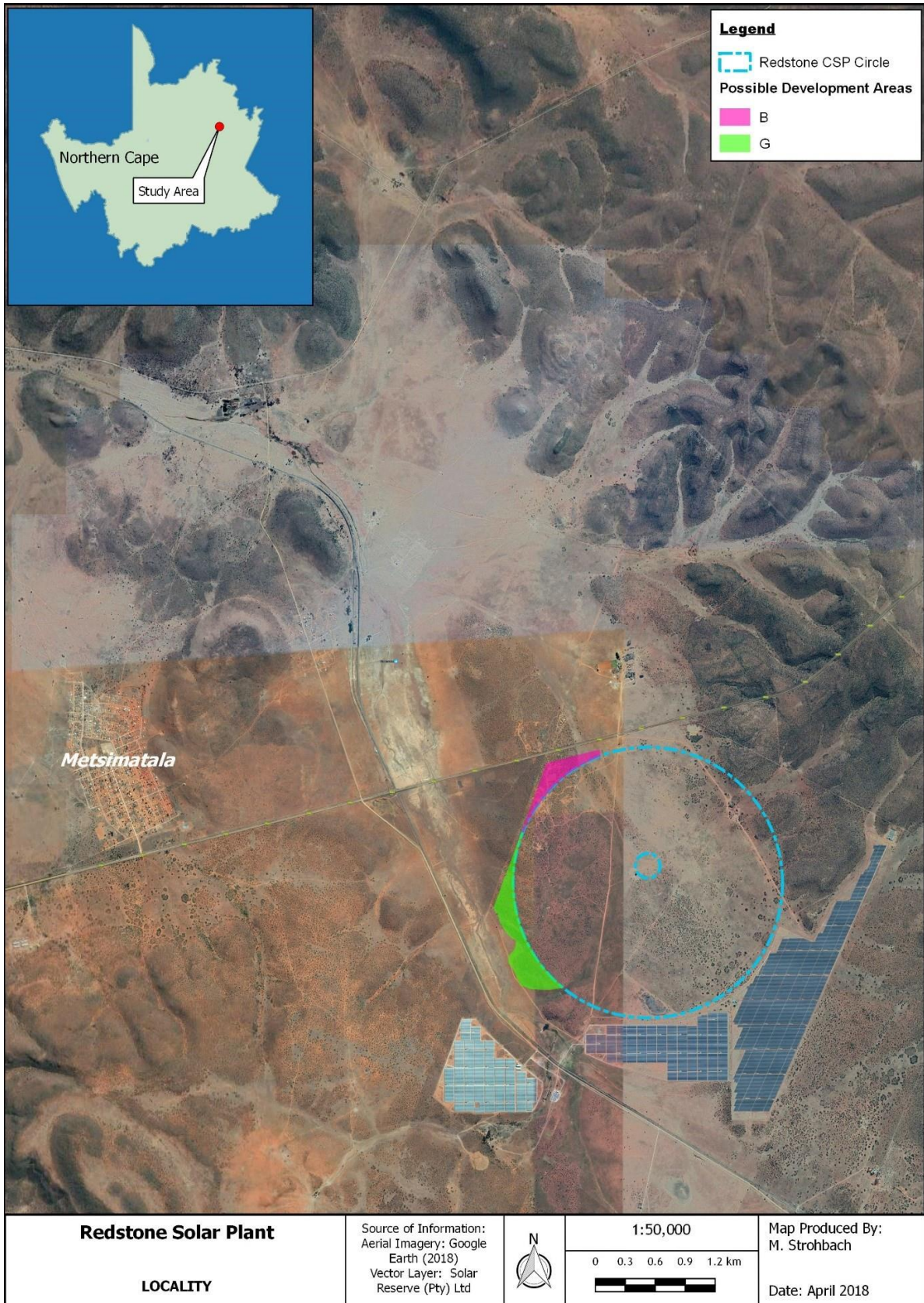


Figure 1: Locality of the possible development areas, collectively the Study Area.

1.5 Legislation

The study was carried out in line with requirements and listings of the following legislation and policies published and promulgated up to the date of this study:

1.5.1 Provincial

- The Northern Cape Nature Conservation Act / **NCNCA** (Act No 9 of 2009)
 - Specially Protected/Threatened Species: Schedule 1
 - Protected Species: Schedule 2

1.5.2 National

- The National Environmental Management Biodiversity Act (Act 10 of 2004) (**NEMBA**)
- National Forest Act 1998 / NFA (No 84 of 1998) (**DAFF**)
- Conservation of Agricultural Resources Act / **CARA** (Act No. 43 of 1983) and amendments

2 METHODS

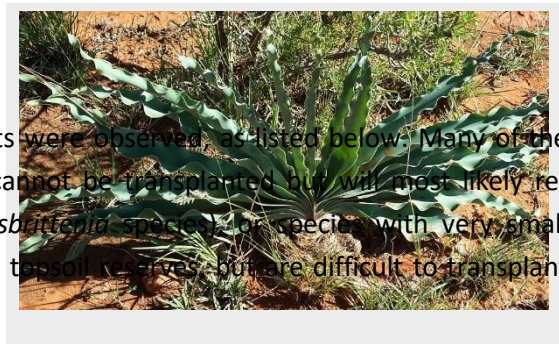
The study area was visited for a field survey on 25 April 2018. The area was surveyed by means of random transects, and GPS co-ordinates taken of either the extent of a sub-population of species of conservation concern or, where possible, single occurrences of such.

The SANBI species databases (BODATSA) were queried for any possible occurrence of any additional species of conservation concern (listed and/or protected) previously recorded on or potentially occurring within the quarter degree square of the study area, which could not be observed at the time of the survey. These potential plant species of conservation concern, as determined above, are listed in Appendix B.

Plant species nomenclature used was according to Germishuizen and Meyer (2003), the Red List of South African Plants (<http://redlist.sanbi.org/>, version 2017.1.), Henderson (2001), Bromilow (2010) and the online African Plant Database (CJB, 2017).

3 RESULTS




Throughout the study area, numerous protected plants were observed, as listed below. Many of the species observed are either short-lived species that cannot be transplanted but will most likely re-appear from seed reserves in topsoil (such as *Jamesburtonia* species), or species with very small annually formed bulbs, which will also re-appear from topsoil reserves, but are difficult to transplant (such as *Oxalis* and *Tritonia* species).








Overall, 17 plants species were observed that are protected in the Northern Cape. Of these, only one species is listed as 'Declining', all other species have an IUCN Rating of 'Least Concern'.




These Plants are listed below. For species in low numbers, GPS points were taken as far as possible. These are listed in Appendix A. For the remainder of the species, their distribution within Development Areas B, G, or both, is discussed.




Family, Genus and Species	Distribution	Picture
<p>Aizoaceae <i>Ruschia sp.</i></p>	<p>Mostly restricted to the lowest edges of Development Area G, below the rocky slopes Scattered Distribution</p> <p>Estimate: 50 plants</p>	
<p>Amaryllidaceae <i>Nerine cf laticoma</i></p>	<p>Very abundant in northernmost plains of Development Area B</p> <p>Estimate: 500 plants</p>	
<p>Amaryllidaceae <i>Boophone disticha</i></p>	<p>Few isolated plants observed in the more rocky areas, GPS points taken. Listed as DECLINING</p> <p>Observed: 4</p>	

Family, Genus and Species	Distribution	Picture
<p>Amaryllidaceae <i>Brunsvigia cf radula</i></p>	<p>Few isolated plants observed in the moister lower slopes of Development Area G, GPS points taken</p> <p>Observed: 6 plants</p>	
<p>Asphodelaceae <i>Aloe grandidentata</i></p>	<p>Found from the northernmost outlier or Development Area G right through to the end of the rocky plains of Development Area B</p> <p>Very abundant, mostly crowded under larger shrubs</p> <p>Estimate: 4000 – 6000 plants</p>	
<p>Asphodelaceae <i>Bulbine abyssinica</i></p>	<p>Observed mainly on the moister lower slopes on the southern fringes of Development Area G</p> <p>Estimate: 60 plants</p>	

Family, Genus and Species	Distribution	Picture
<p>Asphodelaceae <i>Bulbine narcissifolia</i></p>	<p>Observed mainly in the northern loamy plains of Development Area B, scattered together with <i>Nerine</i>.</p> <p>Estimate: 150 plants</p>	
<p>Celastraceae <i>Gymnosporia buxifolia</i></p>	<p>Growing between bush-clumps scattered on Development Area G, see waypoint list</p> <p>Observed: 5 plants</p>	
<p>Euphorbiaceae <i>Euphorbia bergii</i></p>	<p>Only one locality with plants observed within the disturbed sections of Development Area B, see waypoint list</p> <p>Observed: 3 plants</p>	

Family, Genus and Species	Distribution	Picture
<p>Iridaceae <i>Babiana cf bainesii</i></p>	<p>Scattered mostly on the upper rocky slopes of Development Area G, often single plants, sometime several grouped together</p> <p>Estimate: 200 plants</p>	
<p>Iridaceae <i>Tritonia sp.</i></p>	<p>Abundant throughout the more rocky slopes, especially within Development area G</p> <p>Estimate: up to 10 000</p>	

Family, Genus and Species	Distribution	Picture
<p>Oleaceae <i>Olea europaea subsp. cuspidata</i> (Wild Olive)</p>	<p>Found mostly in the Development Area G, very few specimens further north, there only low shrubs. GPS waypoints taken as far as possible, sometimes several are clumped close together.</p> <p>Observations: Trees with bole \leq 50 cm: 10</p> <p>Shrubs $>$ 1 m: 36</p> <p>Shrubs \leq 1 m: 17</p>	
<p>Orchidaceae cf <i>Eulophia sp.</i></p>	<p>Small clumps of these orchids were found below shrubs in the northern extent of Development Area G. Unfortunately no definite identification possible without flowers. GPS points taken.</p> <p>Observed: 15 plants</p>	
<p>Oxalidaceae <i>Oxalis cf depressa</i></p>	<p>Very abundant on the moister lower fringes of Development Area G, as well as on the loamy plains on the northern extent of Development Area B</p> <p>Estimate: Thousands</p>	

Family, Genus and Species	Distribution	Picture
<p>Scrophulariaceae <i>Chaenostoma halimifolium</i></p>	<p>Very scattered throughout, prefers the more rocky upper slopes, more abundant in Development Area G. Annual.</p> <p>Estimate: 80 plants</p>	
<p>Scrophulariaceae <i>Jamesbrittenia atropurpurea</i> subsp. <i>atropurpurea</i></p>	<p>Only one specimen observed, see waypoint list. Few more may be present, but this is a short-lived shrub.</p> <p>Observed: 1 plant</p>	
<p>Scrophulariaceae <i>Jamesbrittenia tysonii</i></p>	<p>Occasional occurrence on the upper rocky slopes, mostly in Development Area G. Short-lived shrub.</p> <p>Estimate: 15 plants</p>	

4 RECOMMENDATIONS

A large extent of the central section of Development Area B had been historically subjected to prospecting (Figure 2), and in general was lower in species diversity, although the abundance of *Aloe* species is still relatively high. Most protected species found in this section can be relocated.

Development Area G contained a higher protected species diversity, and also a much higher number of the Wild Olive trees (Figure 3). If possible, this area should be spared from development.



Figure 2: Past prospecting on sections of Development Area B.



Figure 3: Development Area G with a higher species diversity and established, slow-growing trees.

5 REFERENCES

- Bromilow C. (2010). *Problem plants and alien weeds of South Africa*. Briza Publications, Pretoria, RSA.
- Germishuizen, G. and Meyer, N.L. (Eds). (2003). *Plants of southern Africa: an annotated checklist*. Strelitzia 14. South African National Biodiversity Institute, Pretoria
- Raimondo, D., Von Staden, L., Foden, W., Victor, J.E., Helme, N.A., Turner, R.C. Kamundi, D.A. and Manyama, P.A. (Eds.). (2009). *Red list of South African plants 2009*. Strelitzia 25: 1-668. Updated Online: <http://redlist.sanbi.org/>
- Van Wyk, B., Van Oudshoorn B. and Gericke N. (2005). *Medicinal Plant of South Africa*. Briza Publications, Pretoria.

Digital References

CJB (Conservatoire et Jardin botaniques de la Ville de Genève) (2017): AFRICAN PLANT DATABASE: <http://www.ville-ge.ch/musinfo/bd/cjb/africa/recherche.php>

SANBI databases:

Red List of South African Plants: <http://redlist.sanbi.org/>

BODATSA: <http://newposa.sanbi.org/sanbi/Explore>

6 APPENDIX A: LIST OF WAYPOINTS

Species	Latitude	Longitude
<i>Boophone disticha</i>	-28.287669	23.359268
<i>Boophone disticha</i>	-28.293436	23.35481
<i>Boophone disticha</i>	-28.298989	23.35298
<i>Brunsvigia sp.</i>	-28.302299	23.352138
<i>Brunsvigia sp.</i>	-28.302646	23.351805
<i>Brunsvigia sp.</i>	-28.30834	23.358386
<i>Euphorbia bergii</i>	-28.28956	23.357865
<i>Olea europaea</i>	-28.304472	23.354374
<i>Olea europaea</i>	-28.302534	23.352327
<i>Olea europaea</i>	-28.302037	23.352666
<i>Olea europaea</i>	-28.300993	23.351232
<i>Olea europaea</i>	-28.298832	23.351837
<i>Olea europaea</i>	-28.297414	23.353367
<i>Olea europaea</i>	-28.295356	23.354148
<i>Olea europaea</i>	-28.294971	23.3539
<i>Olea europaea</i>	-28.292788	23.354546
<i>Olea europaea</i>	-28.295213	23.353828
<i>Olea europaea</i>	-28.295759	23.353775
<i>Olea europaea</i>	-28.296655	23.353572
<i>Olea europaea</i>	-28.300548	23.35312
<i>Olea europaea</i>	-28.300608	23.352967
<i>Olea europaea</i>	-28.30082	23.353109
<i>Olea europaea</i>	-28.301011	23.353063
<i>Olea europaea</i>	-28.301199	23.352749
<i>Olea europaea</i>	-28.30137	23.353034
<i>Olea europaea</i>	-28.303483	23.353527
<i>Olea europaea</i>	-28.305471	23.355163
<i>Olea europaea</i>	-28.306292	23.355687
<i>Olea europaea</i>	-28.306509	23.355463
<i>Olea europaea</i>	-28.306758	23.355716
<i>Olea europaea</i>	-28.306706	23.355879
<i>Olea europaea</i>	-28.306899	23.356199
<i>Olea europaea</i>	-28.307287	23.356255
<i>Olea europaea</i>	-28.307315	23.356349
<i>Olea europaea</i>	-28.30737	23.356483
<i>Olea europaea</i>	-28.307579	23.356568
<i>Olea europaea</i>	-28.307649	23.357055
<i>Olea europaea</i>	-28.308798	23.358038
<i>Olea europaea</i>	-28.307584	23.35482
<i>Olea europaea</i>	-28.307439	23.354789
<i>Olea europaea</i>	-28.307247	23.354715
<i>Olea europaea</i>	-28.307269	23.355129

Species	Latitude	Longitude
<i>Olea europaea</i>	-28.306944	23.35496
<i>Olea europaea</i>	-28.307256	23.354542
<i>Olea europaea</i>	-28.307299	23.354402
<i>Olea europaea</i>	-28.307403	23.354416
<i>Olea europaea</i>	-28.307346	23.3542
<i>Olea europaea</i>	-28.307311	23.354118
<i>Olea europaea</i>	-28.306906	23.35369
<i>Olea europaea</i>	-28.306556	23.353953
<i>Olea europaea</i>	-28.306272	23.354062
<i>Olea europaea</i>	-28.306136	23.353742
<i>Olea europaea</i>	-28.30626	23.353277
<i>Olea europaea</i>	-28.305895	23.353926
<i>Olea europaea</i>	-28.305854	23.354274
<i>Olea europaea</i>	-28.305287	23.354209
<i>Olea europaea</i>	-28.305222	23.353947
<i>Olea europaea</i>	-28.305092	23.353973
<i>Olea europaea</i>	-28.304512	23.354129
<i>Olea europaea</i>	-28.304552	23.354261
<i>Olea europaea</i>	-28.306072	23.353954
<i>Olea europaea</i>	-28.306388	23.354051
<i>Olea europaea</i>	-28.310149	23.359893
<i>Olea europaea</i>	-28.30997	23.359674
<i>Olea europaea</i>	-28.309931	23.359542
<i>Olea europaea</i>	-28.309584	23.359366
<i>Olea europaea</i>	-28.309185	23.359166
<i>Olea europaea</i>	-28.307986	23.358098
Orchidaceae	-28.297578	23.353139
Orchidaceae	-28.298012	23.353195