

# Botanical Assessment of Remainder Farm 180 and Farm 180 Portion 3 (Fisantekraal) Durbanville, Western Cape



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## **1. Introduction**

Industrial and urban expansion is proposed north-east of Durbanville in the area known as Fisantekraal. At present this area is largely agricultural but already Durbanville Industrial Park is being established and more land is required for this type of development. Hence Farm 180 Durbanville amongst others has been earmarked for conversion from agricultural land to land for light industrial development.

Bergwind Botanical Surveys & Tours CC was commissioned by Guillaume Nel Environmental Consultants (Project Code: GNEC 20018) to conduct a botanical evaluation of Remainder Farm 180 and Farm 180 Portion 3, Durbanville to determine whether or not there could be any constraints on the proposed developments from a botanical viewpoint.

The assessment of the botanical status of the above contiguous sites was carried out following standard guidelines for studies of this kind (Brownlie 2005, De Villiers *et al.* 2005) and both sites are dealt with in this report. The requirements and recommendations of Cape Nature and the Botanical Society of South Africa for proactive assessment of biodiversity of proposed development sites were also taken into account.

## **2. Terms of Reference**

- ☞ To conduct a botanical evaluation of Remainder Farm 180 and Farm 180 Portion 3, Durbanville in order to describe the vegetation in broad terms, and to check for the presence or likelihood of endemic, rare or threatened species.
- ☞ To assess the site in terms of its local and regional conservation value with special reference to the National Spatial Biodiversity Assessment (NSBA) (Rouget *et al.* 2004).
- ☞ To identify botanically sensitive areas that may require further investigation.

## **3. Study Area**

### ***3.1 Location, History and Present Use***

Farm 180 Durbanville is located at the intersection of the R302 road between Durbanville and Klipheuwel and the R312 to Paarl, a distance of approximately 7.5 km from

Durbanville. The two portions of Farm 180 that were assessed jointly cover an area of 17.4 ha. The west and north boundaries lie parallel to the R302 and R312 respectively. The Remainder of Farm 180 extends to just beyond the Mosselbank River on the east side and on the south side the boundary is common with Erf 168 Portion 13, Durbanville. Co-ordinates of a centroid to locate the property are S 33° 47' 07.4" E 18° 42' 13.7" (Figures 1 & 2).

In the past Farm 180 Remainder was cultivated as is evident from the ploughed soil. There is also remnant stubble in places from the cereal crops that were planted. Now the area is completely fallow and is not being grazed. Farm 180 Portion 3 is presently used as a horse-riding centre (Rodeo Riding Centre).

## **3.2 Physiography**

### **3.2.1 Climate**

Typical of the Western Cape, the study area has a Mediterranean-type climate with cool wet winters and hot, dry summers (Deacon, Jury & Ellis 1992; Van Wyk & Smith 2001; Manning, Goldblatt & Snijman, 2002). In the winter the subtropical high-pressure system is situated closer to the equator allowing the successive passage of cold fronts from the sub-Antarctic to reach the Western Cape and deliver rain. The more southerly position of the high-pressure system in the summer forces the fronts off the coast with the result that no rain falls on the land. The anti-cyclonic air circles back onshore from the south-east giving rise to the strong, desiccating south-east winds in the summer. The daily average temperature in summer is 25 °C and often rises to 30 °C with an average minimum of 16 °C. The average minimum temperature in winter is about 7 °C. Topography influences the local distribution of rainfall. From rainfall figures in the Fisantekraal district the average annual rainfall recorded is between 400 and 500 mm.

### **3.2.2 Topography**

The topography in the Fisantekraal area is undulating with low hills. At Farm 180 the gradient slopes gently eastwards to the Mosselbank River which is the main drainage for a large catchment. Even though there is a shallow gradient eastwards, the study area is generally exposed from all directions with no dominating directional aspect. There are no drainage lines, dams or open water on the properties surveyed apart from the Mosselbank River on the eastern boundary of Farm 180 Remainder (Figure 2).

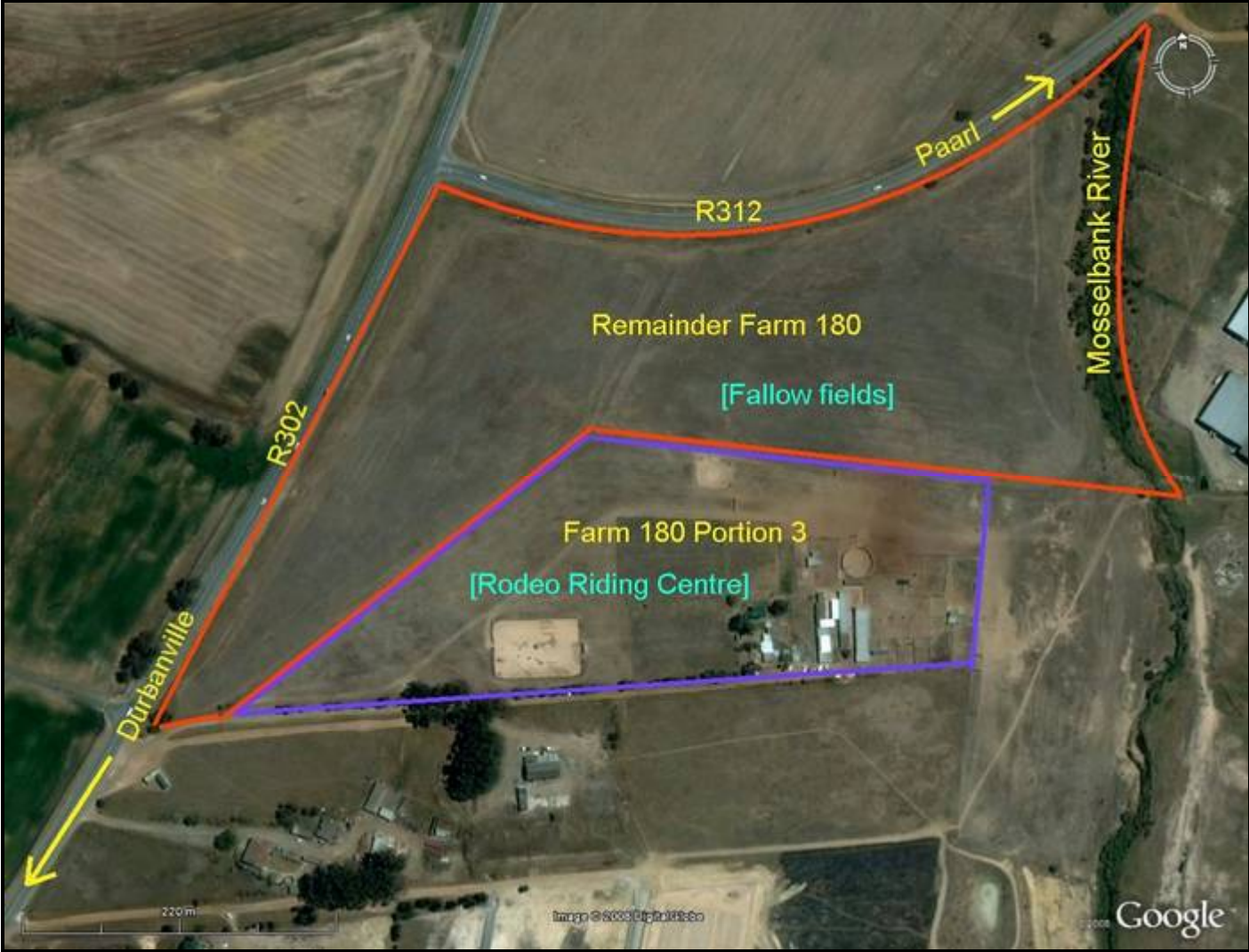
### 3.2.3 Geology and Soils

Malmesbury Group shales predominate in the study area. These sediments have given rise to clay-loam or sandy-clay loam soils that are arable and fertile. In some places there is a shallow overburden of sand but the dominant soil type is deep clay-loam.



**Figure 1.** General locality and topography of Farm 180 Remainder and Farm 180 Portion 3, Durbanville, study site.

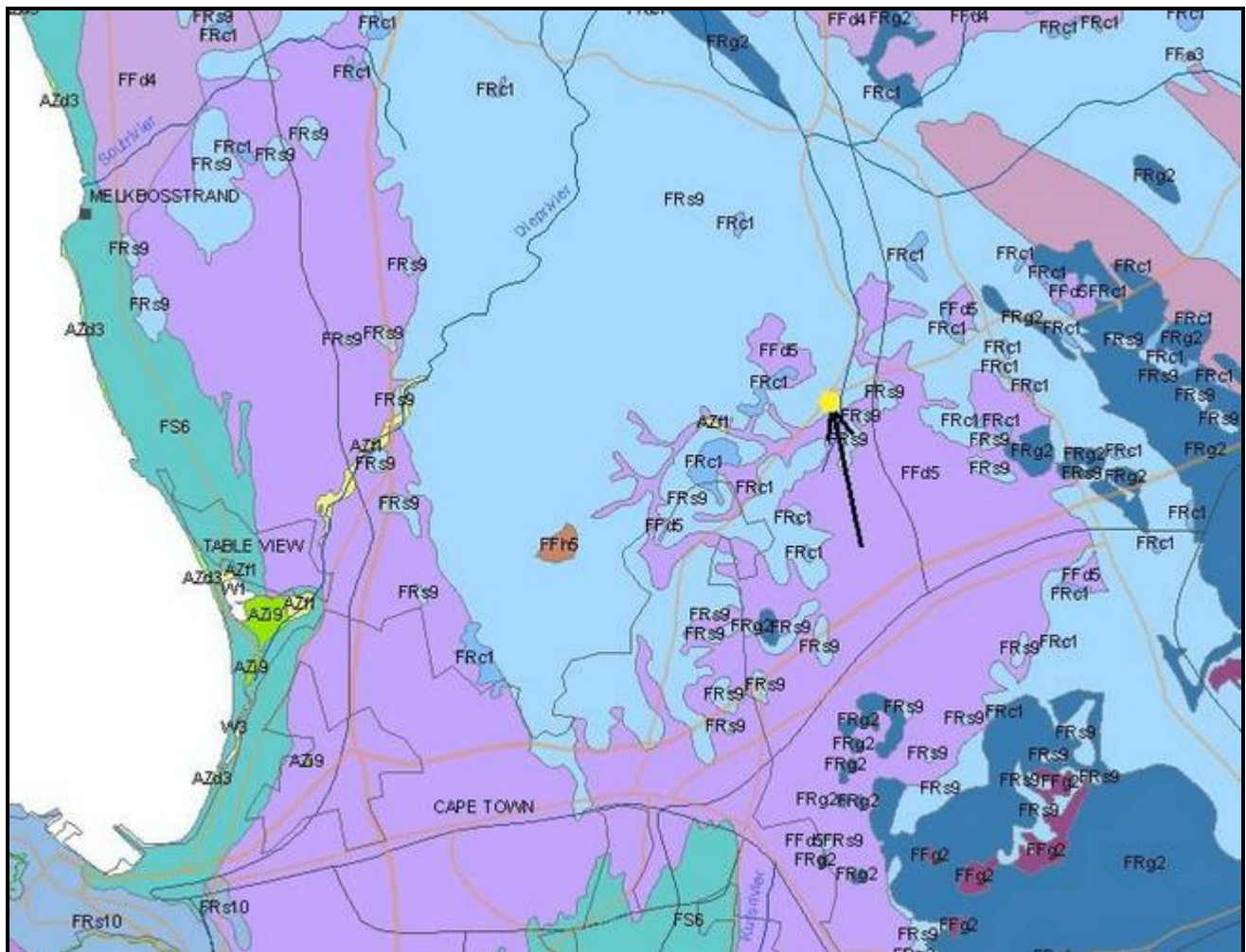




**Figure 2.** Aerial image (Google Earth: Digital Globe 2008 ©) of the study area at Durbanville with the boundary of Farm 180 Remainder in red and Portion 3 in mauve.

## 4. Evaluation Method

Farm 180 Remainder and Farm 180 Portion 3, Durbanville were surveyed on 6 August 2008. There had been some recent rain and the vegetation was generally lush. Portion 3 was visited first by gaining access along the entrance road to the Rodeo Riding Centre. Photographs were taken as a record of the present status of the site. Following the survey of Portion 3, Farm 180 Remainder was accessed from the south-western corner near the 'Indraai' roadside stall. The survey was conducted during a walk north-eastwards to the vicinity of the Mosselbank River over the fallow fields. A Garmin ® GPS was used to track the routes followed and record waypoints (not shown in figures). At the waypoints specific observations were recorded and photographs taken as a record of the site and its vegetation.



**Figure 3.** Portion of the vegetation map of southern Africa showing the location of Farm 180 Durbanville (yellow dot) in an area that previously had Swartland Shale Renosterveld (FRs9 - light blue) (Mucina *et al.* 2005).

## 5. The Vegetation

### 5.1 General context and Conservation Status

According to the national vegetation map (Mucina *et al.* 2005; Mucina & Rutherford 2006) the vegetation that would potentially occur on Farm 180 Durbanville would be Swartland Shale Renosterveld, a typical vegetation type found on clay-loam soils (Figure 3) in the South-western Cape. This is a CRITICALLY ENDANGERED vegetation type according to the rating of the National Spatial Biodiversity Assessment (Rouget *et al.* 2004) and as such should be conserved wherever possible. It was with this in mind that the survey of Farm 180 Durbanville was carried out.

### 5.2 The vegetation of the study site: Farm 180 Remainder and Farm 180 Portion 3, Durbanville.

Farm 180 Durbanville was thoroughly investigated and it was found that there has been complete removal of all natural vegetation on Farm 180 Remainder which is now a fallow field with mostly exotic weeds (Figure 4). There are a few indigenous ruderal species but these do not count for much. Farm 180 Portion 3 has some houses with the rest consisting of paddocks and stables, devoid of natural vegetation (Figure 5).

The vegetation survey on the two adjacent properties revealed that there is practically no vegetation, not even exotic weeds on large parts of Farm 180 Portion 3. The entrance to the property is lined with young pine trees (*Pinus radiata*) (see cover photo) and the paddocks are planted with Kikuyu grass (*Pennisetum clandestinum*) or are free of vegetation. In some of the smaller paddocks there are weeds, particularly *Plantago lanceolata* (plantain) and along the fences are a few arum lilies (*Zantedeschia aethiopica*). Further than this no indigenous plants of any consequence were noted.

On Farm 180 Remainder, the fallow fields harbour no indigenous species of importance. The vegetation is mostly weedy and consists of species such as *Arctotheca calendula* (Cape weed), *Bromus* sp., *Cynodon dactylon* (couch grass), *Echium plantagineum* (purple echium), *Echium vulgare* (blue echium), *Lolium* spp., *Raphanus raphanistrum*, *Rumex acetosella* subsp. *angiocarpus* and *Zantedeschia aethiopica*.

On the eastern boundary of Farm 180 Remainder, Durbanville, the Mosselbank River is choked with alien *Acacia saligna* (Port Jackson Willow) and reeds of *Phragmites australis*



(Figure 6). This vegetation impedes the water flow and will probably allow for the incursion of *Typha capensis* (bulrushes) in time which will further choke the river.

**No intact indigenous vegetation of Swartland Shale Renosterveld remains on Farm 180 Remainder or on Farm 180 Portion 3, Durbanville and no rare or threatened plant species were located during the survey.** Given the land-use history of the study area with removal of natural vegetation, ploughing, planting of pastures and grazing, there is a very low probability of finding any such plant species.



**Figure 4.** Farm 180 Remainder, Durbanville consisting of fallow fields with ruderal weeds where all the natural vegetation has been removed.



**Figure 5.** Small horse-paddocks and stables on Farm 180 Portion 3, Durbanville. There is no natural vegetation remaining on this property.



**Figure 6.** The line of alien invasive *Acacia saligna* trees indicates the course of the Mosselbank River on the eastern boundary of Farm 180 Remainder, Durbanville.

## 6. General Assessment and Conclusions

- The natural vegetation on the clay-loam shale-derived soils at Farm 180 Remainder and Farm 180 Portion 3 Durbanville would have been Swartland Shale Renosterveld in the past. This is a Critically Endangered vegetation type but nowhere on either of the above two properties does this vegetation type persist.
- Farm 180 Remainder, Durbanville consists of fallow fields with ruderal weeds and on the eastern boundary some riparian vegetation but this is impacted by the presence of exotic invasive *Acacia saligna* (Port Jackson Willow).
- Farm 180 Portion 3, is highly disturbed by the present use of the land as a horse-riding centre. All the vegetation present consists of exotic plant species.
- The high degree of disturbance and transformation of the properties indicates that they have a **LOW** conservation value and that there are no botanical reasons to suggest that they should not be developed. The chances of rehabilitation to the original vegetation are very low to non-existent.

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