Exclosure plots, like this one in Fairfield, are fenced off to prevent grazing. They are then compared to a grazed control plot.

Burning veld in Fonteinskloof. Burning in autumn favours grasses over shrubs, which is good for renosterveld.

The race to save the RENOSTERVELD

With only 4% of renosterveld left in the world, the Overberg Renosterveld Working Group is racing against time to devise a conservation system. **Odette Curtis** reports.

Overberg
WESTERN CAPE

THE PLIGHT OF RENOSTERVELD is known to farmers and other environmentally aware South Africans. But this critically endangered fynbos type poses special challenges to conservation initiatives, making it imperative that farming and biodiversity management are increasingly integrated.

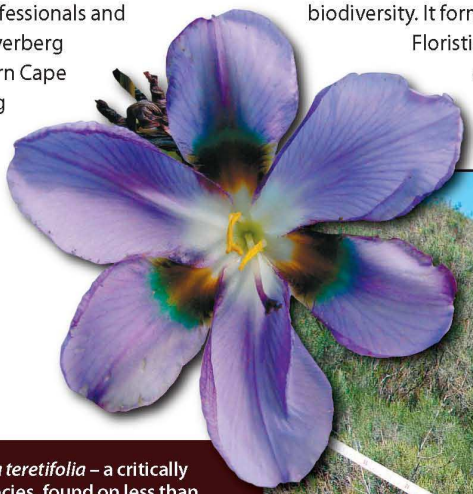
Conservation professionals and farmers from the Overberg region in the Western Cape have started putting the theory into practice. However, there's much that neither botanists nor farmers know about renosterveld management. To that end, farmers, biologists and conservation managers held a meeting in Bredasdorp in the Overberg in April 2007 to identify key management questions.

Renosterveld in the conservation universe

Firstly it's important to understand where renosterveld fits into the conservation universe. It's considered to be a globally important veld type because of its biodiversity. It forms part of the Cape Floristic Region, which is one of the world's 34 biodiversity hot-spots.

The Cape Floristic Region shares this status with places such as the Atlantic forest of tropical South America, where more than 20 000 species of plants (40% of which are endemic) are threatened by deforestation. Also the bird-rich Polynesia-Micronesia island complex where 25 bird species have become extinct due to over-hunting and introduced cats and rats.

The Cape Floristic Region gained this status because of its more than 9 000 species of plants, of which 6 200 are endemic. This rich system is threatened by severe alien infestation, habitat loss and fragmentation.



ABOVE: *Aristea teretifolia* – a critically endangered species, found on less than a handful of farms in the Overberg.

RIGHT: A research project sponsored by the Table Mountain Fund involves six 10m x 10m monitoring plots of renosterveld that have been set up across the Overberg on private land.

PHOTOS: ODETTE CURTIS

Aspalathus rosea is classified as "vulnerable" on the Red Data List, one of many attractive (and palatable) legumes that have dramatically declined due to overgrazing.

- Renosterveld is a globally important veld type because of its biodiversity.
- It is critically endangered.
- The best way to conserve and manage renosterveld is to combine farming and biodiversity management.

And the most severely threatened part of the fynbos kingdom is renosterveld.

Renosterveld is a lowland fynbos type. Its habitat is the most transformed and fragmented, chiefly because of the fertile, flat, or drier conditions where it occurs in the fynbos region – the very conditions that make it suitable for agriculture.

Renosterveld is mostly renowned for its bulb diversity, which is incomparable to any other system in the world. In spring it's transformed from being drab and grey to a diverse landscape full of beautiful bulbs. It's also home to many endemic and specialised (or habitat-specific) shrubs and succulents, including species that are found only on quartz or silcrete *koppies*.

However, these displays of flowers don't always occur *en masse* in sprawling carpets of colour such as on the Cape West Coast. To fully appreciate renosterveld, you have to walk through the veld to discover the gems hidden among the dominant shrubs and grasses.

The issues

In local and global conservation terms, renosterveld has received much attention lately, due to its diversity and the lamentable fact that only 4% of it is left.

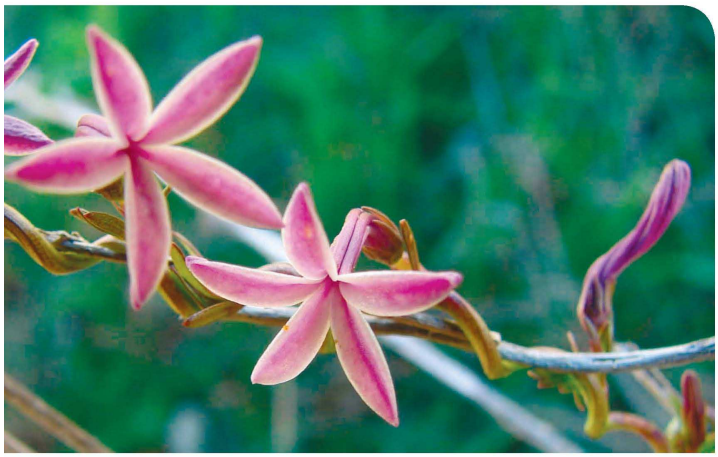
CONTINUED ON NEXT PAGE

Geissorhiza schinzii is found only in a small section of the southwestern Cape and generally flowers after fire.

Massonia depressa (hedgehog lily) is a very unusual plant, being the only bulb known to be pollinated by rodents.

Want to join the Overberg Renosterveld Working Group?

The Overberg group has formed the Overberg Renosterveld Working Group to encourage more interaction between farmers, biologists, managers and extension staff from conservation and agriculture. The group will organise annual or biannual outings to look at aspects of the research project and discuss issues and challenges for renosterveld conservation in the area. Anyone interested in the project is welcome to join. Contact Odette Curtis on 083 551 3341 or odette@orcawireless.co.za.



FROM TOP TO BOTTOM:
Cyphia sp is a twining plant that wraps itself around the stalks of other shrubs to gain height.

Adenandra sp – one of the many wonderfully aromatic buchus occurring in renosterveld.

Brunsviga orientalis (candelabra lily) flowers from February to April and its tubular flowers are pollinated by sunbirds.

That, and the fact that almost all renosterveld occurs on privately owned land, means conservation is no simple matter. In the Overberg and in other areas where it occurs, this veld type exists as small pockets in a matrix of croplands and artificial pastures. It's therefore not possible to simply set aside a large reserve and proclaim it protected, since the areas are generally too isolated and vary significantly in quality and connectivity.

Although the issues are complex and involve more than biology, the group of concerned people at the Overberg meeting agreed that fire was the most pressing issue, followed by grazing regimes. Although much research has been done on fynbos fire ecology and there are some well-researched guidelines available for fynbos management, it's not known how often and when renosterveld should be burnt.

What is clear, though, is that the best way to conserve and manage it is to integrate farming and biodiversity management.

'Only 4% of renosterveld is left in the world, and the fact that almost all of it occurs on privately owned land, means conservation is no simple matter.'

The challenge is to discover ways of using existing resources and management techniques to manage pockets of renosterveld in a way that will have positive results for both biodiversity and agriculture. But this is complicated by the fact that there are the different types of renosterveld, each likely to require a unique management approach.

The Overberg alone comprises three distinct types: western, central and eastern rûens shale renosterveld. In this region, the grassiness of the veld generally increases from west to east, suggesting that historically there may have been more frequent fires in the east. However, even within the eastern rûens shale renosterveld, there are some very dry, Karoo-like areas which are unlikely to be well-adapted to fire.

Apart from the west-east shift in vegetation type, there are also more localised shifts in vegetation that are probably the result of a combination of influences including soil type, soil depth, rainfall and altitude, making managing fire in renosterveld a complicated business. In terms of the grazing regime, how often should the veld be grazed?

How many animals should be permitted to graze? And when? These factors can make grazing either beneficial or completely detrimental to the veld. It's important also to consider the interaction between fire and grazing.

Research project to find solutions to issues

Once these key issues were determined, the Table Mountain Fund agreed to sponsor a three-year research project. This was set up using 10m x 10m plots at six different sites across the Overberg, all on private land, where interested landowners offered their veld to the study. They are: Dirk van Papendorp of Uitvlugt/Voorstekop, Thomas and Trevenen Barry of Van Rheenen's Crest, all from the Heidelberg district. Also Albert Bester of Nysty, from Bredasdorp, Ian le Roux of Fonteinskloof from Riviersonderend and Valerian van de Byl of Fairfield at Napier.

There are two sets of plots on a north and a south-facing slope at each site.

On each slope, there's a set of burnt and not burnt plots and within these sets there are fenced and unfenced plots for comparative studies.

Although the project has a three-year term, the plots have been set up to allow for at least 10 years of monitoring, as this is the only way to determine important long-term trends and therefore management implications such as burning frequency.

The plots were set up in spring in 2007, when the pre-burn data was collected.

'It's anticipated that the data gathered at these sites will provide guidelines for making informed management decisions about this severely threatened habitat.'

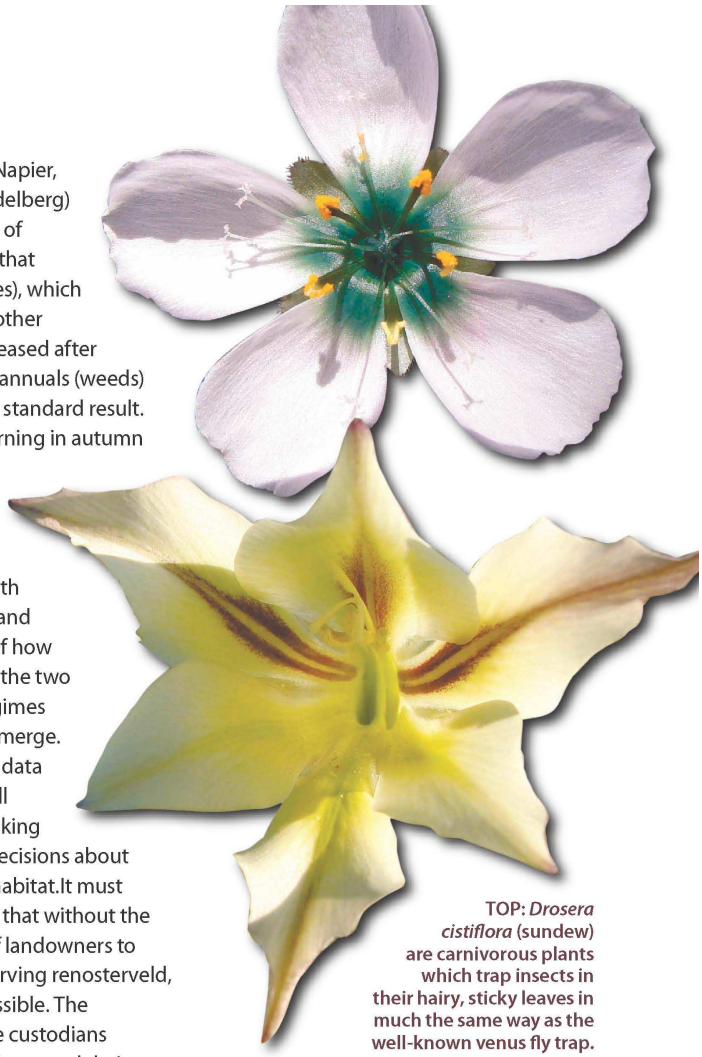
The burnings were carried out in March and April last year and the first post-burn data were collected in spring last year.

Researchers are currently collecting the second year's post-burn data.

Although it's too early to expect any results, some preliminary tests have shown that the plant communities differed across the different sites, with a higher proportion of grasses and bulbs in the areas receiving higher rainfall (Napier, Riviersonderend and Heidelberg) than the drier areas north of Bredasdorp. It was found that asteraceous shrubs (daisies), which include renosterbos and other undesirable species, decreased after burning, while bulbs and annuals (weeds) increased. That is a pretty standard result.

It's well-known that burning in autumn generally favours grasses at the expense of shrubs, which in the case of renosterveld is likely to be favourable. With time, long-term patterns and a clearer understanding of how renosterveld responds to the two primary management regimes under investigation will emerge.

It's anticipated that the data gathered at these sites will provide guidelines for making informed management decisions about this severely threatened habitat.It must be emphasised, however, that without the concern and eagerness of landowners to contribute towards conserving renosterveld, none of this would be possible. The Cape's farmers remain the custodians of this unique natural heritage and their continued interest in understanding and conserving it will be the only way to secure its continued existence. **|fw**



TOP: *Drosera cistiflora* (sundew) are carnivorous plants which trap insects in their hairy, sticky leaves in much the same way as the well-known venus fly trap.

ABOVE: *Gladiolus tristis*, commonly known as the aandblom, which produces a very strong, sweet perfume only at night to attract moths, which are its main pollinator.

Hyobanche sp is a root parasite which can be found throughout fynbos habitats.

Ornithogolum thyrsoides photographed with a monkey beetle on it, which is an important pollinator in the renosterveld.