



Western Cape  
Government

Environmental Affairs and  
Development Planning

BETTER TOGETHER.



THE WILD HONEYBUSH  
HARVESTING FIELD GUIDE

## FOREWORD

Sustainable agriculture uses best practice to produce high quality products in a way that is environmentally sustainable and also has socio-economic benefits for communities. The development of the Best Practice Guidelines for the Sustainable Harvesting of Wild Honeybush contained in this publication can contribute to the national goal of using our natural resources sustainably so that future generations can benefit. The Guidelines also speak to the Western Cape Government's Provincial Strategic Goal 1 "Create opportunities for growth and jobs." and Provincial Strategic Goal 4 "Enable a resilient, sustainable, quality and inclusive living environment."



I am very pleased for my Department of Environmental Affairs and Development Planning to support the request by the Honeybush Community of Practice (HCOP) for this Field Guide (based on an earlier Guidelines Report), aimed at protecting and sustaining this unique wild resource growing in the mountains of the Eastern and Western Cape Provinces. We hope that this formal record of the knowledge and experience of the many successful farmers and harvesters, who do manage their resource wisely, will inspire all honeybush stakeholders to harvest the resource in a sustainable manner.

Anton Bredell:

A handwritten signature in black ink, appearing to read 'Anton Bredell'.

Minister of Local Government, Environmental Affairs and  
Development Planning  
*March 2018*



## DEDICATION

**This Field Guide is dedicated to the harvesters of wild honeybush who are the foundation of the honeybush industry.**

**PROJECT MANAGER:** Albert Ackhurst, Head of Component: Biodiversity Management, Dept. of Environmental Affairs & Development Planning, Western Cape Government.

**AUTHOR:** Gillian McGregor, Dept. of Geography, Rhodes University, Grahamstown.

**ADVISOR:** Shirley Pierce Cowling.

**SERVICE PROVIDER:** Caroline Gelderblom Consulting.

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**REVIEWERS:** Dr. A Schutte Vlok, Dr. N. Crouch; Mr. G. Ferreira.

**RESEARCH ASSISTANTS:** Mr. M. Sephton, Ms. R. Starkey, Mr. W. van Der Walt.

**PHOTO CREDITS:** James Puttick, Gillian McGregor.

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## ACRONYMS

DEA	Department of Environmental Affairs (National)
DEA&DP	Western Cape Department of Environmental Affairs and Development Planning
EC	Eastern Cape
EC DEDEAT	Eastern Cape Department of Economic Development, Environmental Affairs and Tourism
GPS	Global Positioning System (device)
HCOP	Honeybush Community of Practice
SAHTA	South African Honeybush Tea Association
TOPS	Threatened or Protected Species
WC	Western Cape

## GLOSSARY

Best practice	A method or approach which has been found to give a desirable result.
Farmer	Landowners or landusers who allow harvesters to harvest wild honeybush on their land.
Harvester or harvest manager	A person who harvests honeybush, as the leader of a team, or as an individual. The harvest manager needs to be a permit holder or person responsible for making harvesting agreements and delivery of crops.
Field Guide	The term we use to describe this user-friendly booklet version of The Guidelines for the Sustainable Harvesting of Wild Honeybush.
Fynbos	The diverse and uniquely South African vegetation type in which honeybush grows.
Honeybush stakeholders	All parties interested in and affected by activities in the honeybush industry, including farmers, landowners, landusers, harvesters, harvest managers, processors, government officials, researchers and conservation officials.
Plant naming	Plants are classified into hierarchical groups (like a family tree) based on their physical characteristics. Honeybush is the common name for the group or genus <i>Cyclopia</i> which contains 23 species. <i>Cyclopia</i> is just one sub-group of the Fabaceae, the legume or pea family. Other legumes include crops like clover and beans, trees like sweet thorn and black wattle, and garden plants such as the sweet pea.

	<p>Bergtee icon.</p>		<p>Vleitee icon. <i>Information that relates to Vleitee or Reseeders is indicated by Green page edges.</i></p>
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## 1. INTRODUCTION AND BACKGROUND

Honeybush (scientifically known as *Cyclopia*), is the name used for a closely related group of wild plant types which grow only in South Africa (Figure 1). Plants in this group grow only in Fynbos, a veld type which is remarkably rich in plant species and which occurs nowhere else in the world. Fynbos extends in a broad band, 100-200 km wide, from near Nieuwoudtville in the Northern Cape to the Cape Peninsula (Western Cape) and eastwards to Port Elizabeth (Eastern Cape). The western region has mainly winter rain and hot, dry summers, whereas towards the east, rain can fall any time in the year, though most reliably in the winter. Fynbos spans the coastal plains to the mountains of the inland Cape Fold ranges. Its plants flourish on the region's nutrient-poor, sandy, acidic soils which are generally unsuited to other plant types. Furthermore, fynbos plants are specially adapted to persist despite the regular fires that burn during the hot, dry seasons.



Figure 1: An example of a honeybush plant: *Cyclopia intermedia* known as Honeybush or Bergtee.

## THE VALUE OF INTACT, HEALTHY FYNBOS

Fynbos is the basis of the Western Cape eco-tourism industry, producing 13% of the regions Gross Domestic Product (GDP). This natural vegetation also protects the soil and provides billions of cubic meters of good quality water to the region for agricultural, domestic and industrial use. The fynbos is home to several uniquely South African products which support local export industries:

- **Wild Flower Harvesting** is an important job-creator with 80% of the crop going to the export market;
- **The Rooibos Industry**, exports 50% of its annual 14 000 ton tea crop and provides jobs for around 8000 farm labourers;
- **The Honeybush Industry** with an average annual production of about 350 tons, exports 85% of the crop.

All these industries rely on healthy, well managed natural systems.

### 1.1 Honeybush species of commercial value

The honeybush industry generates locally important income for processors, farmers and harvesters. Remarkably, 85% of the annual crop comes from wild harvested honeybush plants; the rest from cultivated crops. Although there are 23 species of honeybush in the group (Genus: *Cyclopia*) only seven are used for tea production. *Cyclopia genistoides* (Kustee) and *C. longifolia* (Van Stadens tea) are cultivated for production, and not wild harvested. *Cyclopia subternata* (Vleitee) is wild harvested and is the most commonly cultivated honeybush. *Cyclopia maculata* (Genadendal Tea) is also wild harvested and cultivated in small quantities. *Cyclopia sessiliflora* or Heidelberg Tea grows in the Langeberg and is wild harvested in small quantities. *Cyclopia plicata* which occurs near Uniondale is Red Listed as Endangered which indicates that poor management of this species could soon lead to its extinction.



By far the most important honeybush plant harvested in the wild is *C. intermedia* or Bergtee which makes up by far the most of the 85% of the wild crop. (A Bergtee harvest of about 800 kg, waiting for processing is shown in Figure 2.) The map in Figure 3 shows where the five wild harvested honeybush species are found.

This Field Guide recommends that Bergtee and Vleitee are harvested rather than any other honeybush species as they are the most abundant in the wild. The focus of this guide then is on describing best practice for the sustainable harvesting of Bergtee, with a small section on Vleitee.

To protect this natural resource, any handling of honeybush – green, dried and processed plant material and seed – requires permitting/licencing through the relevant authorities as well as certain documentation (Section 5).



Figure 2: Harvested bundles of Bergtee, ready for processing at the factory.

Most of the processed tea is sold overseas to buyers who want sustainable goods produced using best practice harvesting guidelines. The demand is increasing, so wise management of the limited wild resource is essential. This will hold true even after the cultivated honeybush sector has expanded enough to relieve the pressure on wild honeybush.

## 1.2 Why we wrote these guidelines

Harvesters from local communities, farmers, ecologists and local residents have observed that in some places the harvest is decreasing and plants are dying from over-harvesting. The availability of honeybush has declined over the past five years with the result that the annual export tonnage has decreased, just at a time when the export market demand is high. In an attempt to reduce illegal harvesting and overharvesting, some honeybush species have been declared Protected Species. Thus, for example, in the Eastern Cape, Bergtee and Vleitee are listed as Protected Species which means that a special permit is needed to harvest these plant types (Section 5).

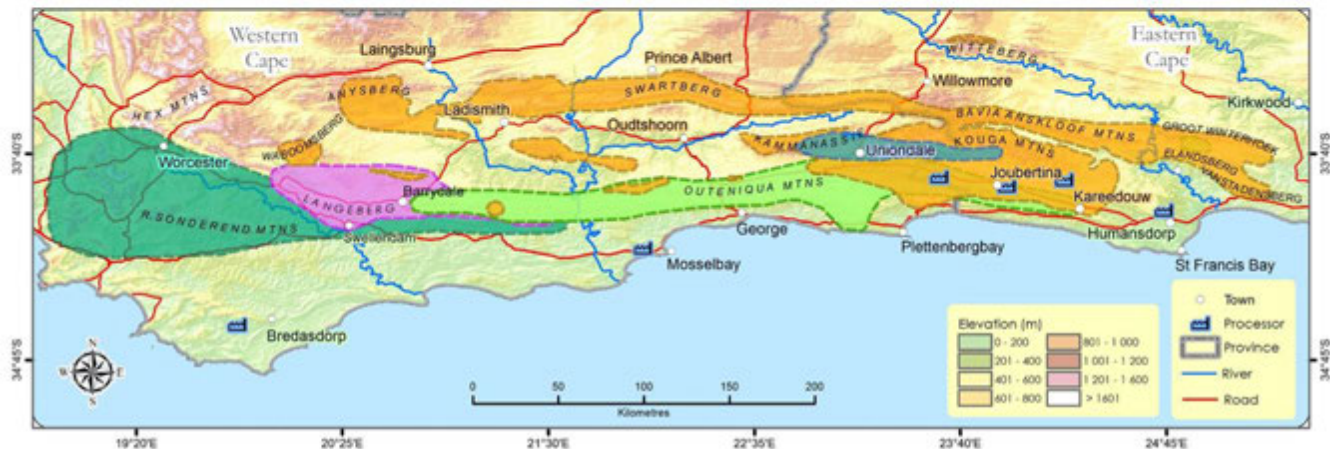
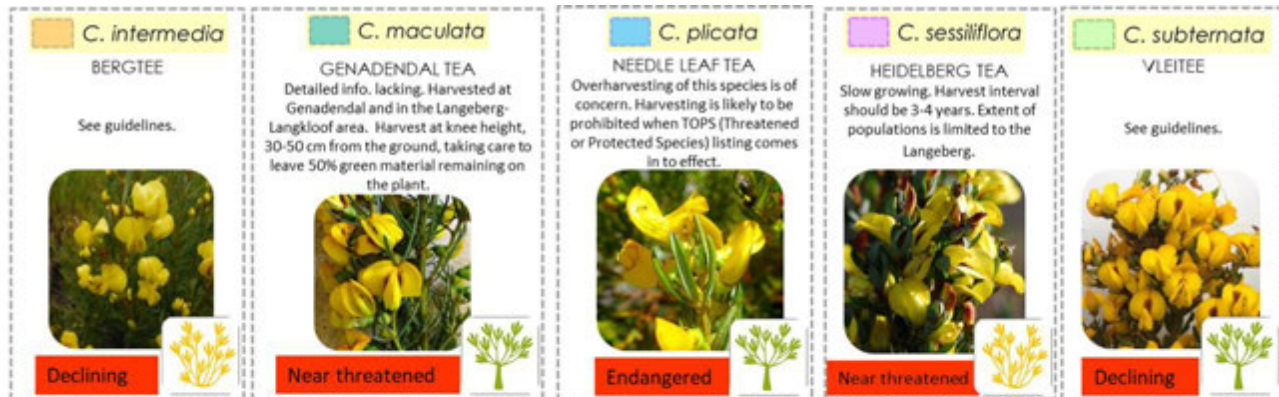




Figure 3: The areas where the five wild harvested species occur. The red block text indicates the species IUCN Red List status which is linked to TOPS listing.

The icons in green and yellow indicate resprouter  or resprouter  growth form.



Harvesting in the eastern Kouga.



South Africa is a signatory to the international Convention on Biological Diversity (CBD), which means that “we” have agreed to conserve biodiversity, use resources sustainably and share benefits equitably. One way to do this is to make sure that we have Best Practice Harvesting Guidelines in place.

The Best Practice Guidelines presented in this Field Guide are based on the knowledge and experience of many honeybush farmers and harvesters from both the Eastern Cape (EC) and Western Cape (WC), combined with the best scientific information available. The practices we recommend here have been effective on farms which have been harvested for up to 70 years.

Using a plant as a crop requires an understanding of the plant’s ecology - that is, how it functions in nature in terms of growth, nutrition, reproduction, and response to cropping, fire and drought. Honeybush farming is an important livelihood for many people so it is essential that harvesting takes place in a way that ensures that the plants are healthy and produce a good crop year after year. Longer term impacts of harvesting, especially under climate change, are unknown so we need to do our best to harvest in a sustainable way and to monitor harvested areas.

### **WILD HONEYBUSH ON THE FARM**

Wild honeybush plants are a remarkable resource for a farm: the crop grows in the wild mostly on mountain lands which are generally unsuitable for any other agricultural production. It needs no input of fertilisers, pesticides or herbicides and no fencing or irrigation. Being a local fynbos plant, honeybush thrives after a fire and can cope with drought. If managed sustainably it can yield a good cash income each year.



A Harvester cleans a bundle of cut Bergtee.

### 1.3 Threats to honeybush

There are a number of challenges to the sustainability of wild harvesting. The most obvious problem is **poaching** which occurs on municipal land, communal land, private farms where owners are absent, and in nature reserves. **Over-harvesting** occurs when too much plant material is removed or harvesting takes place too often and the plants suffer. Other threats include **growth of agriculture and settlements** into areas where honeybush grows wild. **Invasion by alien plants such as black wattle and pine** (Figure 4) shade out smaller plants such as honeybush.

**Fires that burn too frequently** (less than 8-10 years between fires) may kill honeybush plants. **Genetic contamination** can be a problem if honeybush cultivated from non-local seed grows close enough for wild plants to cross-breed. **Poorly made access roads** can lead to soil erosion (A well constructed access road is shown in Figure 5).



Figure 4: Productive honeybush lands invaded by pines.

Other problems which are more difficult to deal with are **climate change and drought**: hotter temperatures, less rain and more big storms are predicted in the southern Cape. Under these conditions harvest plans will need to be periodically reassessed and adjusted to avoid stressing the plants.



Figure 5: A well maintained mountain road for access to honeybush land.





## 2. UNDERSTANDING THE ECOLOGY OF HONEYBUSH

There are two very important aspects of fynbos ecology which must be understood for sustainable management of honeybush: the role of fire and growth form.

### 2.1 The role of fire

Fynbos vegetation likes fire! Natural fire patterns maintain healthy and diverse vegetation. Veld fires that burn naturally every 10 to 40 years enable plant populations to rejuvenate. Nowadays fires burn more often which can cause problems. Fires are most common in the dry summer season in the west of the Fynbos Region but can occur at almost any time of the year in the eastern honeybush areas, particularly in winter when berg winds occur.

### 2.2 Growth form: Resprouters vs Reseeders

After a fire, the different honeybush plant types recover and regrow in two very different ways: through resprouting and reseeding. Vleitee is a typical reseeder while Bergtee is a typical resprouter. The different growth forms require very different approaches in terms of harvest management.



**a) Ecology of a wild reseeder - *Cyclopia subternata* (Vleitee)**



Vleitee is widely distributed along the Tsitsikamma, Outeniqua and Langeberg mountain ranges (Figure 3) at elevations from 160-1000 m, where rainfall is high. It is found in relatively large stands along drainage lines, in kloofs and around freshwater seeps. The plants usually grow up to several meters tall and have many branches, growing off a main stem or "trunk."

Adult honeybush reseeder plants are killed by fire. New plants grow from seeds stored in the soil. The adult plants produce many flowers (Figure 6) and therefore produce many seeds to ensure that there are plenty of seeds stored in the soil. When a fire passes through, the heat of the fire cracks the hard seed coats of the buried seeds, which then germinate provided there is enough rainfall. The seedlings that survive then grow into young plants. In this way, adult plants killed by fire are replaced and the population recovers. Because Vleitee relies totally on seeds for replacement after fire, enough plants must remain unharvested so that they can flower and make plenty of seed. In the wild, plants flower from around July to September and they produce flowers in the first year of growth.



Figure 6: Vleitee in abundant flower, showing typical small tree form.

**b) Ecology of a wild resprouter - *Cyclopia intermedia* (Bergtee)**



Bergtee is the most common type of honeybush growing on the south facing slopes of the Cape Fold mountains. It has an extensive range stretching from the Waboomsberg in the west (near Barrydale) to as far inland as the Witteberg (north of Willowmore) and to the east in the Vanstadens mountains, near Port Elizabeth (Figure 3).

It is a tough plant growing in sometimes stony soils, on mountain slopes as high as 1700 m and down to 600 m, with rainfall that ranges from as low as 250 mm in the Anysberg to 1500 mm per year in the Tsitsikamma. The bright-yellow, sweet smelling flowers (Figure 7) bloom in the spring, with buds forming from as early as April.



Figure 7: A mature Bergtee plant in flower.

Seed pods (Figure 8) develop in November – December, maturing a few weeks later. These phases may occur several weeks later in the eastern part of the Bergtee range and/or with high altitude. Although seedlings are important for long term persistence, after fire Bergtee is mainly reliant on resprouting (see Figure 9).



Figure 8: Bergtee buds, flowers and seed pods.

The flowchart (Figure 10) illustrates important aspects of the ecology and lifecycle of Bergtee including: Bergtee as a resprouter, response to fire, response to harvest and seed production. Understanding these aspects informs a wise management approach for the sustainable harvest of honeybush.



**Harvesters at a harvest site in the Bo-Kouga take a well-earned midday break from harvesting.**



### c) Bergtee and fire



Figure 9: Resprouting Bergtee, 9 months post-fire.

After a fire, Bergtee plants resprout quickly (Figure 9), drawing on the rootstock reserves and taking advantage of the lack of competition from other slower growing plant types. For four or five years they thrive before the other plants outgrow the Bergtee plants which then tend to become tall and scraggly. After a fire, the recovery of the aboveground shoots appears to be quick, but restocking of the now-drained underground rootstock takes three to five years depending on local conditions.

If the time between fires is too long, Bergtee may be outcompeted by other plant species for sunlight, nutrients and water. On the other hand, fires that burn too often are also bad. Bergtee plants become exhausted from resprouting before their rootstocks can replenish reserves.

If conditions are suitable and there is good rainfall shortly after a fire, seeds in the small soil seed bank will germinate and some new young plants will emerge.

### WHY CONSERVATIVE HARVESTING CYCLES ARE RECOMMENDED

*C. intermedia* (Bergtee) shrubs can live for about 25 years and grow up to 2 m tall. Regular fires in fynbos burn all aboveground growth. But, because Bergtee is able to recover by regrowing many stems from the surviving underground rootstock, it is called a **resprouter**. Because of this resprouting ability Bergtee is suited to regular harvesting, (but not too often). For healthy resprouting the plant must have a few years to build up food stores in the rootstock, flower and set seed several times. If the leaves and stems of resprouters are harvested **too often**, the food stores get used up, regrowth and flowering is poor and the plant eventually dies.

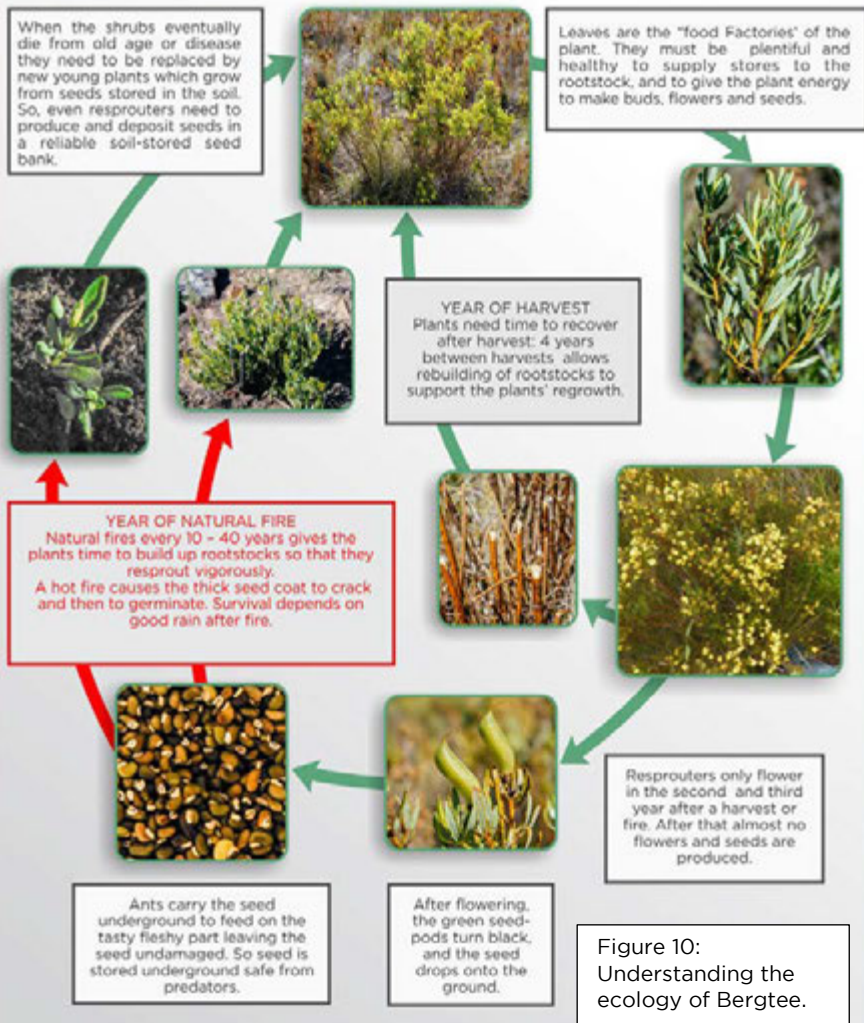


Figure 10:  
Understanding the  
ecology of Bergtee.

Using fire for veld management is risky, and should only be used by farmers with plenty of experience and capacity. Any burning plans must comply with local Fire Protection Association (FPA) requirements and the Veld and Forest Fire Act.

#### **d) Bergtee plant maturity**

Plant maturity refers to the stage at which the plant has reached the right age for harvesting. The reasons for harvesting mature Bergtee, are as follows:

- Older, darker Bergtee stems give a better flavour - green stems are therefore less desirable for tea production;
- The more flowering seasons a plant enjoys, the more seeds it will produce for the soil seed bank. This increases the likelihood of new plants replacing very old dying plants;
- If a plant is burnt or harvested when too young, it is weakened and unable to recover adequately after subsequent cropping (or fire).

#### **e) How are harvesting and burning different?**

Harvesting and burning of Bergtee can be seen as similar as they both remove the stems and leaves of the plant. However there are some important differences. Fire adds ash to the soil, which has a “fertilizing” effect. Unlike honeybush harvesting, fire removes all the plants in an area, which enables Bergtee with its underground rootstock to recover more quickly, an important advantage which can last for several years. Also, heat from fire causes seeds in the soil to germinate and new plants are able to grow and take the place of very old or sick plants.







### 3. SUSTAINABLE HONEYBUSH HARVESTING THROUGH BEST PRACTICE

As explained earlier, the guidelines for Bergtee harvesting are based on the knowledge of many farmers and harvesters with experience of wild honeybush harvesting. We recorded this information by asking questions and talking with them in the veld as they harvested. To better understand honeybush harvesting we also carried out plant surveys measuring plant size, density of plants and how many kilograms each plant yields.

The Best Practice for Vleitee Harvesting is based on work by Van der Walt, 2018, who talked to harvesters in the Tsitsikamma about how best to harvest Vleitee. He also worked with experienced harvesters in the veld, where he carried out plant surveys measuring plant size, density of plants and how much each plant can yield.

We put all this information together with our understanding of fynbos ecology to develop these guidelines.

#### IMPORTANCE OF LOCAL KNOWLEDGE

Local environmental conditions may vary across a farm or across a region. Therefore, for each harvest site the farmer or harvester must always use their local knowledge of the weather, harvest history and fire history to come up with the Best Practice Guidelines most suitable for a particular farm or site,

### 3.1 Developing a plan for sustainable harvesting

The detailed guidelines and methods in this section are for Bergtee harvesting. With some adjustment much of what is presented in terms of sustainable harvest plan can be applied to Vleitee. However, **it is important to note that the harvesting intervals and the methods of cutting are totally different for Bergtee and Vleitee.** Only a brief section is given on Best Practice for Vleitee harvesting (3.4) and is denoted by green page edges.

The aim of sustainable harvesting should be to keep harvested honeybush populations healthy so they can continue to produce a harvest year after year.

### 3.2 A sustainable harvesting approach for Bergtee

In order to follow Best Practice and manage wild Bergtee sustainably, we explain three parts to a best practice approach:

- i. Permits must be obtained from the relevant authorities (Section 5).
- ii. A Honeybush Management Plan should be drawn up (see example in the Toolkit section, which includes: a) A farm map showing harvestable patches in honeybush-bearing lands (locality and size ); b) An assessment of the honeybush resource (potential yield); c) A plan for harvest interval (time period between harvests); d) A harvest layout to ensure non-overlapping harvester routes. (Details on each of these parts are given below)
- iii. Best Practice in terms of harvesting of Bergtee to be followed in the field.

#### a) Mapping harvestable Bergtee patches

The first step for all honeybush management is to do a farm management plan (described in the Toolkit section), based on a farm map of harvestable honeybush patches showing where they are and how extensive they are. The map should show farm boundaries and adjacent farms or protected land boundaries. It is important that the farmer communicates this information to the harvest team, so that there is no confusion about which areas are

to be harvested. Depending on the area available, the farmer or harvester can plan which honeybush areas to crop each year and can choose which harvest interval to use to ensure sustainability (see Bergtee example below, c) i and c) ii).

### **b) Bergtee resource assessment**

The harvest sites may be assessed based on methods described in the Toolkit under no. 1c (for Bergtee). This allows the farmer to determine the approximate density of plants (number per hectare) and potential yield. This kind of information is needed for an annual permit application to the EC DEDEAT to harvest Bergtee and Vleitee in the Eastern Cape.

### **c) Bergtee harvest interval planning**

There are two different harvest intervals for Bergtee which both appear to be sustainable. The basis for both approaches is that the plants which are cropped have had four years of growth after harvest or fire.

**i) Two year return interval, Figure 11:** plan to harvest a honeybush patch every two years, but harvest only 50% of plants in the stand, leaving the rest of the honeybush uncut, i.e. cut one bush, leave one. The uncut honeybush bushes will continue to grow, produce flowers and set seed in the next two years before they are harvested in the next cycle. In a situation where the veld has been burnt, the plants should be rested (uncut) for at least three flowering seasons (three to five years). Then, cut one, leave one.

*Advantages:* spreads the risk of loss by fire as half the crop is harvested every two years; spreads the employment opportunities across seasons; more regular source of income.

*Disadvantages:* a careless harvest team may harvest more than planned and the farmer will need to keep a check on the harvest to ensure that they follow the plan; remaining plants are vulnerable to fire and poaching.

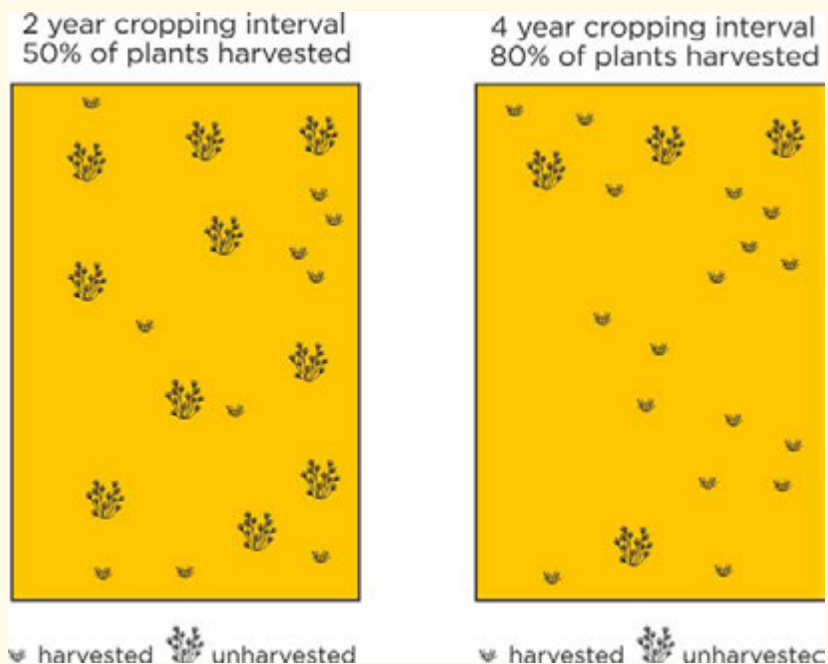


Figure 11: Example of a harvest site where 50% of the plants are harvested.

Figure 12: Example of a harvest site where 80% of the plants are harvested.

**ii) Four year return interval, Figure 12:** plan to harvest a honeybush patch every four years, thereafter most of the plants (75-80%) may be harvested, leaving mostly smaller honeybushes uncut, i.e.: cut 4 bushes, leave one. The uncut honeybush bushes will continue to grow to a suitable size, make flowers and set seed. The harvested plants will have four years to resprout, make flowers, set seed, and replenish their rootstocks. After a fire, rest the plants for at least three flowering seasons (three to five years, depending on conditions).

*Advantages:* management is less intensive, no need to check that harvesters are sticking to the plan; income is concentrated.

*Disadvantages:* the patch is vulnerable to fire for a longer (four year) period; short employment may not suit harvesters.



#### d) Harvest agreement

A harvest agreement should be drawn up between the farmer and the harvest manager. The harvest team must be made aware of:

- the harvest interval plan so that they know what proportion of plants to crop
- the boundaries of the harvestable area.

#### e) Bergtee harvest layout

At a harvest site there must be enough honeybush for all the harvesters in a team so that each harvester can cut enough to make a daily wage. The map in Figure 13 shows the tracks of a well co-ordinated harvest team of five members. Each harvester works in their own space with very little overlap and can bring in a good harvest. This approach also helps ensure that plants left unharvested by one harvester are not harvested by a second harvester.

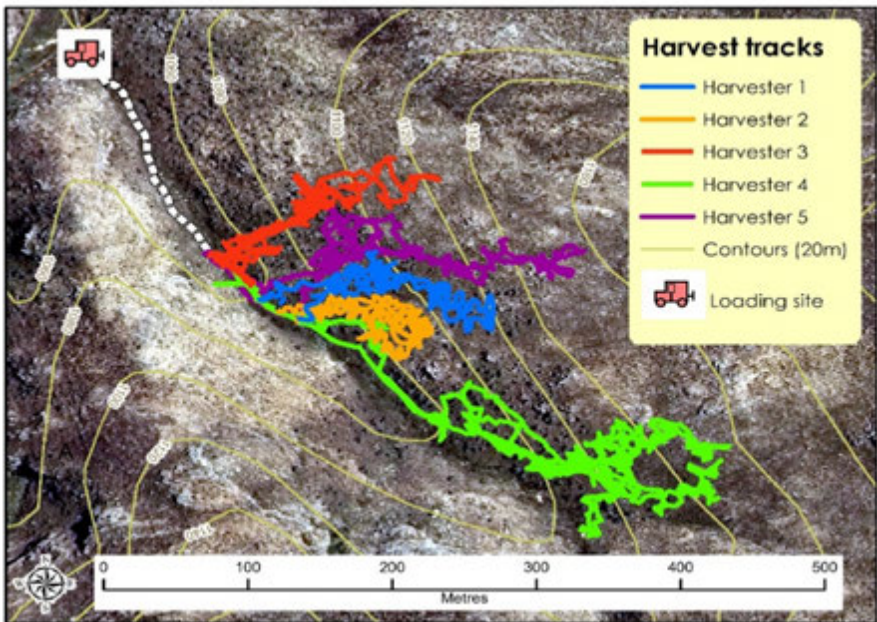


Figure 13: Well spaced harvester tracks based on measurement using a Global Positioning System (GPS) Tracking Device over a one day harvest.



**End of the harvest day: harvesters carry their load of Bergtee to the bakkie for weigh-in.**

### 3.3 Best practice in the field for Bergtee harvesting

#### a) Cutting tools

Secateurs and sickles are brought to site and both may be used for cutting honeybush depending on the state of the bushes and personal preferences (Figure 14). Ideally tools should be sterilised (e.g. using Jik) after each harvest day to avoid spreading plant diseases.

Table 1: Choice of cutting tools.

TOOL	ADVANTAGE	DISADVANTAGE
Secateurs	Can select the best stems and avoid the dead or old burnt stems. Easier to avoid cutting or damaging other plants.	Slow cropping action
Sickle	Much faster cropping action	Potential for personal injury. Difficult to keep non-honeybush or old burnt stems separate.



Figure 14: Harvesting with a sickle (A) and with secateurs (B).

### b) Time of day and season for harvesting Bergtee

At very hot times of the day or season, working conditions for harvesters can be unacceptable. Also after/during especially hot, dry periods in the summer months no harvesting should occur as the plants will be too stressed to endure cutting. Ideally, plants in full flower in spring time or plants bearing seed should be left uncut.

### c) Choice of Bergtee plants for harvesting

**Stem colour:** Mature stem colour varies from yellow to orange to brown (Figure 15A) across sites and within sites. Colour seems to be affected by environment as much as age of growth. Green stems, however, indicate new growth (Figure 15 B) and should not be cut as the plant still needs to mature and restore its rootstock. Also green stems are not ideal for tea flavour.



Figure 15: Desirable Bergtee stem colour and thickness (A). Healthy respouting stems too young and green to crop (B).

**Stem length/plant size:** This is not necessarily an indicator of maturity, but there is a practical reason for only cutting plants greater than 40 cm in height - they will not fall out of the harvest bundles when carried across the rough terrain.

**Stem diameter:** The best size for a stem is about the thickness of a pencil. Thicker stems, (thicker than a pencil) cause blunting of the tea chopping blades at the factory and have less flavour. The photograph in Figure 15A shows Bergtee stems which are the correct thickness and colour.

**Height of cut:** The harvesters refer to the height of cut above ground as “n boksie hoog”, meaning the height of the long axis of a matchbox. In practice, they cut at the height of an open hand width, or up to 15 cm from the ground. Figure 16 illustrates a multi-stem plant cropped at about 15 cm. The height of the cut is also determined by stem thickness; harvesters avoid a stem which is too thick at the base and therefore difficult to cut.

Examples of healthy plants of various sizes, all with four years of growth which are suitable to crop are shown in Figure 17.

**Plant health:** Plants which may be sick will have very small leaves, yellowing leaves, shedding of leaves or limited new leaf or stem growth. Best Practice is to avoid touching unhealthy plants to avoid possible spread of disease.

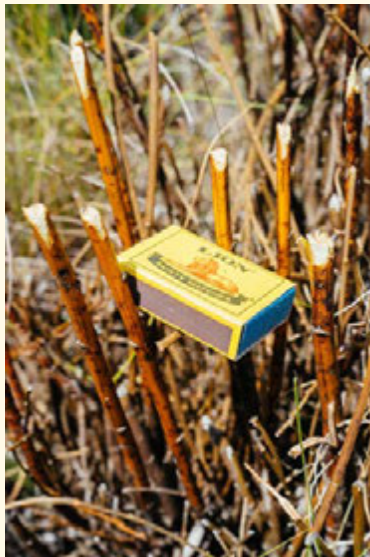


Figure 16: Stems cropped with a sickle at about 15 cm.



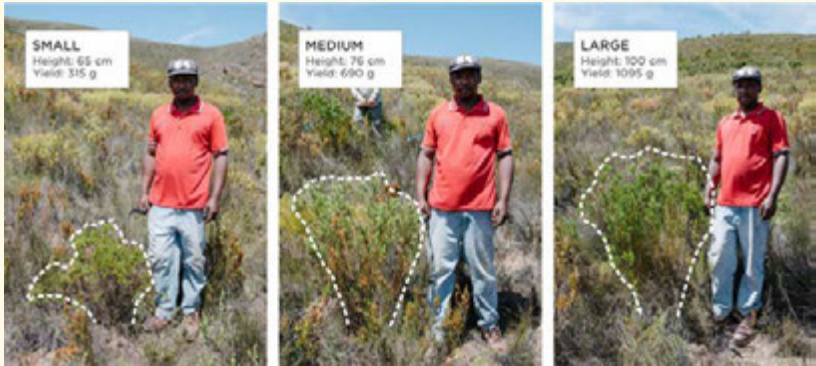


Figure 17: Examples of small, medium and large honeybush plants ready for cropping.



**Bundling and loading the day's harvest.**



### 3.4 A sustainable harvesting approach for Vleitee

Vleitee is a high yielding honeybush plant, which may grow in very dense stands of many thousands of plants. Harvested Vleitee plants look like small trees with a single stem or “trunk” bearing long leafy “branches” which produce lots of flowers (Figure 6) and seeds (Figure 18).

As with Bergtee, a sustainable harvesting approach should include the same parts described for Bergtee under Section 3.2, a-e. **Note that the harvest interval planning will be quite different:** harvest areas should be identified and managed according to a two-year cycle of harvesting such that a site should be harvested one year and then rested for 18-24 months.

#### Best Practice in the field for Vleitee harvesting

Harvesting of Vleitee should be seen as “pruning” as great care must be taken to select and cut only some of the branches on a plant to avoid killing the plant.

- Taller plants with many branches may be pruned: the number of branches which may be cut varies according to the health of the plant, the size of the other branches and the height of the plant;
- Pruning up to 50% of the branches on a plant is acceptable if the stems and leaves are in good health, thus leaving 50% of the plant uncut;
- Upper branches should be cut above regions of new growth to allow regeneration after harvest;



Figure 18: Ripening seed pods on Vleitee turning from green to black.

- The main trunk of the plant must be left intact;
- In every population, some plants must be left uncut so that they can form buds, flowers and set seed;
- Small young plants less than two years old (post-fire) and those with long single stems without branches should not be harvested.

Experienced harvesters who know which plants to select and which branches to cut are key to the sustainable harvesting of Vleitee. It is important that they mentor and teach new harvesters Best Practice Harvesting.

### **Threats**

There are many areas where Vleitee is harvested illegally. The occurrence of Vleitee plants in the low lying areas of the Tsitsikamma and Outeniqua means that they are more accessible than Bergtee plants which grow in the mountains. Also, the many service roads in lower regions make Vleitee vulnerable to illegal harvesting. It is particularly vulnerable to untrained or inexperienced harvesters who may kill plants through poor selection of plants and incorrect pruning methods.

## **3.5 Respect for the veld**

At all honeybush harvest sites:

- All litter should be removed and carried home including: water bottles, bundling twine, cigarette wrappers, food wrappers;
- If a cooking fire is made, it should be set in a safe site, preferably a rocky site out of the wind, and must be put out completely after use;
- Honeybush seedlings should not be stood on, and damage to other plant species should also be avoided;
- Wire slides should be removed between seasons so that animals are not snared.
- Access roads should be adequately constructed to prevent erosion and visual disturbance.







## 4. TOOLKIT

Practical tools are given here to help both honeybush farmers/land managers and harvesters to keep track of their work. The forms provided here can be copied directly from this booklet, or downloaded from <https://www.westerncape.gov.za/eadp/your-resource-library>.

**Tools for farmers/land managers:** include methods to develop a farm plan, to map honeybush-bearing land and to assess the resource in the veld.

### **Tools for harvesters:**

include a Harvester Log which is a form to record harvesting work experience and a Letter of Confirmation to serve as a work reference. Both documents can be copied, filled in and presented in a Logbook to a farmer who wants to employ a harvest team.

**NOTE:** Before anyone can handle Honeybush plant material, they must first apply for the necessary permits and licences to ensure that they have the documents required to comply with the law. Details are given in the Permitting and Legislation Table, Section 5.

**Guide to identifying wild harvested honeybush species:** It helps to first check where the plant was found against the natural distributions of the five wild-harvested species (see the map in Figure 3). To assist with identification, diagrams are provided showing the characteristics of the different species. Even with the aid of diagrams, Identifying plants can be difficult because plant features vary greatly across different environments. (Drawings after Schutte, 1997).

### 4.1 Tools for farmers/land managers

#### **Farm plan**

This is a scheme for a proposed harvesting programme. It can also serve as a record of any previous harvest activities. The term “farm” is used here, but it also applies to other types of land parcels. To assist with the development of a farm plan, an

example of a template is provided on p38 and descriptions given of the methods for gathering the information needed for the plan.

In the Eastern Cape, an application for a harvest permit must include a farm plan. (In future, this may become a requirement in the Western Cape). Applicants must also submit a map of their land, as well as certain information required by the permit office to show compliance with Best Practice in Honeybush harvesting.

The South African National Biodiversity Institute (SANBI) provides the latest biodiversity information, such as the presence of special plant or animal species or whether a farm may lie within a threatened ecosystem, critical biodiversity area, or ecological support area (i.e.: part of a key water source or recharge area) on their BGIS site <http://bgis.sanbi.org/>. In the Western Cape “Cape Farm Mapper” is a useful spatial tool which can assist in the mapping process <https://gis.elsenburg.com/apps/cfm/>.



Honeybush tea drying in the sun.

## Example of information needed for a farm plan

SECTION A. FARM DETAILS		
1. Farmers name		
2. No. of years on farm		
3. Name of person responsible for managing the harvest		
4. Name of farms / land parcels on which honeybush is harvested		
5. Size of farm/s in hectares		
6. Name of processor you normally supply		
SECTION B. HONEYBUSH HARVEST DETAILS		
1. Honeybush species harvested ( <i>indicate with a 'x'</i> ). Repeat this section for each species.		
a) Bergtee	b) Vleitee	c) Heidelberg tea
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Genadendal tea	e) Needle leaf tea	
<input type="checkbox"/>	<input type="checkbox"/>	
2. Approximate area of honeybush-bearing land in hectares:		
3. Average density of plants (number of plants per hectare), or give range of plant densities:		
4. Harvest interval - <i>indicate with a 'x'</i>		
<input type="checkbox"/> Once per yr	<input type="checkbox"/> 18 month - 2 yrs	<input type="checkbox"/> 2 - 3 yrs
<input type="checkbox"/> 3 - 4 yrs	<input type="checkbox"/> 4 - 5 yrs	(Give details) .....
5. Approximately what proportion (%) of plants are cut at each harvest?		
<input type="checkbox"/> 40%	<input type="checkbox"/> 50%	<input type="checkbox"/> 60%
<input type="checkbox"/> 80%	<input type="checkbox"/> >80%	
6. Harvest history: record the year and the approx. harvest weight in kg or tons. In the comment column, indicate why values may vary e.g. harvest after a fire, drought conditions, shortage of harvesters or any other reasons.		
Year	Harvest weight	Comments





## Mapping the honeybush resource on a farm

This section explains the information and methods needed to develop a map and estimates of a farm's honeybush resource. A worked example of a map based honeybush resource assessment is shown in Figure 20.

**Make a map of honeybush patches.** A map can form the basis for any management plan. Most farmers will have access to a 1: 50 000 topographic map showing the boundaries of their farm, or to a basic digital mapping system like Google Earth. In the Western Cape “Cape Farm Mapper” provides an invaluable mapping tool.

Based on the farmer's knowledge of where honeybush occurs on the farm, the location and extent in hectares of Bergtee stands can be drawn on a map. The mapped information can be linked to average plant density and yields (methods explained below) to provide an overall understanding of the honeybush resource.

**Get a first estimate of potential Bergtee yield on a farm.** The map in Figure 21 showing average densities of Bergtee plants and plant yields for different farms across a range of environments, can be used to get an idea of possible density and yield figures for a farm. Plant densities on this map vary from 2 400 plants per hectare to only 150 plants per ha. Yields per plant measured at the different sites vary from an average of 0,29 kg to 0,51 kg, with an overall average of 0,41 kg per plant.

**Keep track of the yield per site and per harvest event.** This is a worthwhile exercise as yield is the basis of accounting in the system. Plus, it is a step towards best practice for sustainable management as keeping track of harvest yields over time enables a farmer or harvester to notice any changes and identify potential problems. These figures will also provide the necessary support for a harvest permit application and for other kinds of certification (e.g. Organic Certification).

If a farm has a history of harvesting, harvest yields recorded over time will give a good idea of what can be harvested.

**Estimate the potential Bergtee yield on your farm.** Survey walk: walk 100 m through the honeybush veld counting plants along and to the right and left of your path. This will give you a count of plants in a 100 m x 2 m strip, to give an estimate of plant density per 200 square metres. Multiply by 50 to get an estimate of plant

density per hectare (1 ha = 10 000 m<sup>2</sup>). Repeat the process several times at different places on the farm to get an average plant density figure.

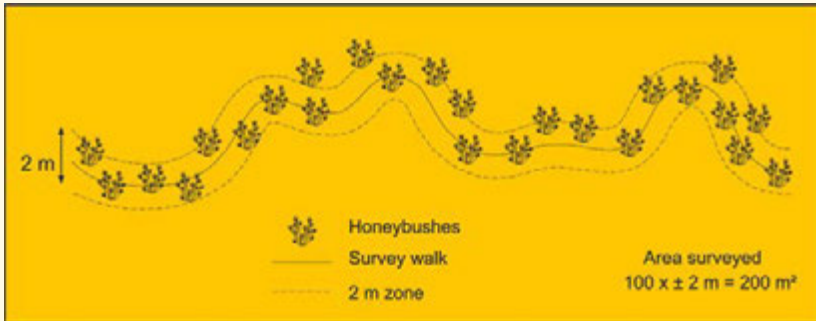


Figure 19: Counting honeybush plants along a transect walk of 100 m by 2 m

*Measuring plant yield:* harvest and weigh a selection of about 30 Bergtee plants to get an idea of the average yield per plant.

Add this information to the map to produce a map like the one shown in Figure 20.



Using Google Earth, a farmer has mapped four Bergtee patches on his farm and calculated the area per patch, to give a total of 20 ha of Bergtee veld. He has done a survey walk of about 100 m in each patch, to get a density figure for approximately 200 m<sup>2</sup> which converts to an average of 1000 plants per hectare. He has harvested a sample of 30 plants and weighed each plant to get an average weight per plant of 0.45 kg.

### Calculating the potential harvest yield

<b>Total area:</b> 20 ha	20 ha x 1000 plants x 0.45 kg =
<b>Ave. plant density:</b> 1000	<b>9000 kg</b>
<b>Ave weight of plant:</b> 0,45 kg	
<b>2 year harvest interval. 50% of plants cut: 4500 kg</b>	
<b>4 year harvest interval. 80% of plants cut: 7200 kg</b>	

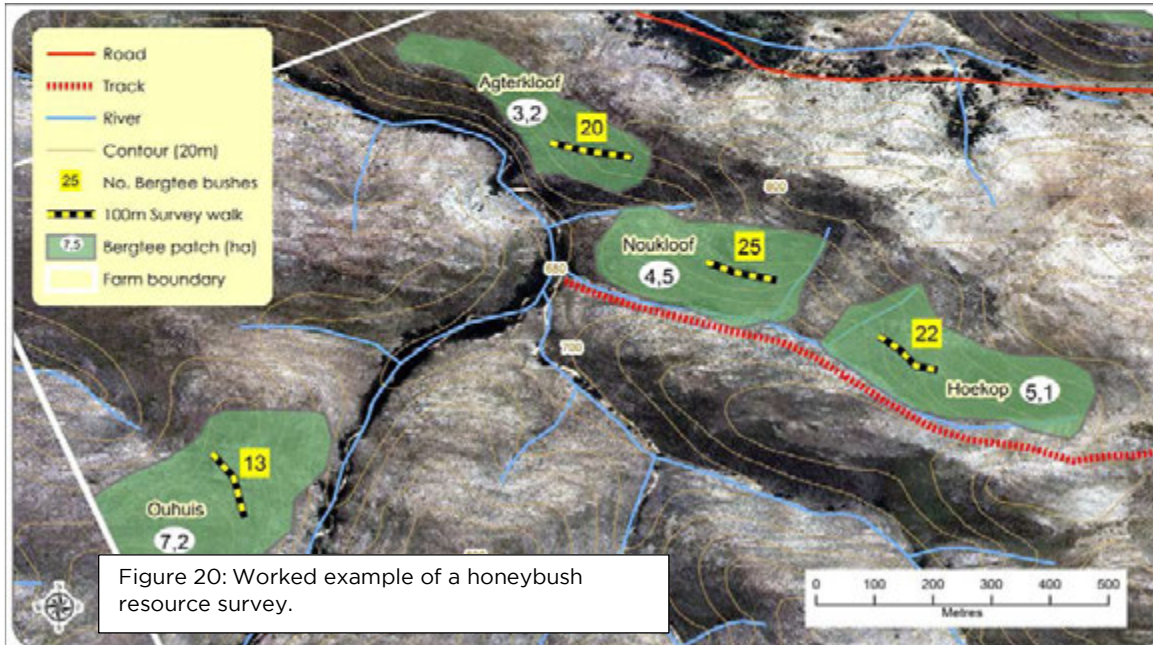


Figure 20: Worked example of a honeybush resource survey.

## Monitoring harvester practices

*Harvest survey:* Walk with a harvester as they work, counting the number of plants harvested versus the number of plants unharvested. Check that the harvesting practice aligns with your harvest management plan.

*Post- harvest survey:* Visit a harvest site after the harvesters have completed their job and count the number of unharvested versus harvested plants. Check that the harvesting practice aligns with your harvest management plan.

*Harvest boundary check:* If the harvest site is near the farm boundary, check that your harvest team are staying within the allocated harvest site and that they do not venture onto your neighbours land or into a Protected Area.



**Harvesters confirming the harvest area boundary on a map of the harvest site.**



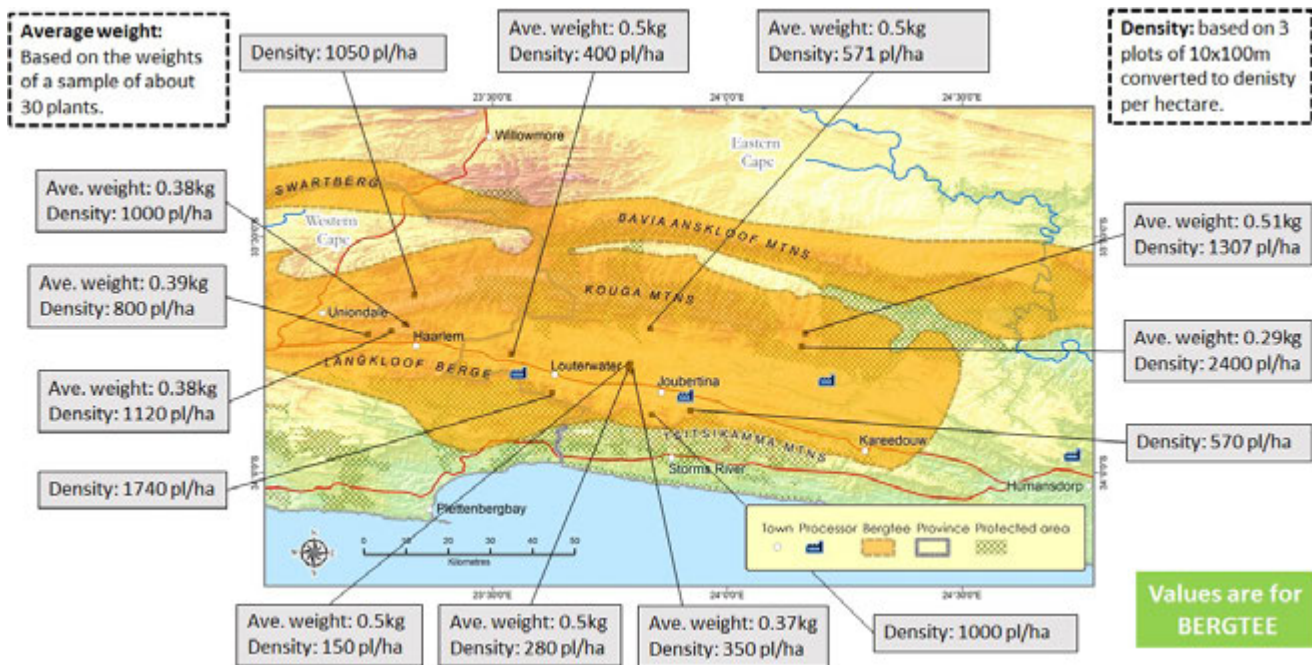


Figure 21: Honeybush plant densities and average plant yields across the honeybush producing areas of the Western Cape and Eastern Cape.

## Harvester Tools

HARVESTER LOG		Harvester name & contact details:			Permit no and info:	
Date	Farm name & Owner details	Site name/no	Previous harvest date	Honeybush species	Harvest yield in kg	Processor receipt no.
Comment by farmer on Harvester performance			Comment by processor on harvest			
Date	Farm name & Owner details	Site name/no	Previous harvest date	Honeybush species	Harvest yield in kg	Processor receipt no.
Comment by farmer on Harvester performance			Comment by processor on harvest			
Date	Farm name & Owner details	Site name/no	Previous harvest date	Honeybush species	Harvest yield in kg	Processor receipt no.
Comment by farmer on Harvester performance			Comment by processor on harvest			



## CONFIRMATION OF EXPERIENCE

Date.....

This serves as a letter of introduction to

.....who is a harvest manager or harvester with experience in the harvesting of honeybush.

By way of reference, this letter should be accompanied by:

1. A record of the harvesting work completed by the bearer or his/her team.
2. An up-to date harvesting permit issued by .....

The bearer of this letter is aware of the recommended Best Practice for Wild Honeybush Harvesting and has a copy of the Wild Honeybush Harvesting Field Guide.

This initiative is supported by WC DEA&DP, EC DEDEAT, and SAHTA

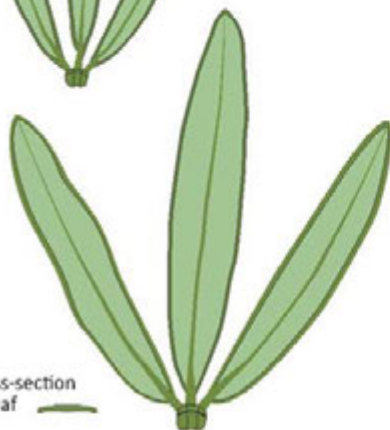


## Resprouters – bushes with many stems

*Cyclopia intermedia* (Bergtee)  
grows in Cape mountains from  
Van Stadensberg to Langeberg and inland.



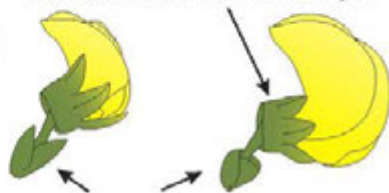
Older stems are yellow/orange in colour.



Cross-section  
of leaf

Leaves are flattish with edges very slightly recurved.

5 calyx lobes are leathery.  
Lobes have a row of hairs on their edges.



2 leathery bracts are  
longish and pointed,  
or rounded and blunt.



Cross-section of a bract  
showing hairiness inside.

*Cyclopia sessiliflora* (Heidelberg tea)  
grows on the Langeberg  
and Warmwaterberg.



Cross-section  
of leaf

Leaves are flattish,  
with edges very  
slightly recurved.



Above the stalk, 5 calyx lobes  
are pointed at the ends.

Flower stalk is very short (2-3mm long).

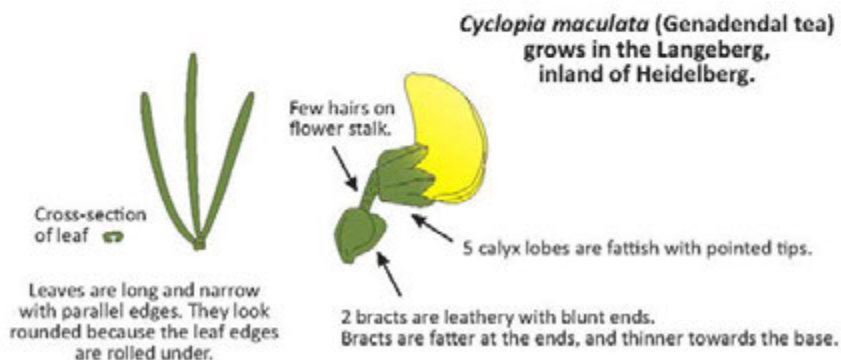
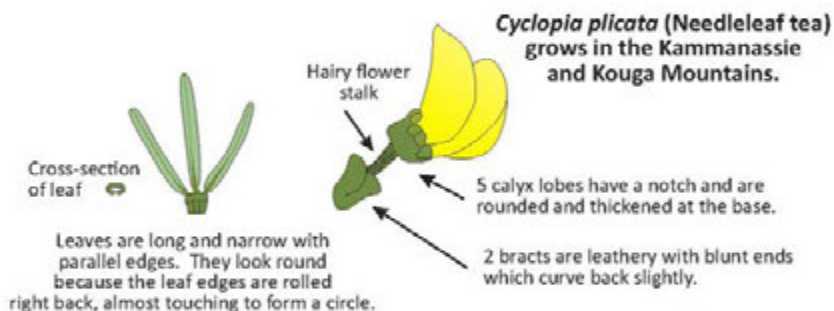
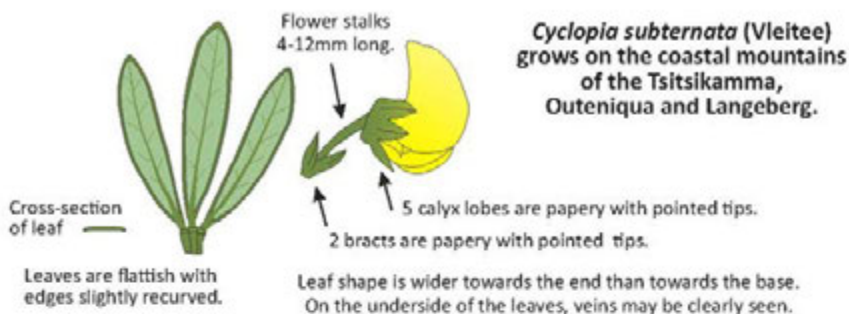
2 bracts at the base of the flower stalk are papery,  
very small (2-3mm), and have pointed tips.

**DRAWINGS SHOW THE REAL SIZE OF THE LEAVES AND FLOWERS**





## Reseeders - bushes with a single stem



**DRAWINGS SHOW THE REAL SIZE OF THE LEAVES AND FLOWERS**



## 5. LEGAL REQUIREMENTS FOR HANDLING HONEYBUSH

Handling of honeybush plant material (green, dried, processed & seeds) requires documentation & permitting through the relevant authorities. It should also be noted that when the new national Threatened or Protected Species legislation (TOPS) is finalised in 2018, permitting will be required for all honeybush harvesting.

**Disclaimer:** Legislation described is applicable at time of publication.

Permits & Documents	
Province	Legal Requirements
EC	<b>Flora Sellers Permit.</b> Landowners who allow wild honeybush harvesting on their land must register as flora sellers (valid for 3 years )
EC	<b>Flora Licence.</b> Anyone who trades in honeybush, i.e. buyers and sellers must have this licence.
EC & WC	<b>Landowner Permission Document.</b> Managers of harvesters who pick on land which they do not own must get written permission from the landowner (or authorised land manager) to harvest honeybush. This document must have the full names and address of the owner concerned and of the person to whom it is granted. The document must also list the number and the plant species to be harvested, the date or dates of the harvest(s) and the land in respect of which the permission is granted. Each written permission must be signed and dated by the owner, and must be retained by the person to whom it was furnished for a period of at least two months from the date on which it was furnished or while such person is in possession of the flora to which it relates, whichever is the longer period. Each harvester must also carry a copy. The document must list the honeybush species (and any other plant species).
EC & WC	<b>Donation/Sale Document.</b> When honeybush is donated or sold to someone, a document must be drawn up with a statement by the donor/seller that he or she has donated/sold the plants to the receiver/buyer. This document must have the date and full names, signatures and addresses of the donor/seller as well as the full names and addresses of the receiver/buyer. The document must list the number and the species (and any other plant species) donated. Each written letter of donation must be retained by the person to whom it was furnished for a period of at least two months from the date on which it was furnished or while such person is in possession of the flora to which it relates, whichever is the longer period.
EC & WC	<b>Export Permit</b> (across the EC/WC provincial border) is needed by anyone who exports or sends honeybush material across the EC/WC Provincial border. The sender must obtain the permit from the relevant provincial authority (EC or WC). In addition: the exporter must have a Donation/Seller Document. The transporter must carry a copy of the permit as well as (see above).

### Additional Permits according to EC legislation for Protected species: *C. intermedia* (Bergtee) and *C. subternata* (Vleitee)

#### Legal Requirements

Harvesting plants and collection of seed of protected honeybush species *C. intermedia* (Bergtee) & *C. subternata* (Vleitee) is regulated. Anyone who plans to harvest plant material of protected honeybush species and/or to collect seed for propagation needs to obtain written authorisation from the landowner / authorised land manager.

Sale of protected honeybush *C. intermedia* (Bergtee) & *C. subternata* (Vleitee) is regulated. A licence is required from the EC Permitting authority to buy or sell protected honeybush plant material at any place other than on the premises of a registered flora seller or a registered flora grower. This is required under section 65(2) of the Ordinance.

### Additional Permits according to National Legislation

#### Legal Requirements

Any handling of honeybush – by a provider, developer and/or user - where the final outcome is a product (e.g. cosmetics) including in trade in plant materials of honeybush is regulated in terms of the National Environmental Management Biodiversity Act (NEMBA) (Act 10 of 2004) and the Bioprospecting, Access and Benefit-Sharing (BABS) Regulations. Only trading landowners, processors and export agents require these permits.

Application forms (Annexure 5, MTA, Annexure 11) and BSA (Annexure 12) are documents required when applying for bioprospecting/biotrade permit.

#### Permitting Authorities

Authority	Contact person	Physical address	Postal address
EC DEDEAT	Gerrie Ferreira Tel: 042 292 0339 gerrie.ferreira@dedea.gov.za	Seekoei River Nature Reserve, Swan Road, 6332, Aston Bay,	P.O. Box 1733, 6330 Jeffrey's Bay
WC CapeNature	Danelle Kleinhans Tel: 021 483 0121 dkleinhans@capenature.co.za	PGWC Shared Services Centre, cnr Bosduif & Volstruis Streets, 7764 Bridgetown	Private Bag x29, 7766 Gatesville
National DEA, Branch: Biodiversity & Conser-vation	Tel : 086 111 2468, callcentre@environment.gov.za	Cnr. Steve Biko (previously Beatrix Street) and Soutpansberg Road,Pretoria	Private Bag x447 Pretoria 0001
Directorate: Bio- prospecting and Biodiversity Economy	Bioprospecting, Access and Benefit Sharing issues Natalie Feltman Tel: 012 399 9612 nfeltman@environment.gov.za	Environment House, 473 Steve Biko, Arcadia, Pretoria, 0083	
Directorate: TOPS and CITES	TOPS issues Olga Kumalo Tel: 012 399 8818 okumalo@environment.gov.za		





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Accessed: January 2017.

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McGregor, G.K. (2017a). *Guidelines for the sustainable harvesting of wild honeybush*. Department of Environmental Affairs and Development Planning, Western Cape Government, Cape Town.

McGregor, G.K. (2017b). *Ecological Review: Fynbos ecology and its implications for Cyclopia species*. Department of Environmental Affairs and Development Planning, Western Cape Government, Cape Town.

Schutte, A. L. (1997). Systematics of the genus *Cyclopia* Vent (Fabaceae, Podalyriaceae). *Edinburgh Journal of Botany*. 54, (2) 125-170.

Van der Walt, W. (2018). *A resource assessment of Cyclopia subternata in the Lottering and Witelsbos plantations, Eastern Cape, South Africa*. Unpublished report to MTO.







## 7. USEFUL CONTACTS

*Western Cape Government Home page for various reports and publications:* <https://www.westerncape.gov.za/>

*For information on South African Biodiversity, regulations and maps:*

<https://www.sanbi.org/>

*The website of the South African Honeybush Tea Association:*

<http://www.sahta.co.za/>

*Eastern Cape Parks and Tourism Agency:*

<http://www.visiteasterncape.co.za/>

*(Western) CapeNature for permits etc.:*

<http://www.capenature.co.za/>

*Eastern Cape Permit Authority:*

<http://www.dedea.gov.za/>

*For maps and aerial photos, Chief Directorate: National Geospatial Information:*

<http://www.ngi.gov.za/index.php/what-we-do/maps-and-geospatial-information>

*Wild Honeybush Harvesting Guidelines project - technical documents :*

<http://www.gouritz.com/scientific-reports/#.WoLdbeeYOHs>



## BEST PRACTICE FOR WILD HONEYBUSH HARVESTING

- Always have a valid permit to harvest in the EC from DEDEAT.
- Always carry a Landowner Permission Document and/or a Donation/Sale Document.
- Always carry an Export Permit as well as a Donation/Sale Document to transport Honeybush across the EC/WC border, from DEDEAT or from CapeNature.
- Know the boundary of the area where you are harvesting.
- Never harvest on **any** land without permission.
- Avoid damaging other plant species while harvesting Honeybush.
- Know your harvest interval plan: For Bergtee, if you are on a 2 year interval, pick one, leave one. For a four year interval, harvest four plants, leave one plant.
- Make sure that your secateurs and sickle are clean (e.g. with Jik) and sharp.
- Do not leave any litter including bundling twine in the veld.
- Keep records in a Logbook of where and how much you have harvested.