



## **BASIC ASSESSMENT ECOLOGICAL REPORT**

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**An Environmental Report on the Flora for the  
proposed development of a shopping centre  
and associated sewerage system on a portion  
of the remainder of the farm Rita 668 LT,  
Maake, Limpopo Province**

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## ASSIGNMENT

**Africa Geo Environmental Services (AGES)** was commissioned to assess the vegetation and to compile an ecological report for the proposed development of a shopping centre and associated sewerage system on a portion of the remainder of the farm Rita 668 LT, Tzaneen area, Limpopo Province.

**The assignment is interpreted as follows:** Compile a basic assessment study on the flora and general ecology of the site and potential sensitive zones in terms of a set of criteria. **The following basic steps were followed:**

1. *Initial preparation - desktop study*
2. *Vegetation and habitat survey*
3. *Plant community delimitation, description and sensitivity analysis*
4. *General recommendations and special management strategies*

## INTRODUCTION

In the past little concern was given to floristic and ecosystem conservation issues. Development of urban areas and lodges took place without proper consideration of the effect thereof on the natural environment. Today it is widely recognised that it is of utmost importance to conserve natural resources in order to maintain ecological processes and life support systems for plants, animals and humans. To ensure that sustainable development takes place, it is therefore important that the environment is considered before local authorities approve any development.

All components of any of the ecosystems (physical environment, vegetation, animals) of a site are interrelated and interdependent. A holistic approach is therefore imperative to effectively include the development, utilisation and where necessary conservation of the given natural resources in an integrated development plan, which will address all the needs of the modern human population (Bredenkamp & Brown 2001). The basic assessment for ecological aspects of development sites should be done in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended, and the Environmental Impact Assessment Regulations, 2006. The basic assessment ecological report addresses the most important aspects of the ecology of the development site.

## General Ecology

The table below indicate basic information on the ecological aspects of the vegetation of the general area:

Ecological aspects	Ecological Classification
Vegetation type (Mucina et al. 2005)	Granite Lowveld Bushveld
Vegetation type (Low & Rebelo, 1996)	Sour Lowveld Bushveld
Vegetation type (Acocks, 1988)	Lowveld Sour Bushveld
State of Vegetation	Degraded
Vegetation Structure	Varies between open degraded grassland to encroached shrubveld
Geology & Soils	Deep red Hutton soils derived from granite / Lava
Landscape topography	Slightly undulating to flat plains
General characteristics	Site currently in a degraded state due to being used as a pass-through. Littering and rubble dumping observed on site

## METHODS

A vegetation survey was conducted during which the following was documented:

- State of vegetation and time of survey
- Plant species of importance:
  - Dominant plant species
  - Red data plant species
  - Protected tree species
  - Exotic species
  - Indicator species of the state of the vegetation
- Average cover and height of floristic components
- General ecological information such as soil type, geology, location of drainage channels etc

Plant communities were identified on site and a classification of vegetation data was done to identify, describe and map vegetation units, which will include a sensitivity map.

## RESULTS: VEGETATION UNITS

Only one vegetation unit was identified as a result of the degraded state of the vegetation on site. The site consists of patches of encroached shrubveld in between heavily degraded grassland. A detailed species list for the site is included in Appendix A.

The table below indicate specific characteristics of the vegetation of the site

Characteristics	Degraded grassland & open areas	
State	Open degraded grassland & encroached shrubveld with some large indigenous trees observed on site	
Red data plant species	None	
Dominant plant species	<i>Aristida spp.</i> , <i>Caesalpinnia decapetala</i> ; <i>Dichrostachys cinerea</i> , exotic weeds	
Indicator species	<i>Aristida spp.</i> ; various exotic weeds	
Protected tree species	Marula, Apple-leaf	
Woody structure:	<b>Cover Abundance (%)</b>	<b>Height (m)</b>
Trees	<1	3-6
Shrubs	20-30	1-2m
Herbaceous component	<b>Cover Abundance (%)</b>	<b>Height (m)</b>
Grasses	30-40%	0.5-0.7
Forbs & succulents	2-5%	0.5 - 1.2
General (Geology, soil)	Deep red Hutton soils on flat plains	

The typical state of the vegetation on the site is indicated in the photographs below:

a. Degraded Grassland



b. Encroached areas



## RECOMMENDATIONS & MANAGEMENT STRATEGIES

Following the investigation and ecological interpretation of the vegetation in the study area, some conclusions can be made.

Any development will have a profound affect on the environment in that most of the natural areas will be destroyed. The vegetation on site is currently in a heavily degraded state with only large indigenous tree species of significance occurring on site. Rubble dumping and

littering are evident on the site and the site is currently used as a pass-through. The following general recommendations for the site should be adhered to:

- The protected tree species *Sclerocarya birrea* (marula) and *Philonaptera violaceae* (Apple-leaf) were observed on the site, as well as other individuals of *Ficus glumosa*, *Trichilia emetica*, *Ficus thonningii*, *Kigelia africana* and *Diospyros mespiliformes*. Larger individuals of these indigenous tree species should be kept as part of the site design if possible. Any eradication of the protected tree species should not be done without a permit. Permits can be obtained from the DWAF.
- Otherwise unlimited development of the shopping centre and the sewerage system can be allowed on the site, especially considering the vegetation and physical environment of the larger area not being suitable for any of the red data plant species that may be found in the area.

## CONCLUSION

The area for the proposed shopping centre and associated sewerage system is confined to an area that has a low sensitivity, whereon specific minimal mitigating measures regarding protected and indigenous tree species are needed. The recommendations should be adhered to and considering these aspects, the proposed development can be supported.

## REFERENCES

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- Mucina L., Rutherford M.C. & Powrie L.W. (eds) (2005). *Vegetation Map of South Africa, Lesotho and Swaziland*, 1:1000000 scale sheet maps.

## **Appendix A**

### **Woody species**

*Acacia burkei*

*Acacia gerrardi*

*Acacia sieberiana*

*Caesalpinnia decapetala*

*Combretum apiculatum*

*Dichrostachys cinerea*

*Diospyros mespiliformes*

*Ehretia amoena*

*Ficus glumosa*

*Ficus thonningii*

*Philonaptera violaceae*

*Piliostigma thonningii*

*Psidium guajava*

*Schotia affra*

*Sclerocarya birrea*

*Trichilia emetica*

### **Grasses**

*Aristida spp.*

*Botriochloa radicans*

*Cenchrus ciliaris*

*Cynodon dactylon*

*Eragrostis rigidior*

*Heteropogon contortus*

*Melinis repens*

*Panicum maximum*

*Pennisetum clandestinum*

*Sporobolus fimbriatus*

*Urochloa mosambicensis*

### **Forbs & Succulents**

*Achyranthes aspera*

*Agave mexicana*

*Bidens pilosa*

*Chromolaena odorata*

*Datura stramonium*

*Dicerocarium eriocarpum*

*Diospyros lycioides*

*Pearsonia cajanifolia*

*Senecio gerrardi*

*Senna italica*

*Solanum panduriforme*

*Tagetes minuta*

*Vigna vexillata*