Granor Passi Evaporation Ponds, Louterwater

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Executive Summary

A vegetation assessment was done at the proposed Granor Passi evaporation ponds in Louterwater, Eastern Cape. The dominant vegetation type is meant to be either grassy fynbos or renosterveld. However the majority of the site has been ploughed and is transformed into a secondary vegetation, dominated by grasses and asteraceous shrubs. The Eastern Cape Biodiversity Conservation Plan (ECBCP) identified the site as occurring in a Terrestrial Critical Biodiversity Area (CBA)3 and an Aquatic CBA2. No Critical Ecosystem Support Areas (CESAs) or threatened ecosystems are found in the vicinity of the site. No Species of Conservation Concern (SCCs) were found, and the Threatened or Protected Species (ToPS) identified were common species found in low numbers on site. The major impacts of this development include the clearing of the vegetation, and the increased risk of the spread of Invasive Alien Plants (IAPs), and further loss of the degraded drainage line habitat with associated reduction in downstream flow. As the whole site assessed will be cleared, little mitigation of impact is possible, except for correct stormwater management. Translocation can be recommended for the ToPS, but this is left to the discretion of the Department of Economic Development, Environmental Affairs and Tourism (DEDEAT). It is recommended that all efforts are made to limit the construction impact to the site assessed, and after construction the monitoring and removal of IAPs.

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1. Introduction

This report was prepared for SRK Consulting. The aim of the report was to do a vegetation assessment of the site of the proposed Granor Passi evaporation ponds in Louterwater, Kou-Kamma municipality, Eastern Cape. The site assessment took place on the 28th November, 2016. Although the site is relatively small and was comprehensively assessed, the author of this report cannot be held liable for any plant species missing, as time and budget constraints only allowed one site visit.

1.1 Project Description

The proposed development situated on a Portion 3 and Portion 10 of the farm Grootkloof No. 301 is the construction of effluent evaporation ponds for the Granor Passi fruit juice concentrate factory in Louterwater. The evaporation ponds will consist of the existing primary ponds, the downstream secondary pond system consisting of approximately 25 channels and an emergency tertiary pond. The footprint for the whole development is 58 000m^2.

2 Methodology

2.1 Terms of Reference

The scope of the report was:

- Describe the biodiversity in the vicinity of the study area via a desktop exercise, in terms of vegetation types/ habitats, their ecosystem threat status, ecological processes, Critical Biodiversity Areas and Critical Ecosystem Support Areas in terms of the relevant systematic biodiversity plans and known/recorded flora species of special concern;
- Undertake a survey of the study area to ground-truth the findings of the desktop exercise, including the presence of protected plants and other species of special concern and assess the condition of the vegetation in the study area;
- Compile a report describing the findings above and identify and rate the significance of potential impacts on vegetation of the area. Recommendations for mitigation, if any, to minimise the relevant impacts should also be included; and
- Provide a map showing the findings, including jpeg maps and GIS shapefiles.

2.2 Methods

The approach used in this vegetation assessment is as follows:

1. The current vegetation classification of the proposed site is provided using both the Baviaanskloof Mega-Reserve Biodiversity Assessment (2006), VEGMAP2012 and the Eastern Cape Biodiversity Conservation Plan (2007). These were also used to identify any Critical Biodiversity Areas (CBAs), Critical Ecosystem Support Areas (CESAs) and threatened ecosystems.
2. A site visit was done to map the on-site vegetation and compile a species list. On site vegetation mapping was done within the context of the regional planning framework and the state of transformation mapped.

Map 1 Site of the proposed Granor Passi evaporation ponds (red outline).

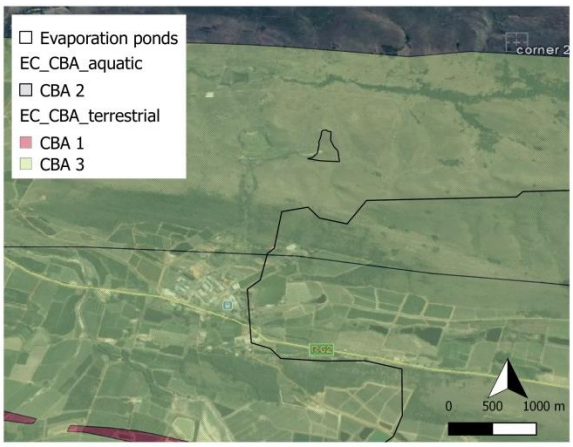
3. The species list was annotated to indicate Species of Conservation Concern (SCCs) according to the SANBI Red List (2015); Threatened or Protected Species (ToPS) according to the National Forests Act 84 of 1998 (NFA), the Eastern Cape Environmental Conservation Bill of 2002 (ECECB) and the Provincial Nature Conservation Ordinance of 1974; and declared Alien Invasive Plant (AIPs) species according the National Environmental Management: Biodiversity Act: Alien and Invasive Species List of 2014.
4. An assessment of potential impacts and mitigation measures has been provided.
5. A final summary of recommendations is made based on the findings of this assessment.

3. The Floral Environment

Louterwater is situated within the Langkloof region in the Kou Kamma municipality of the Eastern Cape, South Africa. The site is found in the Cape Floristic Region (CFR), rich in endemic and threatened plant species, with the area being dominated by the Fynbos biome (Cowling *et al.* 1997). This biome can be divided into two main units; proper fynbos occurring on sandstone and dominated by members of the Proteaceae, Ericaceae and Restionaceae families, and Renosterveld on shale where renosterbos (*Elytropappus rhinocerotis*) is dominant. In the eastern extent of fynbos, grasses become common and this form is known as grassy fynbos (Cowling *et al.* 1997).

3.1 Regional Planning Framework

The site falls within the Eastern Cape, and is thus covered by the Eastern Cape Biodiversity Conservation Plan (ECBCP). This plan integrated the existing Biodiversity Conservation Plans in the Eastern Cape, including the Cape Action Plan for People and the Environment (CAPE) and the Subtropical Thicket Ecosystem Planning Project (STEP) to identify Critical Biodiversity Areas (CBAs) across the province. The proposed site for the evaporation ponds falls within a Terrestrial CBA3 (Map 2), classified as vulnerable ecosystems, and as "Other Natural Areas" (ONA T3) (Berliner *et al.*



Map 2 The proposed evaporation ponds falls within a Terrestrial CBA3 and an Aquatic CBA2.

2007) . To ensure biodiversity persistence, the ECBCP Handbook (Berliner *et al.* 2007) indicates that the area needs to be managed as a functional landscape, as it falls within a Biodiversity Land Management Class (BLMC) 3. The Recommended land use objective for the site is to "manage for sustainable development, keeping natural habitat intact in wetlands (including wetland buffers) and riparian zones. Environmental authorisation should support ecosystem integrity" (Berliner *et al.* 2007).

The proposed site falls within an Aquatic CBA2 (A2b) as well, and is regarded as being in a near natural state (Map 2). The transformation threshold for the Aquatic Biodiversity Land Management Class is a maximum 20% for the quaternary catchment region (L82C). In 2007 it was 5.75% (Berliner & Desmet 2007) and it is unlikely to have breached 20% by the present.

None of the vegetation types are considered Threatened Ecosystems according to NEM:BA: National list of ecosystems that are threatened and in need of protection (2011).

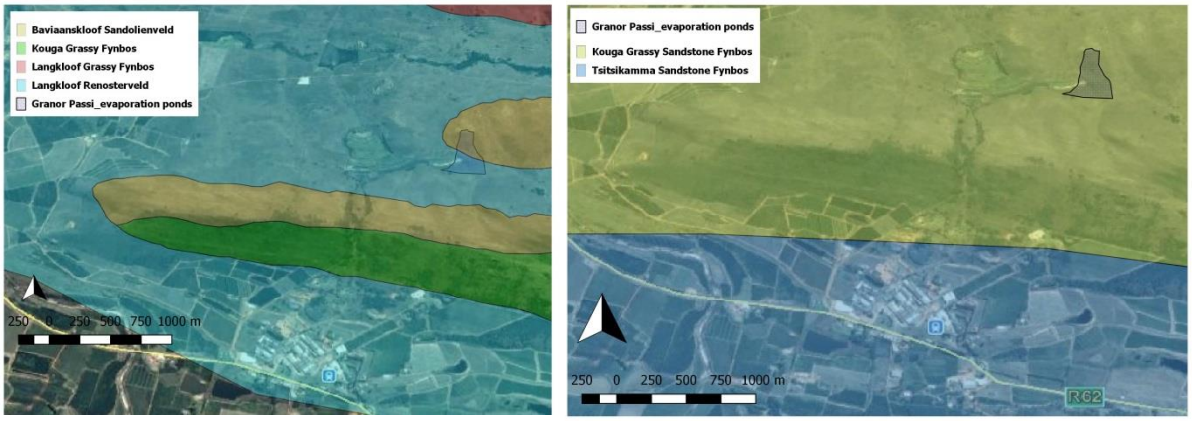
The vegetation types used by the ECBCP were provided by the Vegetation Map of South Africa, Lesotho and Swaziland (Mucina and Rutherford 2006) and identifies one vegetation type occurring on site (Map 2). Kouga Grassy Fynbos is a low shrubland with sparse, emergent tall shrubs and dominated by grasses in the undergrowth, or grassland with scattered ericoid shrubs. It is regarded as Least Threatened and overburning resulting in conversion to pasture is the greatest threat (Mucina and Rutherford 2006). Endemic taxa in this vegetation type are *Freylinia crispa*, *Argyrolobium parviflorum*, *A. trifoliatum*, *Cullumia cirsioides*, *Eriocephalus tenuipes*, *Euchaetis vallis-simiae*, *Sutera cinerea*, *Lampranthus lavisii*, *Annesorhiza thunbergii*, *Aster laevigatus*, *Centella*

didymocarpa, *Peucedanum dregeanum*, *Cyrtanthus flammosus*, *C. labiatus*, *C. montanus*, *Gladiolus uitenhagensis*, *Gasteria glauca* and *Restio vallis-simius*.

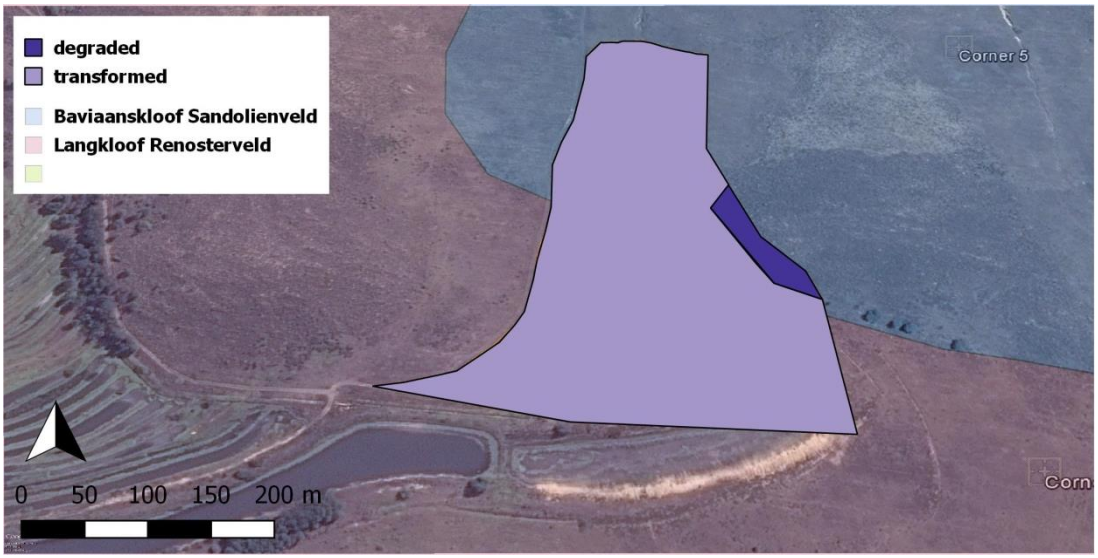
The Baviaanskloof Mega-Reserve Biodiversity Assessment (BMR) was done to identify the conservation priorities in the planning domain of the Baviaanskloof Mega-Reserve (Skowno 2007). No vegetation descriptions were done for the BMR, but descriptions were taken from the Garden Route Initiative (Vlok *et al*. 2008) and the Little Karoo Biodiversity Assessment (Skowno *et al.* 2010).

The BMR identified two vegetation types on site (Map 3). Langkloof Renosterveld is dominated by renosterbos (*Elytropappus rhinocerotis*), as well as other short ericoid shrubs. Useful indicator species include; *Aloe ferox, Digitaria eriantha, Drosanthemum delicatulum, Eriocephalus africanus, Euphorbia cf pugniformis, Glottiphyllum longum, Hermannia flammea* and *Pentaschistis pallida*. After fire geophytes are abundant, including the uncommon *Freesia verrucosa* and *Tritonia parvula, Eriocephalus tenuifolius* is endemic to the unit. Overgrazing has greatly decreased the cover of sweet grass (*Themeda triandra*) and large areas have been transformed into apple orchards. It is listed as a Vulnerable vegetation type.

Sandolienveld has recently been described as a different vegetation type, where the sand olive (*Dodonea viscosa* subsp. *angustifolia*) dominates in fire-driven systems on loamy soils (Vlok *et al.* 2005). Baviaanskloof Sandolienveld is poor in species and it has a low graze and browse value. It is usually dominated by *Passerina obtusif*olia. Useful indicator species include: *Aloe comptonii, Crassula cotyledonis, Delosperma multiflorum, Diosma prama, Euchaetis vallis-simiae, Hermannia involucrata, Hermannia salviifolia, Passerina obtusifolia and Passerina pendula*. It is considered Least Threatened.



Map 3 Vegetation types occuring at the Granor Passi Evaporation ponds site. Left: Baviaanskloof Mega-Reserve Biodiversity Assessment. Right: Eastern Cape Biodiversity Conservation Plan (ECBCP).



Map 4 Map 4 Site of the Granor Passi evaporation ponds

4. Vegetation Assessment

4.1 Community Composition

The majority of the site is dominated by grasses (*Aristida congesta* subsp. *congesta, Bromus pectinatus, Cynodon dactylon, Eragrostis curvula, Sporobolus africanus, S. fimbriatus* and *Stenotaphrum secundatum*) and asteraceous shrubs (*Chrysocoma ciliata, Elytropappus rhinocerotis, Eriocephalus africanus* var. *paniculatus, Nidorella ivifolia* and *Athanasia trifurca*) (Appendix 1). The sedge *Scirpoides dioecus* was also dominant in some areas. A number of succulents (*Carpobrotus edulis* subsp. *edulis*, *Drosanthumum hispidum, Ruschia tenella, Crassula muscosa*) were relatively dominant, but most were uncommon and occurred in very low numbers. Very few trees (*Searsia rehmanniana*) and bulbs (*Hypoxis villosa*) were seen either.

It is difficult to determine which vegetation map best describes the site, particularly as the majority of the site has been previously ploughed and transformed and can be regarded as secondary (Map 3). The koppie with the shallow soil immediately to the west of the site clearly supports fynbos, as

there are multiple members of the Proteaceae, Ericaceae and Restionaceae families, and interestingly very little grass cover. The koppie to the immediate east resembles sandolienveld, with relatively high grass cover, but also the presence of sandolien (*Dodonea viscosa* subsp. *angustifolia*) and multiple restio species. As soils are considerably deeper on site, it is suspected that it would have supported a renosterveld or sandolienveld community.

On the eastern edge of the site, where soils are shallow, transformation has not occurred and restios and other fynbos species dominate. However the site is relatively depauperate with suspected overgrazing and overburning occurring, and can be considered degraded.

Running south to north in the middle of the proposed site is a steeply incised ephemeral drainage line, and an abandoned dam at the northern end. There is clear evidence of heavy erosion occurring, and few aquatic species occur in the drainage line, with the exception of a small stand of *Typha*

capensis at the head of the abandoned dam. A man-made drainage ditch runs parallel to the primary pond, where *Juncus effusus* occurs.

The proposed site has largely lost its biodiversity value, but does maintain reduced functionality. This mainly relates to the drainage line that is heavily eroded and modified.

4.2 Threatened and Protected Species

No Species of Conservation Concern (SCCs) were found on site, as listed according to the Red List (SANBI, 2015). A number of Threatened or Protected Species (ToPS) were identified (Appendix 1), mostly members of the Mesembryanthemaceae (now Aizoaceae). However these are mostly exceptionally common species and none of them are threatened. One bulb species from Hypoxidaceae was found (*Hypoxis villosa*), but in extremely limited numbers.

4.3 Invasive Alien Plants

A number of Invasive Alien Plants (IAPs) occur on site but in very low numbers, with only a few individual pines (*Pinus radiata*), Black Wattle (*Acacia mearnsii*), Rooikrans (*A. cyclops*) and Scotch Thistle (*Cirsium vulgare*) present. All these species are rated as 1b or 2 according to NEMBA: Alien and Invasive Species List of 2014, and need to be cleared. A number of other alien species are present, but are not regarded as invasive (see Appendix 1).

Photo 1Photo 1 Clockwise from top left: View of the site showing dominance of grasses and asteraceous shrubs; the degraded sandolienveld on the eastern edge; *Lampranthus elegans*, one of the attractive but not threatened protected species on site; the broken dam at the bottom of the eroded drainage line.

5. Assessment of Impacts and Mitigation

The possible impacts of this development on the proposed site were rated according to SRK's Impact Rating Methodology. The No-Go Alternative was not directly assessed in this report, as it has been assessed elsewhere. However it can be largely regarded as negative as it will result in a greater risk of the spread of Invasive Alien Plants, increased risk of erosion and possible negative impact on downstream vegetation aquatic habitats by increased likelihood of spills of the effluent.

5.1 Direct loss of natural vegetation habitat due to clearing

The proposed site assessed will be completely cleared of all existing vegetation, and the soil will be excavated to form berms for the evaporation ponds. This will be highly destructive for present vegetation. However as the site had already been ploughed and the vegetation on site is largely secondary, it has lost most of its ecological value. This impact can be regarded as Low.

Impact 1 Direct loss of natural vegetation habitat due to clearing

Consequence		*Extent*	Local	1
		Intensity	Low*	1
		Duration	Long-term	3
		Score	Low	5
Probability			Definite	
Significance			**Low**	
Status of Impact			Negative	
Confidence			High	
	With Mitigation		**Low**	
Mitigation measures	No mitigation possible			

*The intensity of the impact of clearing the area, it is rated low instead of high as the site has been previously ploughed and the quality of the remaining habitat is greatly reduced.

5.2 Direct loss of Species of Conservation Concern and Threatened or Protected Species

The proposed development will result in the complete loss of threatened and protected species on site. However no Species of Conservation Concern (SCCs) were identified and it is very likely none occur on site. There are also only a limited number of Threatened or Protected Species (ToPS) on site, and they are either very common or occur in very low numbers. This impact is regarded as Low, and with possible mitigation of the translocation of plants, if DEDEAT regards it as necessary, can be reduced to Not Significant.

Impact 2 Direct Loss of SCCs and TOPS

Consequence		*Extent*	Local	1
		Intensity	Low*	1
		Duration	Long-term	3
		Score	Low	5
Probability			Definite	
Significance			**Low**	
Status of Impact			Negative	
Confidence			High	
	With Mitigation		**Not Significant**	

Mitigation measures	Translocation of TOPS to a protected area of similar original habitat

*The intensity of the impact will result in the complete loss of TOPS from site, however due to the TOPS present being either very common species, or in very low numbers, the impact is regarded as Low.

5.3 Direct loss of habitat for Species of Conservation Concern and Threatened or Protected Species

The proposed development will result in the complete loss of habitat for SCCs and ToPs on site. This is regarded as Low however, due to the already transformed state of the site.

Impact 3 Direct loss of habitat for SCCs and TOPS

Consequence		*Extent*	Local	1
		Intensity	Low*	1
		Duration	Long-term	3
		Score	Low	5
Probability			Definite	
Significance			**Low**	
Status of Impact			Negative	
Confidence			High	
	With Mitigation		**Low**	
Mitigation measures	No mitigation possible			

*The impact will result in the complete loss of habitat for SCCs and TOPS; however due to the very limited extent of the development (just over 4ha) and the TOPS species present in very small numbers, the impact is rated as Low.

5.4 Change in the risk of Invasive Alien Plants as a result of disturbance

The proposed development will result in an increase in the risk of Invasive Alien Plants (IAPs) spreading in the surrounding site, due to the disturbance of the area during construction, as can be seen at the already existing evaporation ponds. This is particularly relevant for the grass that is planted to stabilise the banks of the evaporation ponds, which will spread into the surrounding vegetation. This impact is regarded as Medium. With regular monitoring and clearing of the surrounding site, with special focus on any areas directly disturbed during construction, as well as any stormwater channels next to the evaporation ponds, this impact can be reduced to Very Low.

Impact 4 Change in the risk of Invasive Alien Plants as a result of disturbance

Consequence		*Extent*	Regional	2
		Intensity	Medium	2
		Duration	Long-term	3
		Score	High	7
Probability			Possible	
Significance			**Medium**	
Status of Impact			Negative	
Confidence			Medium	
	With Mitigation		**Very Low**	
Mitigation measures	The regular monitoring and clearing of invasive plants will greatly reduce this impact			

5.5 Loss of functioning drainage line reducing downstream flow

The proposed development will result in the loss of the drainage line on site and its associated habitat. However this habitat and its functionality is already greatly reduced due to transformation and erosion, and can be mitigated by proper stormwater management. With mitigation, the impact can be reduced from Medium to Low.

Impact 4 Loss of functioning drainage line reducing downstream flow

Consequence		*Extent*	Regional	2
		Intensity	Medium	2
		Duration	Long-term	3
		Score	High	7
Probability			Possible	
Significance			**Medium**	
Status of Impact			Negative	
Confidence			Medium	
	With Mitigation		**Low**	
Mitigation measures	Proper stormwater management with construction of berms and channels			

6. Recommendations

- The necessity for the translocation of Threatened or Protected Species (ToPS) on site is left to DEDEAT to decide on. The recommendation of this study is that it is unnecessary, as there are no Species of Conservation Concern (SCCs) present and most of the ToPS are exceptionally common or occur in very low numbers on site;
- A permit for the removal of ToPs will be required from DEDEAT;
- All construction impacts should be limited to the site assessed and not impact the surrounding vegetation;
- The site should be clearly marked and access prevented to the surrounding vegetation;
- No dumping or storage of excavated or spoil material should be allowed on the surrounding vegetation, it should be limited to an area previously disturbed;
- The surrounds of the site should be monitored for Invasive Alien Plants until no new evasions occur for three months, or after rain, in particular the grass that is used to stabilise the banks of the evaporation ponds (whether alien or not), and should be cleared;
- Invasive Alien Plants should be disposed of in a way that does not result in their further spread by seed or vegetatively. As long as seeds aren't present, the plant material can be

mulched if large quantities are present, or stacked in a degraded area to naturally decompose;

- Correct stormwater management with berms and channels is strongly recommended to maintain downstream flow.

7. References

Berliner, D., Desmet, P., Hayes, R., & Young Hayes, A. 2007. Eastern Cape Biodiversity Conservation Plan Handbook. Prepared for the Department of Water Affairs and Forestry Project No 2005-012, King William's Town.

Cowling, R.M., Richardson, D.M. & Mustart P.J. 1997. Fynbos. In (eds) Cowling, R.M., Richardson, D.M. & Pierce, S.M. Vegetation of Southern Africa. Cambridge University Press, Cambridge.

Mucina, L. & Rutherford, M.C. (eds) 2006. The Vegetation of South Africa, Lesotho and Swaziland. Strelitzia 19. South African National Biodiversity Institute, Pretoria.

SANBI. 2015. Statistics: Red List of South African Plants version 2015.1. Downloaded from Redlist.sanbi.org on 2016/12/05.

Skowno, A. 2007. Baviaanskloof Mega-Reserve Biodiversity Assessment (Version 3). Project Management Unit, Baviaanskloof Mega-Reserve.

Skowno, A.L., Holness, S.D. and P.G. Desmet 2010. Biodiversity Assessment of the Kannaland and Oudtshoorn Local Municipalities, and Eden District Management Area (Uniondale). DEADP Report LB07/2008a.

Vlok, J.H.J.,Cowling, R.M. & Wolf, T. 2005. A vegetation map for the Little Karoo. Unpublished map and report for a SKEP project.

Vlok, J.H.J., Euston-Brown D.I.W. & Wolf, T. 2008. A vegetation map for the Garden Route Initiative. Unpublished 1:50 000 maps and report supported by CAPE FSP task team.

Appendix List of Plant Species found at the proposed Granor Passi Evaporation Ponds in Louterwater, and their conservation significance

Family	Alien	TOPs	SCC	Name
Aizoaceae		P	LC	*Carpobrotus edulis* (L.) L.Bolus subsp. *edulis*
Aizoaceae		P	LC	*Delosperma patersoniae* (L.Bolus) L.Bolus
Aizoaceae		P	LC	*Drosanthemum hispidum* (L.) Schwantes
Aizoaceae			LC	*Galenia fruticosa* (L.f.) Sond.
Aizoaceae		P	LC	*Lampranthus elegans* (Jacq.) Schwantes
Aizoaceae		P	LC	*Lampranthus spectabilis* (Haw.) N.E.Br.
Aizoaceae		P	LC	*Machairophyllum bijliae* (N.E.Br.) L.Bolus
Aizoaceae		P	LC	*Psilocaulon articulatum* (Thunb.) N.E.Br.
Aizoaceae		P	LC	*Ruschia tenella* (Haw.) Schwantes
Amaranthaceae			LC	*Atriplex semibaccata* R.Br. var. *appendiculata* Aellen
Amaranthaceae			LC	*Salsola aphylla* L.f.
Anacardiaceae			LC	*Searsia rehmanniana* (Engl.) Moffett var. *rehmanniana*
Apocynaceae		P	LC	*Gomphocarpus physocarpus* E.Mey.
Asparagaceae			LC	*Asparagus capensis* L. var. *capensis*
Asphodelaceae			LC	*Bulbine asphodeloide*s (L.) Spreng.
Asphodelaceae			LC	*Trachyandra revoluta* (L.) Kunth
Asteraceae			LC	*Arctotis acaulis* L.
Asteraceae			LC	*Athanasia trifurcata* (L.) L.
Asteraceae			LC	*Berkheya spinosa* (L.f.) Druce
Asteraceae			LC	*Chrysocoma ciliata* L.
Asteraceae	1b			*Cirsium vulgare* (Savi) Ten.
Asteraceae			LC	*Cullumia bisulca* (Thunb.) Less.
Asteraceae			LC	*Elytropappus rhinocerotis* (L.f.) Less.
Asteraceae			LC	*Eriocephalus africanus* L. var. *paniculatus* (Cass.) M.A.N.Müll.,P.P.J.Herman & Kolberg
Asteraceae			LC	*Helichrysum cymosum* (L.) D.Don subsp. *cymosum*
Asteraceae			LC	*Helichrysum rosum* (P.J.Bergius) Less. var. *arcuatum* Hilliard
Asteraceae			LC	*Helichrysum teretifolium* (L.) D.Don
Asteraceae			LC	*Nidorella ivifolia* (L.) J.C.Manning & Goldblatt
Asteraceae			LC	*Oedera genistifolia* (L.) Anderb. & K.Bremer
Asteraceae			LC	*Osteospermum calendulaceum* L.f.
Asteraceae			LC	*Pentzia dentata* (L.) Kuntze
Asteraceae	*			*Pseudognaphalium luteo-album* (L.) Hilliard & B.L.Burtt
Asteraceae			LC	*Senecio burchellii* DC.
Asteraceae			LC	*Senecio glutinosus* Thunb.
Asteraceae			LC	*Syncarpha canescens* (L.) B.Nord. subsp. *canescens*
Asteraceae			LC	*Ursinia anethoides* (DC.) N.E.Br.

Family	Alien	TOPs	SCC	Name
Crassulaceae			LC	*Crassula atropurpurea* (Haw.) D.Dietr. var. *atropurpurea*
Crassulaceae			LC	*Crassula capitella* Thunb. subsp. *thyrsiflora* (Thunb.) Toelken
Crassulaceae			LC	*Crassula muscosa* L.
Crassulaceae			LC	*Crassula nudicaulis* L. var. *nudicaulis*
Crassulaceae			LC	*Crassula subulata* L.
Cyperaceae			LC	*Isolepis* sp.
Cyperaceae			LC	*Scirpoides dioecus* (Kunth) Browning
Euphorbiaceae			LC	*Clutia alaternoides* L. var. *alaternoides*
Fabaceae	1b		LC	*Acacia cyclops* A.Cunn. ex G.Don
Fabaceae	2		LC	*Acacia mearnsii* De Wild.
Fabaceae			LC	*Aspalathus rubens* Thunb.
Fabaceae			LC	*Aspalathus spinosa* L. subsp. *spinosa*
Gentianaceae		P	LC	*Chironia baccifera* L.
Geraniaceae			LC	*Pelargonium alchemilloides* (L.) L'Hér.
Geraniaceae			LC	*Pelargonium ovale* (Burm.f.) L'Hér. subsp. *ovale*
Geraniaceae			LC	*Pelargonium panduriforme* Eckl. & Zeyh.
Hypoxidaceae		P	LC	*Hypoxis villosa* L.f.
Juncaceae			LC	*Juncus effusus* L.
Malvaceae			LC	*Hermannia althaeifolia* L.
Malvaceae			LC	*Hermannia salviifolia* L.f. var. *salviifolia*
Malvaceae			LC	*Hermannia stipulacea* Lehm. ex Eckl. & Zeyh.
Malvaceae			LC	*Hibiscus aethiopicus* L. var. *aethiopicus*
Montineaceae			LC	*Montinia caryophyllacea* Thunb.
Pinaceae	1b			*Pinus radiata* D.Don
Poaceae			LC	*Aristida congesta* Roem. & Schult. subsp. *congesta*
Poaceae			LC	*Bromus pectinatus* Thunb.
Poaceae			LC	*Cymbopogon marginatus* (Steud.) Stapf ex Burtt Davy
Poaceae			LC	*Cynodon dactylon* (L.) Pers.
Poaceae			LC	*Ehrharta calycina* Sm.
Poaceae			LC	*Eragrostis curvula* (Schrad.) Nees
Poaceae	*			*Eragrostis pilosa* (L.) P.Beauv.
Poaceae	*			*Pennisetum clandestinum* Hochst. ex Chiov.
Poaceae			LC	*Pentameris airoides* Nees subsp. *airoides*
Poaceae			LC	*Sporobolus africanus* (Poir.) Robyns & Tournay
Poaceae			LC	*Sporobolus fimbriatus* (Trin.) Nees
Poaceae			LC	*Stenotaphrum secundatum* (Walter) Kuntze
Poaceae			LC	*Themeda triandra* Forssk.
Poaceae			LC	*Tribolium hispidum* (Thunb.) Desv.
Primulaceae	*			*Anagallis arvensis* L. subsp. *arvensis*
Restionaceae			LC	*Hypodiscus striatus* (Kunth) Mast.
Restionaceae			LC	*Restio eleocharis* Mast.
Santalaceae			LC	*Thesium subnudum* Sond. var. *foliosum* A.W.Hill

Family	Alien	TOPs	SCC	Name
Sapindaceae			LC	*Dodonaea viscosa* Jacq. var. *angustifolia* (L.f.) Benth.
Scrophulariaceae			LC	*Hebenstretia robusta* E.Mey.
Scrophulariaceae			LC	*Selago glomerata* Thunb.
Typhaceae			LC	*Typha capensis* (Rohrb.) N.E.Br.