

A guideline for the Northern Cederberg and the Suid Bokeveld Plateau

The sustainable harvest of **Wild Rooibos**

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Disclaimer

This book has been written as a practical guide for the custodian and harvester of wild rooibos. It is based on the knowledge of many people, and does not claim to provide conclusive answers to all conservation and production challenges. The authors and publishers accept no liability for any negative impacts that may result from following advice provided in this book.

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Content

Acknowledgements

Chapter 1: Introduction

Why we wrote this book

What is *Aspalathus linearis*?

Whats in a name?

Wild rooibos – the traditional rooibos

The people's rooibos

Sustainable use of a valuable resource

Chapter 2: Characteristics of wild rooibos

Where does wild rooibos grow?

Wild rooibos – adapted to a tough environment

Differences between cultivated and wild rooibos

Types of wild rooibos

The growth cycle of wild rooibos

Chapter 3: Sustainable harvesting of wild rooibos

How often can wild rooibos be harvested?

When can wild rooibos be harvested?

The consequences of different harvest practices

Harvest heights

Chapter 4: Sustainable management of wild rooibos

Fire and fynbos

Fires and wild rooibos

What happens if one burns too frequently?

Grazing

Conservation of wild rooibos

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Introduction



Why we wrote this book...
What is *Aspalathus linearis*?
What's in a name?
Wild rooibos – the traditional rooibos
The people's rooibos
Sustainable use of a valuable resource

Why we wrote this book

Wild rooibos is a natural resource of great value in historical, cultural, economic and biodiversity terms. The great variety of growth forms of rooibos reflect the many wonderful ways in which this plant has succeeded in adapting to a wide variety of habitats.

Production of rooibos tea for the market is largely based upon the Nortier variety, which is grown in extensive plantations. This variety of rooibos, which was selected in the Pakhuis area, is a fast growing plant that is less resistant to droughts and pests than many other varieties. In the past rooibos research focused only on the production of the Nortier varieties. In the light of what we are learning about climate change and how important it is to conserve the diversity of varieties of plants to facilitate adaptation to changed weather conditions, the conservation of the various varieties of wild rooibos is of great significance. Because harvesting and trading of wild rooibos is an important source of income for many families in the Cederberg and on the Bokkeveld Plateau, the conservation of this resource is also of importance for the survival of these communities.

In the past wild rooibos was regarded as inferior, and was not marketed separately. Nevertheless the product was sought after to enhance the quality of inferior cultivated rooibos. Wild rooibos was mixed with cultivated rooibos to improve its flavour and colour.

As was the case with some of the people in our communities, wild rooibos was used but not adequately appreciated. Land owners were inclined to harvest their wild rooibos severely, or to grant the right to harvest to others as payment for services rendered. Where possible, they ploughed the wild rooibos areas in order to cultivate the Nortier variety. The survival of viable populations of wild rooibos was endangered. Nevertheless, a great amount of knowledge existed within the local communities about the sustainable use of the resource.

In 2002 the Heiveld Co-operative started marketing its wild rooibos as a distinctive product, and achieved notable success with this exclusive tea. Other producers started to realise that the resource had more value than they had previously realised. It was clear that sound management practices were necessary for the sustainable use of wild rooibos, but no-one had yet established what this might entail.

This book was written to respond to that need. It includes local knowledge and scientific findings. It has been written in straightforward language so as to give producers relatively easy access to it.

Two separate research processes contributed to this book: the first was a two year study about the sustainable harvest of wild rooibos in the Suid Bokkeveld. This study was initiated in 2003 on the request of, and in co-operation with the Heiveld Co-operative of Nieuwoudtville (Northern Cape).

The second study was initiated by the Environmental Monitoring Group in the second half of 2005. It focused on the distribution and local names of types of wild rooibos, and was conducted in the Wupperthal, Suid Bokkeveld, Biedouw and Nardouwsberg areas.

The content of this manual is a compilation of the knowledge of many rooibos producers, small scale farmers, tea harvesters and scientists who work in these areas. We hope that the book will make a positive contribution to the conservation of this invaluable natural heritage.

What is *Aspalathus linearis*?

Rooibos tea is well known as a legume that occurs in the Cederberg and surrounding areas. Cultivated rooibos is a close relative of wild rooibos, in other words rooibos that grows wild in the veld in areas where it occurs naturally. Although wild and cultivated rooibos differ from one another, they share the same scientific name.

The scientific name for rooibos is *Aspalathus linearis*. Rooibos is one of 278 species of the *Aspalathus* genus. The second part of the name (*linearis*) refers to the shape of the needle-like leaves from which the tea is produced.

The growth forms of rooibos vary greatly. Bushes grow to a height of between ½ metre and 2 metres, depending on the growth form. Some bushes take a round form with runner-like branches (Photo 17), whereas others grow tall and upright (Photo 19). The differences between the growth forms and the possible reasons for these are discussed in Chapter 2.



Photo 1: Rooibos is a legume with needle-like leaves. The cultivated rooibos (background) that is planted in plantations was selected from wild rooibos (foreground).

What's in a name?

Rooibos has a long history in the northern Cederberg and the adjacent Bokkeveld Plateau. The earlier inhabitants of these areas, the so-called KhoiSan, understood the value of rooibos tea as a herb and as a health-giving beverage. Rooibos is deeply rooted in the history of the region, and in the knowledge of the descendants of the first people to use rooibos tea.

Wild rooibos – the traditional rooibos

Although cultivated rooibos is known world-wide, wild rooibos has been harvested for domestic use by countless generations of the members of the rural communities of the Cederberg en Suid Bokkeveld. Local people remember being sent into the veld by their parents to harvest the wild tea by hand. (Photo 1).

The leaves and stems of wild rooibos bushes were harvested and then chopped into small pieces with a hatchet (Photo 2). The tea was then bruised to release the flavour of the tea (Photo 3). The finely chopped tea was placed on a smooth natural rock surface to sweat under a hessian sack, and then spread out to dry in the sun. The finished tea was then bagged and stored for future use.

The same process is used today in Wupperthal and in the Suid Bokkeveld, with a few modern adaptations. These days a machine is used to chop the leaves finely, and the green tea is bruised by a tractor and then dried on a concrete tea court

Hendrik Hesselman (Oompie Hen) shows how rooibos was chopped by hand (Photo 3) and bruised (Photo 4) in the past. These days the tea is mechanically chopped (Photo 5) and bruised with tractor wheels (Photo 6).



Photo 2: Hendrik Hesselman (Oompie Hen) demonstrates to his grandson Angelo how, in his childhood, he used to harvest wild rooibos by hand.



Foto 3: Hendrik Hesselman (Oompie Hen) demonstrates how the tea is chopped by hand.



Foto 4: The tea is then bruised the traditional way.



Foto 5: Today rooibos is chopped with a machine.



Foto 6: And bruised with tractor wheels.

The people's rooibos

Rooibos tea has a long history in South Africa, much of which has never been recorded. In 1968 the lack of written history led Dahlgren to think that knowledge about wild rooibos would die out.

"The other types originated from wild forms which are only fragmentarily known even amongst the tea producers and buyers at Clanwilliam, and this knowledge will probably fade rapidly as the types are disappearing altogether."

Fortunately much of the knowledge has survived, as has much of the wild rooibos. Knowledge and information has been passed on from generation to generation. This knowledge has contributed to the on-going survival of wild rooibos.

Rooibos tea – general history

Rooibos tea was first recorded in 1772 by a Swedish botanist, Karl Thunberg. Since then a number of different names have been used, as more scientific knowledge has been accumulated.

Ralph Dahlgren, another Swedish botanist, renamed the species *Aspalathus linearis* in 1963. Nevertheless, the many local names for the plant have proved to be the most durable. Wild rooibos is still known by the older inhabitants of the area by a number of other names, including Koopman's tea, naaldtee ("needle tea"), bossiestee ("bush tea") and veld tea.

The names for wild rooibos differ from area to area. To avoid confusion, we will use only the name "wild rooibos" in this manual.

Sustainable use of a valuable resource

The current monetary value of wild rooibos is higher than it has ever been, and its cultural value is undisputed. Nevertheless, there are a number of threats to the survival of wild rooibos. These include:

- Climate change
- Ploughing of natural veld to establish rooibos plantations
- Inappropriate veld management and grazing systems
- Inappropriate harvesting practices

The sustainable use of wild rooibos holds great promise for harvesters and others in the production system. If it is soundly managed and harvested, wild rooibos can survive for an unlimited time.

The concept of sustainability is clearly expressed by Koos Koopman of the Suid Bokkeveld:

"I am farming so that my children's children will be able to farm one day." (Koos Koopman, Landskloof)



Foto 7: Drieka Kotze, wild rooibos harvester of the Suid Bokkeveld with two sheaves of rooibos.



Foto 8: Dawis Sass prepares the tea for fermenting.



Foto 9: Small scale farmers in the Suid Bokkeveld and Wupperthal make a living from wild rooibos.

Characteristics of wild rooibos



Where does wild rooibos grow?

Wild rooibos – adapted to a tough environment

Differences between cultivated and wild rooibos

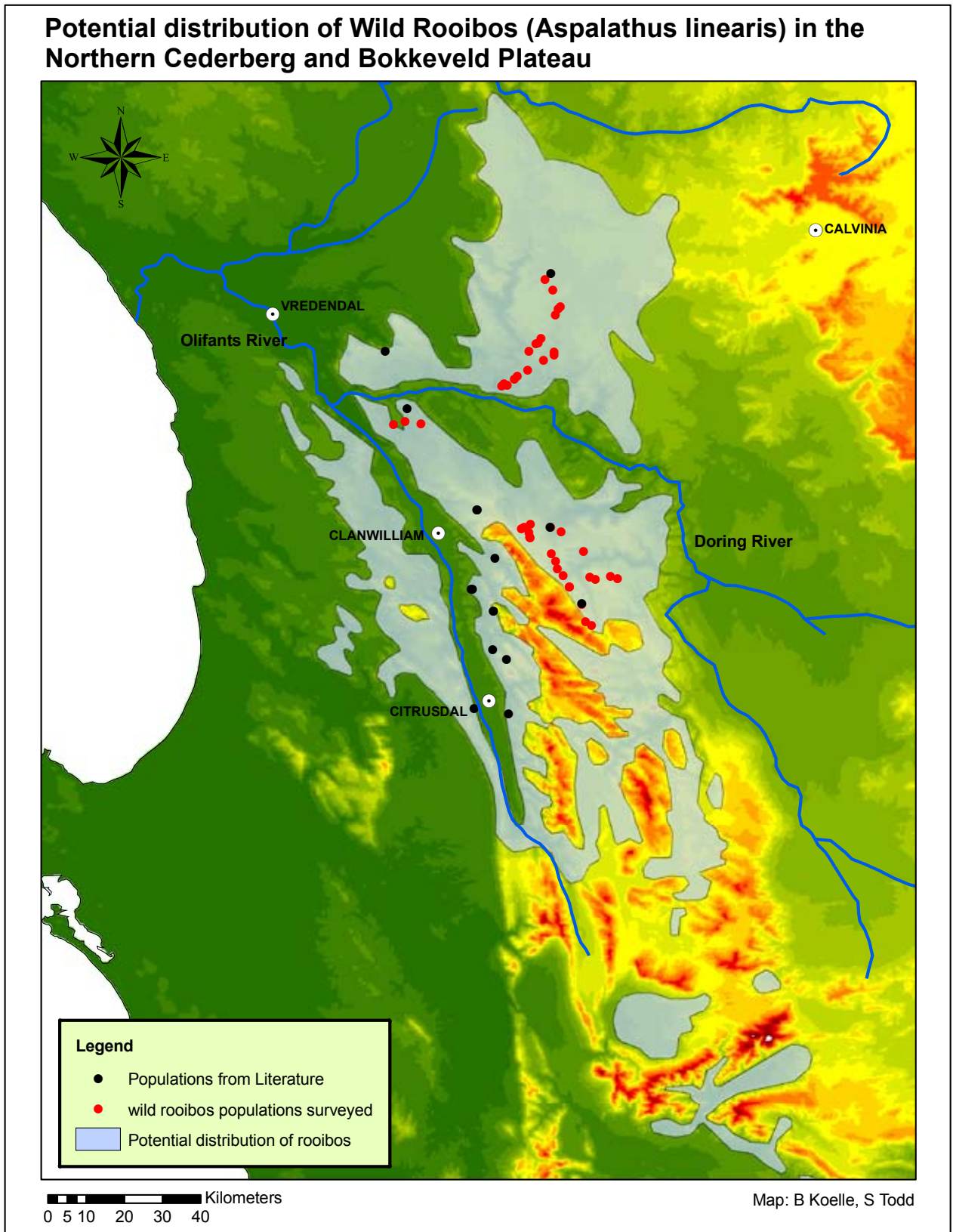
Types of wild rooibos

The growth cycle of wild rooibos

Where does wild rooibos grow?

Rooibos occurs in fynbos areas that experience wet, cold winters and hot, dry summers. Wild rooibos grows in mountainous sandstone areas with acid soils that are characterised by their low nutritional value.

The habitats in which wild rooibos flourishes are also suited for planting cultivated rooibos. In the same way, the areas where rooibos is cultivated give an indication of where one might come across wild populations.



Map 1. This map indicates the probably distribution of wild rooibos in the northern Cederberg and adjoining Bokkeveld Plateau.



Photo 10: Area in the Suid Bokkeveld where wild rooibos occurs.



Photo 11: Wild rooibos even grows in high elevation areas of the Cederberg.

Wild rooibos – adapted to a tough environment

Rooibos is adapted to survive in habitats that experience hot and very dry summers. Wild rooibos grows in amongst other species of plants, and this enhances its chances of survival. We have observed populations of between 20 and more than 80 plants per hectare.

The narrow needle-like leaves, with very limited surface areas minimize the loss of moisture on hot days. These fine (or, in Afrikaans, “fyn”) leaves are typical of the fynbos area.

Wild rooibos has a long tap root that is able to access water deep under the ground. It also has shallow lateral roots that are equipped with cluster roots. The clusters are tight bundles of hairy roots that occur at intervals along the lateral roots.

The plant uses the water that it draws up with its tap root in a unique manner: it manufactures organic acids that are able to dissolve plant nutrients in the topsoil. These acids are released by the cluster roots to dissolve minerals such as phosphate, which in turn are absorbed by the cluster roots to provide the plant with the nutrition that it requires.

The shallow lateral roots are also able to rapidly absorb water from any light precipitation before it evaporates and are thus in a position to utilize moisture from drizzle, mist and even dew.

Rooibos seedlings are one of the first to emerge after fire events. The nodules on rooibos roots host bacteria that fix nitrogen from the atmosphere for use by the plant. Other plants also benefit from this: some of the nitrogen is also available for their use. Rooibos plays an important role in recovery of plant communities after fire by making plant nutrients available to other plants.



Photo 12: Rooibos plants have the capacity to form cluster roots. These organs help the plant to obtain nutrients in poor soils.

Rooibos can be divided into two main growth types: the re-sprouters (which re-sprout from their roots after fires) and the re-seeders (which only re-grow from seed after fires).

The wild rooibos of the Suid Bokkeveld has the ability to resprout from its roots after fire, if the fire has not burned too intensely. This sort of wild rooibos produces relatively little seed.

Cultivated rooibos and some varieties of wild rooibos in the Cederberg Mountains always die in fire events. These types of rooibos survive because they produce prolific amounts of seed each year. It is relatively easy to collect the seed of these plants, which are collectively known as re-sprouters.

The flowers of cultivated rooibos are always entirely yellow. In the Suid Bokkeveld the flowers of wild rooibos plants are also entirely yellow (Photo 13). There are, however, populations of wild rooibos that occur in other areas such as Wupperthal that have yellow flowers with a red-purple lower part (Photo 14).

Rooibos plants are pollinated by specific solitary bee and wasp species that are adapted to carry the pollen from one flower to another (Photo15).



Photo 13: In the Suid Bokkeveld the flowers of the wild rooibos are entirely yellow.



Photo 14: In the Wupperthal area the wild rooibos flowers are smaller, with yellow and red-purple hues.



Photo 15: Rooibos is pollinated by solitary bees that are quite different from honey bees.

The role of rooibos in eco-systems

Nitrogen (N_2) is a plentiful naturally occurring gas, and is an essential component of all proteins. Plants use nitrogen to build new cells, but can only use it in certain forms, and are unable to abstract it from the air. Subterranean bacteria perform this important ecological role – the transformation of nitrogen (N_2) into usable ammonia (NH_4) or nitrate (N_4). These bacteria occur in the nodules on the roots of rooibos plants. Certain bacteria occur only on the roots of rooibos plants. Rooibos thus provides an important link between these bacteria (micro-organisms) and the other plant species in its environment such as larger shrubs and trees.

Differences between cultivated and wild rooibos

As we have noted, one primary difference between cultivated and some types of wild rooibos is their response to fire. Cultivated rooibos dies in fires. Nevertheless, fire is advantageous for the germination of the rooibos seeds that lie scattered about in the sand. Fire cracks the hard outer layer of the seed and enables water to penetrate the seed so that it can germinate.

In the case of certain types of wild rooibos the above-ground parts will burn, but the plant has the capacity to re-grow from the base of the trunk as a result of stored nutrients stored in the enlarged roots.



Photo 16: Wild rooibos plants in the Suid Bokkeveld have the capacity to re-grow after fire.

Types of wild rooibos

A number of different growth types of rooibos occur. The wild rooibos of the Suid Bokkeveld and parts of the Nardouwsberg area differ from the wild rooibos of areas such as Wupperthal en Biedouw.

The re-sprouting types of wild rooibos tend to live for far longer than the re-seeder types. They flower once a year in the summer months (September – January). The bushes tend to lose some of their leaves between December and February. Thereafter they grow actively until around May.

The life cycle of both cultivated and wild rooibos is demonstrated in the sketch on page (insert page number here). According to Wupperthallers who are familiar with wild rooibos in the area, the ability to re-sprout differs from type to type:

Rankies tea

Rankies tea: Grows low on the ground (0.2 – 0.6m high), and spreads out. Rankies tea is a re-sprouter. At Witbank and Heuningvlei (Wupperthal) it occurs in the same area as the langbeen type. Production is relatively low.

Distribution: Rankies tea grows in the more mountainous and stony areas of Wupperthal. .



Photo 17: Rankiestea

Bossie tea

Bossie tea of the Suid Bokkeveld is a re-sprouter. It has an intermediate growth form and is usually between 0.5 – 1.1m tall. The bush grows wide and round, and produces many branches and shoots in its lower portions. The plants have a spreading growth habit, but grow much larger and more thickly than rankies tea bushes.

Distribution: sandstone areas in the Suid Bokkeveld.

Photo 18: Bossiestea



Langbeen rooibos

The bushes of this re-seeder from the Cederberg grow upright and are 0.7 – 1.8m tall. Many leaves grow on each individual branch. Langbeen rooibos shares some qualities with cultivated rooibos, including prolific leaf and seed production. It is also a re-seeder.

Distribution: Heuningvlei, Langkloof, Vaalheuning (Wupperthal) and the Agter Pakhuis area.

Photo 19: Langbeen rooibos



Tree type

The bushes of this re-seeder are tall and upright. A single trunk (like that of a tree) branches 10 – 40cm above the ground. Young bushes that have recently been harvested frequently grow to chest height. Leaves are long, and production is relatively high. The tree type appears to be tolerant of wetter conditions.

Distribution: the tree type has been recorded at Kleinvlei (Wupperthal), Lokenburg (Suid Bokkeveld) and Biedouw Youth Camp

Photo 20: Tree type



Cultivated rooibos

Bushes grow upright and are 0.7 – 2.2m tall. Production is very high, but the plants are relatively short-lived and are killed by fire. Cultivated rooibos has been propagated from wild rooibos that was collected in the Pakhuis area. These days seed is collected under cultivated rooibos bushes and used for the establishment of plantations.

Harvest season: early summer – early autumn.

Photo 20: Cultivated Rooibos (Maktee)



An underground store

Wild rooibos has an enlarged underground root (Photo 7) known as a lignotuber. This woody organ stores plant nutrients under the ground from which the plant draws food to grow when the leaves and branches have been burned, grazed or harvested. These types of rooibos thus have the ability to re-establish relatively fast after fire. The resprouting plants help to prevent wind and water erosion and also help other plants to re-establish.



Photo 22: Wild rooibos in the Suid Bokkeveld has an enlarged root that stores nutrients. The plant uses these reserves to re-grow after fire, grazing or harvest.

The growth cycle of wild rooibos

Wild rooibos grows mostly in the spring, summer and autumn months, in other words between September and May. In the winter months (May – July) the leaves and branches of the plants grow more slowly and the plants experience a “rest period” during which the roots are active. This phase is broken in the spring when the temperature has risen and the plant is stimulated to grow more actively.

Rooibos flowers mostly during September – November. The prime flowering season is in October. This is also the time when the right pollinators for the fertilization of the flowers are in the environment. Flowers sometimes still appear as late as January, but this is usually an effect of drought stress. According to rooibos farmers in the Suid Bokkeveld, if plants flower a second time in the same year the flowers do not produce fertile seed.

Sustainable harvesting of wild rooibos



How often can wild rooibos be harvested?
When can wild rooibos be harvested?
The consequences of different harvest practices
Harvest heights

Sustainable harvesting of wild rooibos

Rooibos is produced from the leaves and stalks of rooibos plants. If a wild rooibos plant is harvested in a sustainable manner, the plant is stimulated to re-grow. In other words, harvesting can stimulate the production of wild rooibos. On the other hand, unsustainable harvesting practices can have a negative effect on the plant's production. People who know wild rooibos say:

"The wellbeing of wild rooibos depends on how the tea is cut."

"We must cut the bush so that it can survive."

(Workshop notes, Langkloof, Wupperthal – April 2006)

Hendrik Hesselman has noted that wild rooibos on Dobbelaarskop that was not harvested for many years went into decline. He believes that the lack of stimulus to the plants contributed to this.

There are three key questions to be addressed regarding the sustainable harvesting of wild rooibos:

- How often can wild rooibos be harvested?
- When can wild rooibos be harvested?
- How much of a wild rooibos bush can be harvested?

How often can wild rooibos be harvested?

According to wild rooibos producers in the Suid Bokkeveld and Wupperthal, wild rooibos should be harvested every second year. In other words, if the tea is harvested in January of one year, it should not be harvested the following year and should only be harvested in January of the year thereafter.

"Harvesting every year will result in the plant staying small!"

(Workshop participant, Kleinvlei, April 2006)

Wild rooibos producers in the Suid Bokkeveld and Wupperthal believe that there are two key factors that are significant in terms of how often wild rooibos should be harvested:

- rainfall; and
- the type of wild rooibos

In good rain years, when plants have grown very strongly, it is possible to harvest wild rooibos for two years in a row without doing the plants any harm. This is especially significant in the higher rainfall areas of Wupperthal, where rainfall can be higher than 700mm per annum. Older members of the Suid Bokkeveld community remember how in the good rain years of the 1960's they observed good growth on the wild rooibos every year, and could harvest annually.

In the course of the study on the sustainable production of wild rooibos in the Suid Bokkeveld we realised that the plants that grew in the dryer areas recovered less easily after harvesting. This study was undertaken in the drought years of 2003 – 2005. We can deduce from this that if plants in the dryer areas are harvested too frequently or too hard in dry years, they will struggle to recover.

Climatic conditions

Between 2003 and 2006 one could observe a change in the climate. There was a severe reduction in rainfall, and an increase in temperatures. The summers were especially hot, and the rooibos production areas were wracked by drought. Many rooibos farmers lost their crops. Some of the small-scale farmers in the dryer parts of the Suid Bokkeveld lost between 40% and 100% of their production of cultivated rooibos. Wild rooibos plants survived far better. Nevertheless, some wild rooibos plants died as a result of lack of soil moisture.

When can wild rooibos be harvested?

Plants follow growth patterns that are in keeping with internal and external natural rhythms. Some of the growth characteristics are passed on from generation to generation of plants. For example, all rooibos tea varieties flower in October, irrespective of the place where they are growing or the condition of the bushes. Other growth characteristics are related to aspects like soil fertility, weather conditions, day length, etc. Seasonal changes play a big role in the plant's growth cycles.

There are certain times in the plant's growth cycle when the capacity to re-grow is far lower than at other times. By gaining more understanding of these growth processes, the rooibos producer can make sounder decisions about when to harvest rooibos tea. For sustainable production it is ideal to harvest in such a way that the producer gains the maximum harvest without impacting on the capacity of the plant to re-grow and reproduce.

Rooibos grows primarily between September and April when the plant has the maximum amount of nutrients available. During these summer and early autumn months the temperature is high, and the days are long.

After May the winter months start. In the Suid Bokkeveld it is said that the rooibos plants "stand still". Little growth takes place in the upper parts of the plant. Nevertheless the wild rooibos plant is busy during these cold, wet winters, building up reserves in its enlarged root for the next growth and flowering season

"Harvest wild rooibos in such a way that the plants are not harmed and can produce seed."

(Workshop participant, Suurrug, April 2006)

Local knowledge and harvest time

Wild rooibos that is harvested earlier, for example in December, contains more moisture and the dry tea contains more dust."

Workshop participant, Heuningvlei, April 2006.

"In May the nights are cold, and the sun is no longer very hot for the sweating process".

Workshop participant, Heuningvlei, April 2006.

"Cut the tea after it has flowered, when it is ripe"

Workshop participant, Suurrug, April 2006

The age of the rooibos plant is also important, because the ability of the young plants to re-grow is more limited than it is in the case of older plants. In Eselbank we were told that young wild rooibos that is younger than 3 years old is not harvested.

Plants that are harvested in the autumn months (April and May) have more adult leaves than plants that are harvested earlier in the growing season (September – November). These mature leaves help the plant to build up and store nutrients. If plants are harvested between December and April the more mature leaves will already have contributed to building up the strength of the plant, and if the leaves are removed the loss to the plant is limited.

Harvesting in the winter months can result in healthy new growth, but will probably harm the plant's ability to produce seed. In the course of our research we observed that plants that were harvested in July produced far fewer flowers and seed than plants that were harvested in April or January. This indicates that these plants were showing signs of exhaustion by the spring. Under these circumstances the plants are unlikely to have been able to withstand a further winter harvest.

In the light of this information it makes sense to plan the harvest season carefully. Plants should be harvested at a stage when they have had sufficient chance to grow their summer leaves and to use the plant food that they create, but before they start to shed these leaves in the late summer and early autumn months.

Our recommendation is that wild rooibos should be harvested during the summer and autumn months, between January and April.

In Wupperthal wild rooibos is usually harvested between January and April. In the Suid Bokkeveld producers have tended to harvest between March and May.

The consequences of different harvest practices

To ensure sustainable production from wild rooibos bushes, it is important to harvest them correctly. According to harvesters at Suurrug, the depth of the cut has important consequences for production:

“Ensure that the tea is not cut too deeply. A deep cut will result in the death of the plant, or in slower re-growth.”

(Workshop participant, Suurrug, April 2006)

For a moderate harvest, between 50 – 70% of the upper parts (leaves and shoots) of the wild rooibos bush are removed. The results of a moderate harvest on wild rooibos plants are:

The plant will recover reasonably rapidly because the loss of vegetative material is limited and the plant retains the capacity to re-grow.

Fungal diseases will probably not occur, because the shoots of the upper parts of the bush have a small diameter and can heal before the onset of the wet season.

Moderately harvested plants are better able to produce more seed of a good quality..

New leaves and shoots grow to replace those that were lost in the harvest. Under favourable conditions a plant could have more leaves and shoots after regrowing for 12 months than it originally had before harvest.

The lower one harvests, the larger the wounds in the woody parts of the plant. The consequences of a heavy harvest of more than 70% of the upper parts of the plant are:

The plant will be more vulnerable to fungal infections, and may go into decline as a result.

A heavy harvest will limit the plant’s ability to regrow and will result in poor harvests in the future.

Rooibos that struggles to regrow will not have sufficient reserves to produce seed. Heavy harvest can therefore result in poor seed quality. This can affect incomes from seed collection, as well as the quality of the seedlings.

Woody stalks damage and blunt the blades of tea chopping machinery. Blades are expensive and sometimes difficult to replace.

Woody tea does not sweat as well, and produces inferior quality rooibos.

A higher percentage of woody material in the rooibos will lower the overall quality of the product, and the farmer will receive less income once the tea has been sieved and the woody material has been removed.

If customers and consumers of wild rooibos become aware that the wild rooibos that they buying has been harvested in an unsustainable manner, they may decide not to buy it in the future.



Photo 24: Harvesting wild rooibos amongst proteas in the Suid Bokkeveld.



Sketch 1: Suggested harvest height for wild rooibos.

Harvest heights

For the survival of wild rooibos it is important to harvest the plant in the correct manner. If the plant is harvested too deep it will go into decline and might even die. Different individuals and types of wild rooibos are very different. For this reason there is no "golden rule" of harvest height.

The guidelines provided below are based on the knowledge of the harvesters of the Suid Bokkeveld and Wupperthal, and have also been tested during the research undertaken in the Suid Bokkeveld:

Only harvest bushes of a certain age:

"Young tea (less than 3 years old) is not harvested."

(Workshop participant, Eselbank, April 2006.)

Small or young bushes will go into decline if they are harvested before they are well established.

Harvest between 50% and 70% of the upper parts of the bush. This will ensure that there are enough green leaves on the stalks to enable the plant to regain its vitality.

Cut about 2½ cm (an inch) higher than the cut from the previous harvest.

Harvest parts of the plant that have a diameter of less than 2 – 3 mm. Try to avoid cutting the thick and woody parts of the plant. If thicker stalks are cut the plant will suffer, and the quality of the tea will be poor.



Photo 25: Harvesting wild rooibos in the Suid Bokkeveld



Photo 26: Sheaves of wild rooibos.

Harvest methods

Each bush has its own structure, and when we harvest a bush we are also pruning it. As with a fruit tree, the plant will respond to the way in which it is pruned. Some wild rooibos types can produce for up to fifty years, and it makes sense to “prune” the plant in a way that will keep it healthy and also provide it with a good shape that enables it to grow well and facilitates future harvests.

Koos Paulse’s advice is: *“If possible, harvest all around the bush and cut off the thin lower shoots, especially in the case of bushes that are low-growing and spreading.”*

Wild rooibos grows with other plants, and if the branches of the rooibos are picked out from between them the plants could be damaged. A producer from Suurrug offered the following advice: “Prune tea that is growing amongst other bushes with a pruning shear or cut it with a sickle”.

It can also be frustrating to get to branches that are growing in amongst rocks. Avoid tearing off branches, as this will damage the plant.

Rankies tea and the wild rooibos of the Suid Bokkeveld are both re-sprouters. New shoots form at the base of the stem after fire or a heavy harvest. These rooibos types should be harvested more lightly than cultivated rooibos and the langbeen and tree type wild rooibos.

Here are a few tips for the harvest of the different types of wild rooibos:

Bossie tea of the Suid Bokkeveld (Photo 18) is a re-sprouter, and it is advantageous to prune the plants in such a way that the shape is improved. If there are many small shoots inside the bush these should also be harvested.

Langbeen/ regop tea of the Wupperthal area (Photo 19) is a fast growing re-seeder that can be harvested once a year in a similar manner to cultivated rooibos. 50% – 70% of the plant can be harvested, mostly from the upper parts.

Tree type tea (Photo 20) is also a fast growing re-seeder, but should not be harvested too hard. The upright form of the plant should be retained.

Rankies tea (Photo 17) is a re-sprouter and can be harvested quite low on the ground. Take care not to cut the thicker stems.



Photo 27: Oom Klaas harvesting rooibos in the Suid Bokkeveld.

Sustainable management of wild rooibos



Fire and fynbos
Fires and wild rooibos
Advantages of sound fire management
Grazing
Conservation of wild rooibos

Fire and fynbos

Fires play a very important role in fynbos plant communities. During fire events dead plant material is burned and the vegetation is renewed. All plant types in the fynbos are adapted for fires, and the seed of many will only germinate after a fire. In the wild this also applies to rooibos. However, burning too often or at the wrong time can have a very bad effect on the veld, and the wild rooibos.

In the time that fynbos is growing, the plants accumulate nutrients and minerals in their roots, branches and leaves. These nutrients are slowly released during the decomposition of this material, and are of great importance for the nutrition of living plants. This is an invaluable resource that every farmer must conserve.

Fynbos also creates a habitat for insects and birds. Many of these are the “good insects” and birds that contribute to the health of plants like rooibos. Some of the types of bees that fertilise rooibos flowers make their nests in old, rotten wood of bushes. Wasps that predate on caterpillars lay their eggs in the fynbos. Birds control not only insects, but also mice and hares. Owls like to sit on big protea bushes in the evenings to catch mice. Without this habitat there would be less of the “good insects” and birds to control the pests.

When veld burns, many of the “good insects” are killed, and birds are driven away from the area. Insect pests are inclined to breed out faster after a fire, and it takes time before the insects and birds that feed on them to build up their numbers again.

The ash of fynbos that has burned is rich in nutrients that can be used by plants. Ash can easily blow away or wash away if the veld is too open to the elements.

For all of these reasons one should go about things very carefully when one burns the veld. It is important to prevent frequent fires that will eventually lead to the impoverishment of the soil and the loss of seed banks. Each veld type is different: where the fynbos is denser it can usually recover more quickly after fires. Nevertheless, it is not healthy for the eco-system to burn more than once every ten years, and in dryer areas it is worth while to let the veld rest for at least fifteen years before it is burned again.

The responsible farmer uses fire as a veld management tool with great caution. In the past, fire was used as a method of clearing lands for planting of cultivated rooibos. This destroys the organic material in the soil, and for this reason it is no longer permitted as a method of clearing for the production of cultivated organic rooibos. Farmers who burn veld to clear it for planting will not qualify for organic certification.

Controlled veld fires are used to promote the growth and production of wild rooibos for cash incomes, and to stimulate the veld to produce more palatable grazing.



Photo 28: Fire is important for the Fynbos

Fires and wild rooibos

Wild rooibos plants are also adapted to fire. As mentioned in Chapter 2, rooibos reacts to fire in two ways. In the case of re-seeders, the plant dies completely. Certain types of rooibos are re-sprouters, which means that the leaves and branches burn and new shoots develop from the base of the stem, with nutrients provided by the lignotuber. In the case of both re-seeders and re-sprouters the heat of the fire will cause the seed casing to crack. As soon as the seed gets soaked by rain it will germinate.

What happens if one burns too frequently?

Small-scale farmers in the northern Cederberg and the Bokkeveld Plateau know that if re-sprouting rooibos plants are burned too frequently their ability to resprout is weakened, because the plant nutrients in the soil are used up faster than they are renewed.

It takes cultivated rooibos about three years before it starts to produce viable seed. Wild rooibos appears to develop more slowly than cultivated rooibos, which indicates that they probably take longer to reach maturity. If wild rooibos plants are burned too early in their growth cycle the quantity and quality of their seed will be negatively affected.

Some of the other plants that grow with wild rooibos take even longer to develop seed. This is the case with some of the protea species such as the waboom (*Protea nitida*), karkatjie (*Leucospermum praemorsum*) en knoppiesbos (*Leucadendron pubescens*). These plants are used by local land users for fire wood. Restios that also grow in the same plant communities as wild rooibos are used for thatch. If these plants do not have enough time to recover between fires, their productivity will fall. For this reason, veld in which wild rooibos occurs should not be burned more frequently than every 10 years in the higher rainfall areas of Wupperthal, or 15 years in lower rainfall areas such as Vaalheuning or the Suid Bokkeveld. Wild rooibos forms part of a rich plant and animal community. Some of these plant and animal species are rare and endangered. Fires that follow closely on one another can result in species or even entire plant communities being wiped out.

What happen if plants are burned in the wrong season?

The season and weather conditions in which fires take place are very important. As a general rule the best season to burn the veld is in the summer (between December and early March), before the first rains have fallen.

Winter fires are not advised because many plants germinate and grow actively in the winter. Fire will kill the young plants.

Prevent fires from burning too hot

If fires are very hot they can kill rooibos of the re-sprouting sort. The seed of rooibos and other fynbos plants can also be destroyed if temperatures are very high. Try to prevent any fires on windy days. Wind makes fires burn hotter, and also makes them difficult to control.

Alien trees like Rooikrans (*Acacia cyclops*) burn hotter than fynbos, and the heat can kill the seeds of rooibos and other fynbos plants. To keep fires cooler it is best to remove alien trees. If this is done at least a year before burning the veld, mice and other animals will eat the seeds of Rooikrans and other alien trees. This will make it easier to control their seedlings after the fire.

Advantages of sound fire management

- Controlling fires has important advantages for the wild rooibos producer:
- The fynbos stays healthy and provides shelter for advantageous insects and birds.
- Over time, plant material accumulates on and in the soil to form humus, which feeds the plants.
- The plant has opportunity to store sufficient reserves in its lignotuber to assure regrowth and seed production.

During the dry summer months the veld is thus dry and catches fire easily. In this season fires can easily be driven out of control by the strong summer winds. Runaway fires can create a serious problem for the survival of rooibos. Although wild rooibos is adapted to fire, very high temperatures can destroy the re-sprouting rooibos plants and their seed.

Allowing controlled fires only on wind-still days in the summer months will reduce the risk of runaway fires. Summer fires will prepare the seeds of rooibos and other fynbos plants for germination, and they will start growing when the winter rains start.

Grazing

Livestock is inclined to nibble at rooibos, but does not usually do too much damage to it. Nevertheless, overgrazing can do a lot of damage due to trampling of the veld and overgrazing of the plants by hungry livestock.

Hendrik Hesselman observes that wild rooibos should not be grazed in the first two years after a fire because the livestock will overgraze the young tea plants and will give them a serious setback.

Koos Koopman has observed that veld that was regularly grazed in summer loses its wild rooibos populations, because the stock will seek them out and graze the tender summer leaves and shoots of the rooibos. After the winter rains have begun sheep and goats will graze other plants and not focus on the wild rooibos.

The small-scale farmers of Suurrug, Wupperthal propose that livestock, especially goats, should be kept out of camps where wild rooibos is harvested. According to them, livestock should be provided with water in their grazing camps so that they do not need to trample the veld unnecessarily on their way to water points.

Conservation of wild rooibos

Undoubtedly wild rooibos is a valuable resource. Rooibos consumers have realised that it is a delicious and entirely natural product. They are prepared to pay a better price for wild rooibos, especially if they know that it has been harvested in a sustainable manner.

Wild rooibos also has cultural value for our communities that is linked to their histories and to a lifestyle that is in harmony with nature.

Wild rooibos has unique qualities that exceed those of cultivated rooibos. These include the ability to withstand the effects of drought, pests and diseases. These abilities are the result of millions of years of adaptation.

The expansion of cultivated lands is steadily destroying the natural habitat of wild rooibos. This will inevitably result in the permanent destruction of some varieties of wild rooibos. Once a variety of wild rooibos disappears, so too do some of the specific genes that have contributed to its uniqueness.

It is forecast that within the next 50 years the Northern Cederberg and the Bokkeveld Plateau will, in all likelihood, be threatened by changes in the climate. These changes mean that we can expect ever more droughts. Cultivated rooibos in the dryer areas will probably not survive these droughts. Some of the wild rooibos varieties are better adapted to drought, and will probably survive. It is therefore of great importance to conserve wild rooibos so that production of rooibos tea can continue.

Poor management of the veld where wild rooibos occurs caused by untimely fires, overgrazing or over-harvesting can also result in the loss of this resource.

Although there is relatively little scientific information available about wild rooibos, we should not underestimate the value of the knowledge of local residents of the area. The pressure on wild rooibos and its natural habitat can be relieved by adopting practices that ensure sustainability. In this regard the rooibos harvester, the land user and the land owner all have a vital role to play. Let's work together to conserve our wild rooibos heritage!







The people of the wild rooibos



