

Research report

Survey on *Commiphora wildii* and other *Commiphora* species at Marienfluss, Sanitatas, Okondjombo, Puros and Orupembe conservancies and Skeleton Coast Park

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BACKGROUND

In November 2004, IRDNC started the investigation into the perfume plants used by the Himba people as part of the Succulent Cultivation Project (SCP) of the NBRI. During 2005 and 2006, PRA activities, vegetation mapping, vegetation transects, a questionnaire survey and trial harvests, indicated that omumbiri (*Commiphora wildii*) was the most important resin producing plant used by the Himba women for perfume. This work also indicated that the resin was harvested sustainably since only resin that is naturally exuded from the tree is harvested. Further work in the 2006/2007 harvest season, estimated that about 50 tons of resin is produced every year in the five conservancies involved in this investigation – Puros, Orupembe, Marienfluss, Sanitatas and Okondjombo.

With the ending of the SCP, IRDNC applied to MET for a research permit to continue the work in the Kunene conservancies and to map the *Commiphoras* in the Skeleton Coast Park.

Currently, the participants and stakeholders involved are:

Stakeholder	Involvement
Marienfluss, Orupembe, Puros, Sanitatas, Okondjombo conservancy members	Harvesting resource. Benefits go directly to harvesters.
Conservancy management committees	Management of resource. Buying and documenting resin purchases.
IRDNC	Technical and logistical support. Interface between conservancies and development partners as well as buyers
CRIAA SADC	Technical support especially with marketing
Phytrade Africa	Ad hoc support with regard to contractual and IP arrangements
IPTT	IRDNC represents NACSO. Progress reported at IPTT meetings
Behave	French Company buying the resin
WWF-UK and Anders Johansson	Donors supporting the development of this product
MET	Research has been done with permission/research permit from MET.

HARVEST RESULTS 2007/2008 SEASON

The harvest period for the omumbiri resin is from October to the onset of the rains, usually in February. The trees produce the resin in response to the high temperatures experienced during the hot, dry season. During September 2007, meetings were held with all the five conservancies to discuss the processes and rules for harvesting as well as the processes for payouts. It was decided that men would be allowed to harvest resin,

providing they went out with the women's groups to ensure correct harvesting procedures. At Puros, the women insisted that the resin drums be marked 'male' and 'female' since they did not want to be held responsible for bad quality resin! The harvesting rules for each conservancy were compiled at this meeting of all the interested harvesters.

Harvesting rules included the following:

- Only registered members of the conservancy are allowed to harvest and sell omumbiri resin.
- Women as well as men conservancy members are allowed to harvest.
- Only omumbiri resin should be harvested – it must not be mixed with resin from other trees.
- Trees must not be cut or damaged in any way.
- Resin must be clean – free of grass seeds and sand.
- Buying of resin can only be done by the people chosen by the conservancy.

The profile of harvesters from each conservancy is shown in the table below.

Conservancy	Men	Women	Boys	Girls	Total no. harvesters
Marienfluss	28	76	20	20	144
Okondjombe	0	0	0	0	0
Puros	18	23	5	17	63
Orupembe	25	37	10	8	80
Sanitatas	5	23	2	2	32
Total	76	159	37	47	319

Okondjombe conservancy did not participate in the harvest. Okondjombe conservancy only has omumbiri trees in the southern part of the conservancy. Due to extremely dry conditions, all residents had moved to the northern boundary of the conservancy where the only water remained and were thus unable to harvest resin.

In Puros and Orupembe conservancies, groups of harvesters organized to go to an area, camp out together and harvest the surrounding area. Where possible, IRDNC assisted with transport and the delivery of water to some sites. This support however was limited due to vehicle breakdowns. In Marienfluss and some parts of Puros, people harvested individually and went out on a daily basis, returning home every evening. This was because their homesteads were close to the mountains where the trees are located. The areas where the large groups harvested were monitored after harvesting was completed to measure the effect of the harvesting on the trees.

During the trial harvest in Orupembe in November 2005, it was estimated that it took about 4 hours for a woman to harvest 1 kg of resin. There were some qualifications to this since the women were transported to the harvest site. Information obtained from the harvesters during this season give similar results.

Conservancy	Harvest (kg/day)	Comments
Marienfluss	1,06	Harvesters lived at home and walked up the mountains each day to collect. They were still involved in household responsibilities.
Orupembe	1,93	Most of the harvesters worked in groups and camped out at the harvest site. This reduced time taken to walk to the harvesting site and harvesters had no household responsibilities. Some harvesters walked from home, harvested and returned each evening.
Sanitatas	2,38	Trees occur only in the southern part of the area. All harvesters worked in groups and camped out at the harvest sites.

In Orupembe and Puros conservancies, people from outside the conservancy tried to come into the conservancy and harvest and sell resin. This was quickly dealt with by the conservancy tree committees.

LIVELIHOOD IMPACTS

The months in which the resin is harvested coincide with the months when people are most affected by the arid conditions. During the hot, dry season, livestock are thin and producing limited amounts of milk and supplementary sources of food are minimal. During this time, all the veld water and many fountains have dried up and people are forced to use the few remaining water points. The months from October to January are probably when these communities are most in need of additional resources.

Harvesters were paid immediately upon delivery of the resin to the buying point. Scales were marked in increments of N\$10 which meant that even non-literate people could be certain that they received the correct amount of money. A register was kept of every amount paid out. Unfortunately, it was not possible to anticipate the response from the conservancies. Provision was made to pre-purchase 2 tons of resin and within less than two months this had already been reached. Money was advanced from IRDNC to pre-purchase an additional two tones. The first payment received from Behave covered the costs of the fifth ton. The arrangement with the buying points in the conservancy was that resin should only be weighed and placed in the drums when there was enough money to pay for it immediately.

Unfortunately, the persons tasked with purchasing the resin became somewhat over-enthusiastic and continued weighing the resin and writing it in the registers even when there was not sufficient cash in the box to pay for it. Paying for resin at a later stage became difficult and stressed the importance of the pre-purchasing strategy. Harvesters

were motivated to work at collecting resin because they needed the money. When cash was not available, they became de-motivated. Another important consideration in this regard is that people in these conservancies are nomadic or semi-nomadic and also go by several different names. Finding the right person to do a payout at a later stage is problematic. With most harvesters being illiterate, they do not correctly remember how much they were supposed to be paid out and unhappiness results when the amount they finally get paid out is not what they recall.

The amounts paid out in each conservancy are given below:

CONSERVANCY	HARVEST kgs	AMOUNT PAID OUT N\$
Marienfluss	950,0	N\$ 47 500
Orupembe	1 693,6	N\$ 84 680
Puros	1 781,4	N\$ 89 070
Sanitatas	585,4	N\$ 29 270
TOTAL	5 010,4	N\$ 250 520

Harvesters brought in their resin to the purchase point on average once a week. The resin was weighed and checked for quality and then placed in the drums at the collection point. The name of the harvester and the amount of money received was recorded in the book as well as an estimate of the time it took to gather that quantity of resin. When a harvester returned for the second time, he/she was asked what the first amount of cash was spent on. A card was filled in with the name of the conservancy and harvester as well as the items purchased with the money earned. Sometimes, the cards were not completed for logistical reasons and harvesters were not forced to provide the information if not keen to do so. The results below represent the results from the card monitoring system. These results represent information from about 30% of all the cash paid out. Some cards are still outstanding from Marienfluss conservancy. The conservancy with the highest return rate on the monitoring cards was Orupembe conservancy with a 43% return rate.

	Puros	Orupembe	Sanitatas	Marienfluss
Food	18	36	53	53
Personal/ household	10	12	7	23
Livestock	9	4	1	9
School fees	22	2	0	1
Savings	40	43	26	11
Alcohol/ Tobacco	0	1	0	2
Paying off debt	1	2	13	1

During the questionnaire surveys, women were asked if they were interested in harvesting and selling omumbiri resin and everyone answered 'yes'. They indicated that they often struggled to access cash when one of their children is ill and they need to pay for a lift to Opuwa to the clinic. The amount in the "save" column relates to this. Most of the women have kept some of the cash (not in a bank) to take care of emergency situations. The person who earned the most income from harvesting omumbiri was a woman in Puros conservancy who earned N\$ 5480 during the three month period.

SUSTAINABILITY OF RESOURCE UTILIZATION

During 2006, four permanent monitoring sites were established and a baseline determined. These were in Orupembe and Puros conservancies. As soon as the harvest was completed, these permanently marked plots were re-monitored. In addition to this, a 1 km transect was done at each of the sites where groups of harvesters were based. The purpose of this was to determine whether any omumbiri plants had been damaged by the harvesters. The number of transects varied in Orupembe, Sanitatas and Puros conservancies depending on the number of sites used by the harvesting groups. No transects were done in Marienfluss since the harvesting was spread throughout the conservancy.

Orupembe conservancy

Transect or plot number	Location	Date monitored	No. of damaged plants	No. of undamaged plants
Trans 1	Ondunohaka	Feb 2008	0	36
Trans 2	West of Orupembe Village	Feb 2008	0	169
Trans 3	North-west of Omautjinguma	Feb 2008	0	328
Trans 4	Bloudrom	Feb 2008	0	110
Trans 5	Ohandjo	Feb 2008	0	55
Plot 1	West of Orupembe village	Nov 2006	0	77
		Feb 2008	0	78
Plot 2	Omataurirua	Nov 2006	0	129
		Feb 2008	0	133

Puros Conservancy

Transect or plot number	Location	Date monitored	No. of damaged plants	No. of undamaged plants
Trans 1	West of Traditional Village	Feb 2008	2	19

Trans 2	East of Puros Village	Feb 2008	0	104
Trans 3	West of Okongwe road	Feb 2008	0	114
Trans 4	West of Okahirongo lodge	12-Feb-08	0	69
Plot 1	East of Puros village	Nov 2006	0	88
		Feb 2008	0	88
Plot 2	Across river from Traditional village	Nov 2006	0	56
		Feb 2008	0	60

Sanitatas conservancy

Transect or plot number	Location	Date monitored	No. of damaged plants	No. of undamaged plants
1	South-west of Orupembe Village, SCP boundary	Feb 2008	0	53
2	East of Okamahuno	Feb 2008	1	30
3	Otjiveze	Feb 2008	0	90
4	West of Okamahuno	Feb 2008	1	47

Both trees damaged in Sanitatas conservancy were damaged by a panga cutting off one or more of the branches. The purpose of removing the branches was not to enhance resin production but to suck or chew the material to reduce thirst. Since cutting the trees does not stimulate resin production immediately (as is the case with some other *Commiphora spp.*) it is unlikely that this damage was for anything other than sucking or chewing.

In the marked monitoring plots, additional trees were counted when the monitoring was done during February – several young trees were noted.

From the monitoring data presented above, it can be said with confidence that the harvesting of omumbiri resin is done in a sustainable way and has no effect on the tree population.

MARKETING

In April 2007, this information was taken to the In-Cosmetics Trade Fair in Paris. As a result, three MTAs (Materials Transfer Agreements) were signed. Another two MTAs were also signed in 2007.

The first commercial harvest of resin was started in October 2007. A total of 5 tons was harvested between October 2007 and early February 2008.

Stephane Piquart of Behave (a French company) visited Kunene in November 2007 and met with conservancy representatives. With the assistance of CRIAA and Phytotrader Africa a MOU was signed between IRDNC (representing the conservancies) and Behave.

This is a temporary measure until the product registration for the EU is completed. In this MOU, Behave agrees to purchase resin at a price of U\$10/kg. This price is almost double what is paid for raw myrhh resin and was negotiated on the basis of the monitoring (that had already been done and will continue to be done) that shows that the resource is harvested using sustainable methods. The difference between what is paid to the harvesters (N\$ 50) and what the resin is sold to Behave for (N\$75-N\$80) will be used to cover the costs of packaging material and transport and the balance will go to the conservancies to cover management costs. Behave is not asking for exclusivity (as did the other interested French company) but indications are that if the REACH registration (EU trade requirement) is successful, Behave will purchase all the resin that can be produced at the agreed upon price.

In February 2008, Behave purchased 1250 kg of resin in order to complete the tests required for the REACH registration. Behave purchased another ton of resin in August 2008. A further 2,5tons of resin is still in storage. Difficulties have been experienced in finding a European based company to finance the REACH registration (N\$ 400 000) since we are not willing to give any one company exclusivity. However, the MCC compact that was signed at the end of July makes provision for grants to communities needing to get this registration and IRDNC will facilitate this process early in next year if Behave have not yet been able to get sponsorship for this.

There are still three MTAs that are current and all three groups will visit the project:
 Dr Alvaro Viljoen with a representative from Robertet 23-27 November 2008
 Behave with representatives from Estee Lauder and Aveda 1-6 December 2008
 Representatives from Aldivia France during January 2009

EVALUATION OF 2007/2008 HARVEST

From March to June 2008 an evaluation of the 2007/2008 harvest was done by interviewing the harvesters and the conservancy committees and staff.

Conservancy	No. of people interviewed
Okondjombo	15
Marienfluss	24
Sanitatas	20
Orupembe	28
Puros	22
TOTAL	109

Some logistical issues were raised and these will be addressed in the planning meeting to be held in September 2008. Many members requested more support from the conservancy with regard to transport to the harvesting sites or the transportation of water to harvesting sites. These will also be discussed in the planned meetings.

Lessons learnt

- ✓ **Harvesting** of *C. wildii* resin is done in a **sustainable** way.
- ✓ Many members of these conservancies had never before experienced **individual benefits** from the conservancy. Many cash benefits previously had been at community level rather than household level. There were lots of issues relating to this and **much time and opportunity for discussion had to be dedicated to this issue**. Conservancy members were delighted with the immediate benefits results from the work done by individuals.
- ✓ **Training of conservancy staff tasked with purchasing needs to be thorough and constant support given**. It is impossible when training staff for a new activity to anticipate all the possible situations that could occur. For example, when the cash in the box was finished, they caved in under the pressure from harvesters and continued weighing the resin and placing it in the drums. This had implications for the cash-flow of the project as well as creating difficulties when finding the harvesters to pay them at a later stage.
- ✓ It is **essential to have money available to pre-purchase the resin** i.e. to pay the harvester as soon as the resin is brought to the buying point. This serves as a motivational factor. Due to the nomadic nature of these communities and the low levels of literacy, it is essential to pay upon receipt of the resin to ensure that no misunderstandings result at a later stage. Also, the time when the resin is harvested is the time when these communities most need access to money to buy food. Paying for the resin several months later when the money is received from the purchaser will not have the required livelihood impacts.
- ✓ Since so much of the international interest of this product is based on the fact that harvesting is done using sustainable methods and that tree populations are being monitored, **it is essential to maintain regular monitoring**.
- ✓ **Further mapping** of *Commiphora* species is needed in order to manage and monitor the resource effectively.

PLANNING FOR 2008/2009 HARVEST

Planning meetings with the conservancies have been scheduled for September 2008. A meeting will be held with the CMC and then the harvesters.

Conservancy	Date
Puros	15 Sept
Orupembe	20 Sept
Sanitatas	22 Sept
Marienfluss	24 Sept

The work plan for the 2008/2009 harvest season is given below.

Date	Activity	Place	Who
September 2008	Planning meetings with conservancies and training	Puros, Onjuva, Ondiee, Ombivango	IRDNC
October 2008	Conservancy members start harvesting	Throughout conservancies	Conservancies
Mid-October 2008	Purchasing of resin begins	Conservancy offices	Conservancy staff
	Delivery of cash to	Conservancy offices	IRDNC
Mid-November 2008	Delivery of cash to	Conservancy offices	IRDNC
Mid-December 2008	Delivery of cash to	Conservancy offices	IRDNC
Mid- January 2009	Delivery of cash to	Conservancy offices	IRDNC
February 2009	Harvesting of resin stops when rains start or when they meet their allocated quota	Throughout conservancies	Conservancy members
	Transport resin to Windhoek	From Conservancy offices to courier	IRDNC

OTHER RESOURCES

Commercial interest has been shown in other resources found in the Kunene region.

These include:

- Other *Commiphora* spp.
- *Sarcocaulon* spp.
- *Ximenia* spp.
- *Citrullus lanatus*

During the period November 2008 to October 2009, IRDNC would like to embark on resource inventories of the above species. During this period, we would also like to continue with the current mapping work but would like to extend it to all the Kunene conservancies.

IRDNC would therefore like to request a renewal of the research permit for:

- Mapping of *Commiphora* in SCP
- Resource inventories in Kunene conservancies of above listed species.