

## Global Pollination Project and Honeybee Forage Project South Africa

Implemented by the South African National Biodiversity Institute (SANBI) as part of the GEF/UNEP/FAO Global Pollination Project (GPP), also entitled "Conservation and Management of Pollinators for Sustainable Agriculture through an Ecosystem Approach"

### Profile: Paul Ransom – Beekeeper



*Paul speaking at the BeeCon 2011 fieldtrip at his farm*

#### Introduction

The purpose of the case studies/profiles of the GPP is to showcase practices that have a different approach and are therefore of interest and possible value. In the South African project, individual farmers and beekeepers are reliant on and work with honeybees. Farmers utilise honeybees for pollination of their crops and commercial beekeepers use honeybees to provide pollination services and/or to make honey. The way farmers or beekeepers utilise honeybees has often been developed individually through years of learning and experience. While the different practices discussed in the profiles are not scientifically proven to have benefits (such as increasing agricultural yield or promoting pollinator conservation), they mean something to the individuals in the profile and may inspire people in the sector to explore alternative practices and possibly result in scientific research being undertaken. It is through the exploration of a range of different practices that lessons may be learned and applied at wider scales to benefit both agricultural and environmental conservation considerations.

Many farmers and beekeepers in South Africa undertake innovative practices relating to pollination issues, and it is unfortunate that we cannot profile more. We hope that the profiles/case studies that we have chosen to present here are understood as being just some of the many interesting practices that could inspire discussion and consideration, and not as the championing of any particular practice or person.

We decided to profile Paul Ransom as he is one of very few beekeepers (if not the only one) to take a decision to purchase land and attempt to farm for honeybee forage. Most beekeepers in South Africa have arrangements with farmers and other land owners whereby they bring their hives to forage on land in exchange for payment in honey or for pollination services. Paul, as a land-owner himself, is therefore a departure from the normal practices in South Africa. Paul is a beekeeper in the Western Cape province of South Africa that uses his honeybees mainly for pollination services.

The Project Management Unit in South Africa interviewed Paul Ransom on 23 February 2012 at the Kirstenbosch Research Centre. Members of the PMU also visited Paul's farm as part of the field trip associated with BeeCon 2011 (the South African Bee Industry Association's annual conference).

This document is structured in such a way as to first tell Paul's story in his own words. A short "lessons learned" section at the end discusses some of the possible implications of Paul's practices.

*Disclaimer: the practices discussed in this document have not been scientifically proven. This profile is therefore intended as an anecdotal account from which readers may draw their own conclusions.*

## Paul's Story

Paul's interest for beekeeping started at the age of thirteen as a hobby, despite no prior family history of beekeeping. In 1985 he started as an apprentice under the mentorship of Walter Hartman – a one of the beekeepers to initiate commercial pollination services in the Western Cape. In 1989, Paul then bought a bankrupt beekeeping business from a beekeeper with the view of using his sites – about 90% of Paul's sites he uses today are those he bought in 1989. Paul would recommend to emerging beekeepers that they buy an existing business, due to the scarcity of good forage sites.

In the mid-1990s Paul saw evidence of *Eucalyptus* tree species being removed and became outspoken to the Working for Water Programme (WfW - a highly-lauded job creation programme of alien clearing now managed under the Department of Environmental Affairs' Environmental Programmes Branch) about the value of eucalypts to beekeepers. Despite attending meetings with WfW, Paul felt that the voices of the beekeepers were not being heard and that there would eventually be a loss of forage sites containing eucalypts. Therefore, in 2001, Paul bought a farm with the sole purpose of planting gums and other honeybee forage.



**Paul's farm when first purchased**

## Paul's farming system: colony and forage farm management practices

Much thought went into Paul's decisions about the land and the plantation. He brought in a geologist to conduct a soil analysis in order to determine the most suitable areas for planting gums, and also investigated gums species growing at the same latitude in Australia because of their similar weather patterns and soil conditions. He also researched the practices beekeepers use in Australia. The plantation was a former wheat and sheep farm of approximately 455 hectares and, in order to establish a gum plantation, Paul was required to apply for a forestry permit. This took a substantial amount of time and was delayed due to "bureaucratic red-tape", but Paul says the staff of the then Department of Water Affairs and Forestry were instrumental in helping him with the permitting process, which eventually took thirteen months to obtain. During this time Paul undertook soil analyses, did internet research and obtained recommendations about what gum species to plant.

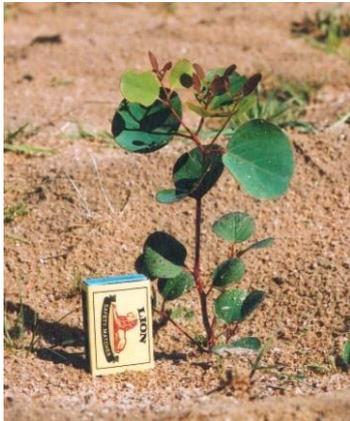
In 2002, Paul initially planted 20,000 saplings he bought from a nursery in Tulbach. The nursery only produced sugar gum (*Eucalyptus cladocalyx*) and river red gum (*Eucalyptus camaldulensis*). Only 41 of the trees survived, mainly due to the steenbok (small antelope) population on the farm eating the saplings. In 2003, Paul re-fenced the entire farm with 12-strand wire and then arranged for kids from the neighbouring farm to act as herders to drive the steenbok population out. Having battled to find another nursery to provide him with saplings, Paul then decided to germinate and grow his own seedlings. It took 3-4 months to grow seedlings in tunnels and once they were planted out, Paul used hot chili sauce on the leaves to prevent the seedlings being destroyed by antelope.



**Growing seedlings in 2003**

Paul uses municipal water for irrigation because municipal water costs less than the electricity a borehole pump would require. Each plant is given two litres of water every two weeks from September to April, after which no more water is required.

All trees were planted in a bowl to avoid water from running off. Planting distances are 4-5m, which gives approximately 500 trees per hectare. Thinning takes place at the pole stage and skew, bent or warped wood is sold as firewood. Some species take 6 years before flowering. Paul is planning to make a profit from the timber in twenty years (see economic discussion below).



**August 2003**



**February 2005**

Paul has gradually increased the number of hives he has been able to keep on the farm (carrying capacity), as follows:

2003 – Would only have supported 10 hives on the spring flowers

2007 – Full 350 hectares of farm now planted (he is not able to plant the other 100ha, as he would need to undertake an Environmental Impact Assessment as this portion is currently declared natural vegetation)

2010 – 60 hives

2011 – 80 hives

2012 – 120 hives on the farm throughout the year

2013 – He envisages ~200 hives

Eventually, Paul feels that the farm will support 1,500 hives on the 350ha

Paul notes that honeybees do not like monocultures; hence 22 different species of trees were planted allowing year-round flowering. Paul mentioned that he tried to ensure that no flowering occurs in June and July, as this would give the queen time to rest because otherwise she becomes exhausted and does not perform well during pollination time. However, Paul has found it impossible to prevent flowering during June/July and therefore knows that this decreases the lifespan of his queens. He does queen replacements upon inspection.



***E. leucoxylon ssp. megalocarpa*, commonly known as Yellow Gum**

Paul uses 600 colonies for pollination and has 50 apiary sites (i.e. the farm is not his only apiary site). All his hives are used for pollination services and he also manages a further 600 colonies for pollination for a colleague. Most of the colonies move around constantly for pollination and to the apiary sites, and go to the farm to recover from the demanding pollination season.

Paul has no plans to alter his practices of providing pollination services and moving colonies between apiary sites, as he feels it works well.

## Cost and benefits of practices

Paul's rationale for his farm was not primarily an economic one, as he says he had developed this idea of planting gums for forage and would never have forgiven himself if he had not given it a try knowing how gum resources are decreasing! However, Paul says he still does not actually know how profitable the farm will be – he is convinced he will get more back than he has put in, but is not sure how much. Paul firmly believes that it would not be worth planting forage solely for beekeeping, and maintains that whatever forage is planted should have a secondary (or even primary) use or value. The timber from the eucalypts will eventually provide an income in 20 years time. Currently there is no timber harvesting, as the trees are growing slower than he originally predicted – probably due to too little rainfall. His farm has 240mm/yr and even though the trees can grow in that rainfall, there is no prolific growth. Paul had forty labourers on the farm initially, but eventually whittled this down to only four people employed to do the planting. Paul invented his own machinery to do the planting more efficiently. Currently, there are no labourers on the farm, but he is planning to bring labour in to do maintenance.

Paul's income is 60% from pollination and 40% from honey production, and currently this income has also funded the development of the farm. Paul produces 10 tonnes of honey per year, marketed as "Darling Honey". Paul sells his honey to a food distribution company that supplies hotels and restaurants – the distribution company buys 2,400 bottles per month. Paul says that the price of honey has stayed the same for the past two years. He bottles his own honey in the Darling area, where he employs three people and the honey sells at R22 + vat per bottle.

Paul's average loss in colonies per year is 10% - mostly from vandalism.



*Paul in 2005 with the different plantings in the background*

## Paul's Vision – challenges and opportunities for wider adoption

Paul spoke freely about the challenges and opportunities for the wider adoption of his experimental practices.

### Challenges:

- During the initial stages of the farm, there were many challenges, including:
  - o Not being able to find a good supplier of saplings (which eventually resulted in Paul germinating his own in tunnels)
  - o The antelope eating the saplings, which resulted in an extra cost of re-fencing the farm
- Ideally, Paul would like to plant the remaining 100ha of his farm, but this is classified as 'natural vegetation' and he would require a lengthy and expensive Environmental Impact Assessment to obtain permission. Sadly, most of the portion classified as 'natural' is heavily invaded with alien plant species such as Port Jackson (*Acacia saligna*).

- Not seeing a profit from the timber as yet – which has resulted in the pollination and honey production financing the farm.
- Paul notes that he should possibly have planted lucerne (as it flowers in summer) as another source of honeybee forage, but the farm is not ideally suited to lucerne production.

**Opportunities:**

Paul sees several opportunities with his farm, including possibly planting butternuts in the 20ha of unused land as a cash crop, or possibly other options such as lucerne or mesquite (an excellent goat fodder and which might therefore provide a secondary source of income).

Paul also notes that the planting of gums on the farm has brought back eight to ten different species of birds, as the eucalypts have attracted a variety of nectar-feeders.

In concluding, Paul said he would recommend to all beekeepers that they plant forage. He predicts they will all have to eventually – but notes that the planting will have to have a secondary purpose with an income generating ability. He would also like to see fruit farmers planting eucalypts on their farms.

**Lessons learned:**

Other beekeepers might consider Paul’s forage farm idea impractical for wider adoption for the following reasons:

- Buying land is not something all beekeepers would be able to afford.
- It will be some years before owners of forage farms could show a profit, and profit margins are uncertain.
- There may be policy implications that may hinder the successful implementation of forage farms – e.g. gaining permission to plant alien species in certain areas of the country.

However, some **lessons that could be learned** from Paul’s practices include:

- There may be opportunities for land owners to engage in multi-purpose farming, of which a portion could be important honeybee forage species.
- Beekeepers’ good relationships with land owners who allow use of their forage resources are paramount. These “forage stewards” effectively control the forage resources in South Africa, and access to these resources and the protection of these resources is a vital part of the sustainability of the pollination service in South Africa.
- Some consideration needs to be given to the planting of forage resources, as access to and protection of existing resources is probably unlikely to allow for sufficient forage resources into the future for the demand for pollination services and honey production.

*This profile will be linked to the management document of the “capsensis pollination region”. The management documents for the two pollination regions of South Africa will be available towards the end of the project.*

