Chaper 11. Conclusion

The Bynespoort Game Park is generally in a good condition, and is well maintained to be able to sustain itself.

A Braun-Blanquet vegetation survey was done, and ten plant communities, and sub-communities within these were identified and described. The plant communities were named according to the dominant and diagnostic species. It was important to identify these as they each react differently to management methods such as burning and disturbance. The ten communities identified in Chapter 4 were:

1. *Harpochloa falx - Elionurus muticus* mountain grassland with variation

1.1 *Harpochloa falx - Eragrostis chloromelas* mountain grassland variation

2. *Wahlenbergia undulata - Hyparrhenia hirta* old field grassland

3. *Terminalia sericea - Burkea Africana* bushveld on sand

4. *Tristachya leucothrix - Trachypogon spicatus* mountain bushveld with variation

4.1 *Protea caffra - Faurea saligna* mountain savanna variation

5. *Cynodon dactylon - Acacia karroo* bushveld with variations

5.1 *Ziziphus mucronata - Acacia karroo* bushveld variation

5.2 *Solanum panduniforme - Acacia karroo* disturbed bushveld variation

6. *Euclea crispa - Acacia karroo* bushveld on diabase

7. *Combretum apiculatum - Dombeya rotundifolia* bushveld of northern slopes

8. *Eucalyptus grandis* plantation

9. *Ischaemum fasciculatum - Phragmites australis* wetland

10. *Phragmites australis* slimes dams wetland

The Braun-Blanquet methodology was very successful in objectively determining the plant communities and variations on these communities.

The veld condition and grazing capacity was calculated for each of the communities and from this the recommended stocking rates were determined. This method has proven effective, and the overall satisfactory veld condition supports the method as it has been used for the management of Bynespoort Game Park before. The results of the method are however not to be considered a perfect recipe for the management of Bynespoort Game Park, as conditions change all the time. It is an effective guide to long term management of the Bynespoort Game Park.

A structural analysis of the woody stratum of each plant community was done. From this, the number of woody species per hectare, the leaf volume, evapotranspiration equivalent, leaf mass, and browse tree equivalent was calculated. These results were used to determine the browsing capacity for each of the plant communities. These available browse were however found to be very high, and a more effective way of calculating utilisable browse is still lacking. The BECVOL method takes all leaves and twigs of edible woody

species as available browse, yet no factors such as defensive mechanisms of plants and competition are taken into account. The BECVOL method was therefore not considered as accurate when used in this study.

In order to maintain the condition of the fauna and flora within the reserve, the stocking rate should be kept at the recommended levels, and invasive plants must be controlled. This will ensure that the ecological processes which exist in Bynespoort Game Park are maintained at an optimal level, and the condition of ungulates and vegetation are maintained.

Bynespoort Game Park possesses an extraordinary diversity of wildlife and vegetation, in such close proximity to major human activities. This provides it with the potential to be a popular eco-tourism destination and can be used as a education centre to increase environmental awareness and knowledge.

By studying all aspects of the vegetation of such a Game Park, more can be understood about the history of the management, as well as the sustainability of the park.

Bynespoort Game Park can also be used as an example for industry, where not only the environment should be exploited for economic purposes, but how a major industrial player can also create an area of sustainablility for communities to utilise.

In these times where sustainable utilisation is becoming increasingly important, the statement was made that Bynespoort Game Park is under-utilised in general. This view was accepted by management, and the Park is currently being made available to tourist operators, and school groups for Environmental Education. This study will hopefully also encourage the mine to allow more research to be done on the Park. In this way the area can be protected, and also play a role in the expansion of knowledge about the area.