



m&e case study

Action Research: Working with farmers to establish sustainable management guidelines for the Renosterveld

#4b



The vast majority of the remaining fragments of the endangered renosterveld vegetation type occur on private land managed by farmers, who must be involved in establishing sustainable management guidelines.

A participative research group has been established to facilitate communication between landowners, researchers and conservationists. The Renosterveld Management project has set out 48 plots on six farms in order to better understand the impacts of fire and grazing on this vegetation type. Preliminary results indicate that the best approach is to burn senescent veld and then to fence it to control grazing

For those who have significant areas of renosterveld, the challenge is to conserve the biodiversity while still securing an income from the area. Assistance with fencing and burning is likely to be a stronger incentive for conservation than tax rebates.

Renosterveld occurs on the fertile shales of the Cape Floristic Region. More than 90% of the area originally covered by this highly diverse veld type has already been ploughed up to establish the grain lands of the Western Cape. The remaining renosterveld is found in scattered fragments on private land. If priority areas are to be preserved it is essential to work with landowners to establish stewardship agreements.

Stewardship agreements include management plans which give guidance on how to manage the veld in such a way that biodiversity will be conserved. The particular challenge with renosterveld is that the dynamics of this veld type are poorly understood, so it is difficult to provide guidelines for landowners. Furthermore, if these guidelines require substantial financial investment from either the farmer or the state, they need to be established on verifiable scientific grounds. To this end the Table Mountain Fund is supporting a research programme, the Renosterveld Management Conservation Project. Its objective is to support the Renosterveld Stewardship Programme by working with farmers to define appropriate management for renosterveld.

COLLABORATIVE RESEARCH

The Renosterveld Working Group has been established to assist with exploring approaches to communication and implementation of research results. It brings together landowners, researchers, reserve managers and members of SANBI's CREW programme. The first meeting of this diverse group was held in the field in August 2009. The group's objective is to provide a forum where information about renosterveld can be exchanged, thereby improving veld management by both farmers and conservationists. The research group is housed within the newly expanded Agulhas Biodiversity Initiative (ABI). The footprint of ABI has been expanded for certain aspects of conservation to include the whole of the Overberg, with significant areas of renosterveld. Already farmers are approaching the group for veld management advice.

RESEARCH DESIGN

Most renosterveld fragments occur on mixed farms where the production of grains such as wheat, oats and canola is combined with the production of livestock (predominantly sheep and cattle). This type of land management impacts upon the vegetation of these fragments in two ways:

- Intensive grazing can result in an increase in unpalatable species that animals won't eat, particularly if grazing occurs during winter and spring when geophytes and grasses are growing and flowering. High stock levels also result in trampling, which compacts the soil and increases the risk of erosion.
- The isolation of the renosterveld fragments within a "sea" of cropland results in the breakdown of large scale ecological processes such as fire. Many small fragments have become senescent (too old to reproduce themselves) due to lack of fire.

The Renosterveld Management Conservation Project aims to develop a better understanding of the impact of grazing and the effect of fire. Furthermore, as renosterveld varies considerably from west to east, it is unlikely that a uniform management regime can be applied in all areas. The six research sites have therefore been selected along a west-east gradient in order to include an analysis of changing dynamics along climatic gradients. At each site there are eight 10x10m plots, four on north-facing slopes and four south-facing. This should provide additional insights into the influence of aspect (which way the site faces has a strong impact on local micro-climate as south facing slopes get more sun). Each set of



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four plots will include the following:

- grazed and un-burnt (This imitates the predominant current condition.)
- grazed and burnt
- un-grazed and un-burnt
- un-grazed and burnt (This represents the maximum intervention, involving burning and then erecting a fence to protect the regenerating vegetation.)

Two seasons of data have been collected for the 48 experimental sites. The first survey was undertaken in spring of 2007, before treatment, to establish a baseline describing the existing condition of the veld. In 2008 all the relevant sites were burnt during the narrow March-April window period suitable for controlled burns. [This achievement took considerable perseverance from the research team, together with superb support from CapeNature, the Working on Fire teams, and the local farmers!] The second survey was undertaken during spring of 2008, subsequent to the burns, and a third survey was undertaken in spring of 2009.

It is still too early to determine the long term impact of this research. The data from the first year indicates that burning in autumn decreases the asteraceous shrubs, including the unpalatable *Elytropappus rhinocerotis* (renosterbos), while increasing the grasses and the geophytes (bulbs). The increase in palatable grasses is of particular interest to the farmers as it would improve the carrying capacity of the veld – allowing more stock to graze sustainably. The increase in geophytes, many of which are endangered endemics, is of particular importance for conservation. Other threatened endemics, including the *Polhillia* species, from the Fabaceae family, also responded positively to the autumn burn.

Existing management recommendations are to burn senescent renosterveld and then to support post-burn recovery by keeping grazing pressure low for the next few years. After burning it is important to reduce grazing pressure through winter and spring, as this is the peak growing and flowering season for many of the recovering threatened species (particularly the vulnerable geophytes). This also allows the *Themeda* (Rooigras), critical for grazing, to seed.

Preliminary results indicate that game birds are also favoured by this management approach. This may provide a further incentive for conservation. On the surface, this win-win conservation management plan should be an easy sell to farmers, but there are other factors to be considered.

IMPLEMENTATION

Detailed plans highlighting which renosterveld fragments need to be conserved have been in place for several years. The challenge is to translate the plans into action. It takes time to secure sites through stewardship agreements, and in the interim many areas of remaining lowland renosterveld are in danger of being lost, through further transformation and degradation.

Managing small fragments

The nature of the interaction with farmers is significantly influenced by the percentage of renosterveld on their farm and the resulting economic importance of this land to them.

Those farmers who have small fragments of renosterveld would generally not mind losing the grazing available on these patches in the short term. Indeed, as they would derive long term agricultural benefits from the increased carrying capacity, the majority of these farmers would probably be willing to change the way they manage their renosterveld to support conservation. For some farmers the cost of the necessary fencing would be prohibitively expensive and in these cases sponsorship may be required for controlled burns and fencing.

Securing large areas

Farmers with large areas of renosterveld are likely to be more dependent on the grazing this veld provides. In addition, the renosterveld provides their sheep with shelter during lambing and some plants are thought to also have medicinal properties for the animals.

Most of these farmers use the renosterveld for grazing during winter and spring, while their wheat crops are growing, and then move the livestock to graze the stubble in summer once the wheat has been harvested. This regime places maximum pressure on the veld at the very time when it is most vulnerable. To change their reliance on the natural veld would necessitate either reducing their livestock or buying in feed. Both of these alternatives would have serious economic implications.

These large tracts of renosterveld are particularly important for conservation. There is,



***‘Dit het my n nuwe perspektief gegee..
Ek het nou respek begin kry vir dit wat ek gedink
niks werd was nie”***

***It has given me a new perspective.
I now have respect for something which I
thought had no value***

therefore, an inherent conflict between conservation and farming in these important large remnants of renosterveld.

This conflict is likely to escalate in the face of predicted climatic change. In a drought, the grazing pressure exerted by the existing livestock will increase. In addition, many farmers may increase their reliance on livestock, as several regions within the Overberg are already climatically marginal for grain.

The way forward

Ideally, conservation agencies should purchase the larger fragments of renosterveld (particularly when they are adjacent to existing protected areas) while increasing support and incentives for stewardship of the smaller fragments.

Currently, the level of support which can be offered to farmers, in return for their commitment to a stewardship agreement, is limited. Generally, the conservation agency promises to use the stewardship contract to secure future management support. Although this often does ultimately bear fruit it is less effective than immediate access to direct incentives would be. The stewardship process is also very labour-intensive and there is a shortage of personnel who understand both farming and ecology. The potential for working with the Department of Agriculture in the Overberg region is therefore being explored.

Despite these challenges, progress has been made with individual farmers and the case study below highlights progress that has been made within this challenging context.

WORKING WITH AN INDIVIDUAL FARMER

Dirk van Papendorp owns a 1 900ha farm, nearly 450 ha of which is renosterveld. He manages his “productive land” according to sustainable principles, using minimum tillage and little application of insecticides or fertilizer. He was therefore extremely interested in learning how to manage his renosterveld sustainably as well, and signed up for the Renosterveld Stewardship Programme. The challenge now is to make this approach economically viable in both the short and long term.

Van Papendorp is participating in the research project and was able to keep his stock off the recently burnt veld for 18 months. He undertook the burn himself after CapeNature was unable to provide capacity to do so. He has been very impressed with the recovery of the veld and the many rare species which are now flowering in the rejuvenated area.

The last two years have, however, been very dry and he was eventually forced to use the camp in which the experimental site was located, for grazing. The negative impact on the research and the recovering veld could have been avoided if the renosterveld research site had been fenced off separately from the rest of the camp. Van Papendorp is willing to consider this possibility. Indeed he is prepared to move some of his existing fencing to contribute towards fencing off his renosterveld patches, if a subsidy can be secured for the balance. Fencing currently costs in the region of R20 000 per km.

In the long term, with such a large proportion of his farm being renosterveld, he will have no option but to continue to use it for grazing. However, if the renosterveld is properly fenced off, rather than occurring in patches in larger camps, he should be able to keep stock off the renosterveld during the vulnerable spring period.

The regenerated renosterveld has the potential to draw tourists, and thereby to create an additional revenue stream. Van Papendorp has agreed to provide land on a 25 year lease for the construction of a “weekend cottage” by a private investor. This cottage will be available for tourists, and possibly for researchers. Once the lease expires it will belong to van Papendorp. Green building principles will be followed in its construction.

Through van Papendorp’s involvement in the Renosterveld Management Project a number of additional research and monitoring projects have been facilitated on his farm. These have included research on:

- Black harriers
- Aloes (Haworthias)
- Rare plant species (CREW)
- Carbon sequestration

He views this additional research as a very positive spin-off from his involvement in stewardship. Gaining a better understanding of what he has on the farm is one of the primary factors which motivated van Papendorp to participate in the Renosterveld Management Project. He requested information about each species, its management and conservation

Rather do less properly

“Moet nie te vinnig dryf nie. Doen eerder dit wat jy doen ordentlik.”

status. Odette Curtis has put together for him a flip file identifying all the plants which occur on his farm, adding new species as they are located. He is most appreciative of Curtis's contribution in documenting the plants along with providing sound advice for veld management. He supports this provision information strongly as he is now able to say: “This is my farm, this is my veld, and this is what is on it!”

When people visit his farm for tourism purposes he is now able to tell them what they can find on the land. He is considering developing a checklist that they can mark off while exploring the farm. “In this way the people from the city can also contribute to conservation.”

“We cannot value what we do not know”: It becomes apparent that, for Dirk van Papendorp, the learning gained through participation in the Renosterveld Management Project has transformed his perception of the veld on his farm.

Van Papendorp believes that the key barrier to the expansion of the stewardship programme in his region is the fear farmers have of relinquishing control of their farms to the government. The challenge is to reassure them that they will still have ownership of the land and that they will not lose their rights as landowners.

In his opinion it would be better to work initially with a few farmers, chosen because they have land well suited to conservation, and to provide them with good support, rather than sign up 50 and lack the capacity to service the stewardship agreements. Over-commitment could result in the loss of long term credibility which would be difficult to regain. Ideally, resources to support stewardship should be found upfront, as this would encourage more farmers to commit to the programme.

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