

## PLANT RESCUE AND PROTECTION PLAN

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### 1. PURPOSE

The purpose of the plant rescue and protection plan is to implement avoidance and mitigation measures to reduce the impact of the development of the Battery Energy Storage System and associated infrastructure related to the Great Karoo Wind Energy Facility on listed and protected plant species and their habitats and to provide guidance on search and rescue of species of conservation concern.

### 2. RELEVANT ASPECTS OF THE SITE

The BESS 500m assessment region within which the BESS is proposed is restricted entirely to the Central Mountains Shale Renosterveld vegetation type. Central Mountain Shale Renosterveld occurs in the Western and Northern Cape on the southern and southeastern slopes of the Klein Roggeveldberge and Komsberg, below the Komsberg section of the Great Escarpment, as well as farther east below Besemgoedberg and Suurkop and in the west in the Karookop area.

The majority of the study area consists of typical low shrubland on shallow soils, with some rocky ground and occasional areas of exposed bedrock. Although diversity within this habitat is quite high, the abundance of species of conservation concern within this habitat was observed to be low. Typical and dominant species within the site include *Ruschia intricata*, *Wiborgia sericea*, *Eriocephalus microphyllus* var. *pubescens*, *Eriocephalus ericoides* subsp. *ericoides*, *Asparagus capensis*, *Berkheya spinosa*, *Cheiridopsis namaquensis*, *Chrysocoma ciliata*, *Cleretum lyratifolium* (Rare), *Colchicum coloratum* subsp. *burchellii*, *Cyanella hyacinthoides*, *Dicrothamnus rhinocerotis*, *Dimorphotheca cuneata*, *Ehrharta calycina*, *Euphorbia caterviflora*, *Euryops lateriflorus*, *Galenia africana*, *Gazania krebsiana* subsp. *krebsiana*, *Hermannia cuneifolia*, *Ixia rapunculoides* var. *rapunculoides*, *Moraea pritzeliana*, *Lycium cinereum*, *Moraea miniata*, *Oxalis obtusa*, *Pelargonium rapaceum*, *Poa bulbosa*, *Pteronia sordida*, *Pteronia pallens*, *Romulea atrandra* var. *atrandra*, *Romulea tortuosa* subsp. *tortuosa*, *Senecio erosus* and *Zygophyllum pygmaeum*.

It is important to note that the site falls within the Komsberg Centre of Diversity and Endemism and as such is an area with a known high abundance of species of concern and endemism. A list of species of conservation concern recorded from the wider area is provided below. Species of concern observed at the site includes *Eriocephalus grandiflorus* (Rare) and *Cleretum lyratifolium* (Rare) which are both quite widespread species that have healthy populations outside of the affected area. Although it is possible that the development would generate some impact on these species, this would be minor as it is highly unlikely that the local populations would be compromised in any way by the development. Overall, the abundance of plant SCC within the site is low and the impact of the development on SCC would be acceptable and low.

In terms of the provincial legislation the following species and genera are protected and would require specific consideration during the pre-construction walk-through of the BESS footprint. The example species provided are to illustrate the typical species present and is not intended as an exhaustive list.

#### Schedule 1 (Specially Protected Species):

- » All species of the genus *Pelargonium* (Family: Geraniaceae) (e.g. *Pelargonium rapaceum*)

### Schedule 2 (Protected Species):

- » All species of the family Mesembryanthemaceae: (e.g. *Antimima pumila*, *Hammeria salteri*, *Cheiridopsis namaquensis*, *Lampranthus* spp., *Cleretum papulosum* subsp. *papulosum*, *Drosanthemum* spp., *Ruschia centrocapsula*)
- » All species of the family Amaryllidaceae: (e.g. *Brunsvigia* spp (*B. bosmaniae*), *Haemanthus coccineus*)
- » All species of the genus *Colchicum* (Family Colchicaceae): e.g. (*Colchicum coloratum*, *C. Cuspidatum*).
- » All species of the family Crassulaceae; e.g. (*Tylecodon wallichii*, *T. ventricosus*, *Crassula deltoidea*, *C. columnaris*, *C. muscosa*, *C. umbella*, *C. glomerata*, *Adromischus filicaulis*)
- » All species of the family Iridaceae: (e.g. *Romulea atrandra*, *R. tortuosa*, *komsbergensis*, *Hesperantha acuta*, *Moraea fugax*)
- » All species of the genus *Oxalis* (Family: Oxalidaceae): (e.g. *Oxalis obtusa*, *O. melanostica*, *O.palmifrons*)
- » All species of the genus *Lachenalia* (Family: Hyacinthaceae): (e.g. *Lachenalia aurioliae*)

It is recommended that a Pre-construction Walk-Through Survey is conducted within the final BESS footprint, to inform search-and-rescue efforts. Species of concern should be recorded and may only be removed, transplanted, destroyed (or any other form of disturbance) after the necessary approval (permits) has been obtained from the relevant authority, i.e. the Department of Agriculture, Environmental Affairs, Rural Development and Land Reform. It is also important to note that species of ecological importance, local endemics and red-listed species should be translocated out of the development footprint, where these have a high probability of survival.

### **3. PRINCIPLES OF SEARCH AND RESCUE**

Successful plant rescue can only be achieved if:

- » Species can be removed from their original habitat with minimal damage to the plant, especially the roots.
- » All plants removed are safely stored and treated according to their specific requirements prior to being transplanted again.
- » They are relocated into a suitable habitat and protected from further damage and all disturbances to aid their re-establishment.
- » Timing of planting activities is planned with the onset of the growing season, as far possible within the construction timelines.
- » Steps are taken where necessary to aid the initial establishment of vegetation, including occasional watering if necessary.

The following principles apply in terms of plant rescue and protection:

- » Prior to construction, a walk-through of the final development footprint should be undertaken by a suitably qualified botanist/ecologist to locate and identify all listed and protected species which fall within the development footprint, as well as to identify species suitable for search and rescue.

- » A permit is required to translocate or destroy any listed and protected species even if they do not leave the property. This permit should be obtained prior to any search and rescue operations being undertaken.
- » Where suitable species are identified, a search and rescue operation of these species should be undertaken within the development footprint prior to the commencement of construction.
- » As far as possible, timing of search and rescue activities should be planned with the onset of the growing season.
- » Affected individuals should be translocated to a similar habitat outside of the development footprint and marked for monitoring purposes. For each individual plant that is rescued, the plant must be photographed before removal, tagged with a unique number or code and a latitude longitude position recorded using a hand-held GPS device.
- » The rescued plants must be planted into a container to be housed within a temporary nursery on site or immediately planted into the target habitat.
- » Rescued plants, if re-planted back in the wild, should be placed as close as possible to where they were originally removed. Re-planting into the wild must cause as little disturbance as possible to existing natural ecosystems. The position of the rescued individual/s must be recorded to aid in future monitoring of that plant.
- » During construction, the ECO must monitor vegetation clearing at the site. Any deviations from the plans that may be required should first be checked for listed species by the ECO or Environmental Officer and any listed species present which are able to survive translocation should be translocated to a safe site.
- » Any listed species suitable for translocation observed within the development footprint that were not previously observed be translocated to a safe site.
- » The collecting of plants or their parts should be strictly forbidden. Appropriate signage in this regard should be placed at the entrance gates to the site. Staff should be informed of the legal and conservation aspects of harvesting plants from the wild as part of the environmental induction training.
- » Sensitive habitats and area outside project development should be clearly demarcated as no go areas during the construction and operational phase to avoid accidental impacts.

#### 4. PROTECTED PLANT SPECIES KNOWN TO OCCUR WITHIN THE BROAD VICINITY OF THE BESS

List of plant species of conservation concern which are known to occur in the broad vicinity of the Great Karoo BESS. The list is derived from the SIBIS:SABIF website. Only two of these species have (as at the date of this report) been confirmed present within the BESS 500 assessment region.

Family	Species	Threat status
AMARYLLIDACEAE	<i>Brunsvigia josephinae</i> (Redouté) Ker Gawl.	VU
	<i>Strumaria karooica</i> (W.F.Barker) Snijman	Rare
	<i>Strumaria pubescens</i> W.F.Barker	Rare
ANTHERICACEAE	<i>Chlorophytum lewisiae</i> Oberm.	Rare
APOCYNACEAE	<i>Duvalia parviflora</i> N.E.Br.	VU
	<i>Hoodia pilifera</i> (L.f.) Plowes subsp. <i>pilifera</i>	NT
ASPHODELACEAE	<i>Astroloba herrei</i> Uitewaal	VU
	<i>Bulbine torta</i> N.E.Br.	Rare
	<i>Haworthia fasciata</i> (Willd.) Haw.	NT

	<i>Gasteria disticha</i>	CR
	<i>Haworthia serrata</i>	CR
	<i>Haworthia pulchella</i> M.B.Bayer var. <i>pulchella</i>	Rare
	<i>Cineraria lobata</i> L'Hér. subsp. <i>lasiocaulis</i> Cron	Rare
	<i>Antithrixia flavicoma</i>	VU
	<i>Euryops namaquensis</i>	VU
ASTERACEAE	<i>Eriocephalus grandiflorus</i> M.A.N.Müll.	Rare
	<i>Phymaspermum thymelaeoides</i>	LC
	<i>Pteronia hutchinsoniana</i> Compton	Rare
	<i>Relhania tricephala</i> (DC.) K.Bremer	NT
COLCHICACEA	<i>Wurmbea capensis</i>	VU
	<i>Adromischus humilis</i> (Marloth) Poelln.	Rare
	<i>Adromischus phillipsiae</i> (Marloth) Poelln.	Rare
CRASSULACEAE	<i>Adromischus mammillaris</i>	EN
	<i>Crassula alpestris</i> Thunb. subsp. <i>massonii</i> (Britten & Baker f.) Toelken	Rare
EUPHORBIACEAE	<i>Euphorbia nesemannii</i> R.A.Dyer	NT
	<i>Amphithalea spinosa</i> (Harv.) A.L.Schutte	VU
	<i>Amphithalea villosa</i> Schltr.	VU
FABACEAE	<i>Lotononis comptonii</i> B.-E.van Wyk	EN
	<i>Lotononis gracilifolia</i> B.-E.van Wyk	EN
	<i>Lotononis venosa</i> B.-E.van Wyk	VU
GERANIACEAE	<i>Pelargonium denticulatum</i> Jacq.	Rare
	<i>Pelargonium torulosum</i> E.M.Marais	Rare
HYACINTHACEAE	<i>Lachenalia maximiliani</i> Schltr. ex W.F.Barker	Rare
	<i>Geissorhiza inaequalis</i> L.Bolus	Rare
	<i>Geissorhiza karooica</i> Goldblatt	NT
IRIDACEAE	<i>Ixia linearifolia</i> Goldblatt & J.C.Manning	Rare
	<i>Ixia parva</i> Goldblatt & J.C.Manning	VU
	<i>Moraea aspera</i> Goldblatt	VU
	<i>Romulea eburnea</i> J.C.Manning & Goldblatt	VU
	<i>Romulea syringodeoflora</i> M.P.de Vos	VU
MESEMBRYANTHEMACEAE	<i>Cleretum lyratifolium</i> Ihlenf. & Struck	Rare
	<i>Lampranthus amoenus</i> (Salm-Dyck ex DC.) N.E.Br.	EN
OXALIDACEAE	<i>Oxalis tenuipes</i> T.M.Salter var. <i>tenuipes</i>	Rare
POACEAE	<i>Ehrharta eburnea</i> Gibbs Russ.	NT
POLYGALACEAE	<i>Muraltia karroica</i> Levyns	VU
RUTACEAE	<i>Acmadenia argillophila</i> I.Williams	NT
	<i>Globulariopsis wittebergensis</i> Compton	Rare
SCROPHULARIACEAE	<i>Offtia glabra</i> Compton	Rare
	<i>Selago albomontana</i> Hilliard	Rare