

# Report on *Commiphora* and other high value plant research and monitoring in Kunene

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## 1. BACKGROUND

In November 2004, IRDNC started the investigation into the perfume plants used by the Himba people in Namibia's Kunene Region. 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 use of resin was sustainable 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.

The first commercial harvest of resin was started in October 2007. A total of 5 tons, worth US\$50 000, was harvested by 319 conservancy members, of whom 206 were women and girls, between October 2007 and early February 2008. The harvesters earned just over N\$250 000. The second commercial harvest of omumbiri started in October 2008. Additional funding was obtained from WWF in Namibia and ICEMA to increase the Revolving Plant Fund and this allowed for the pre-purchase of the 2008/2009 harvest. During the 2008/2009 season the harvesters earned a total of N\$ 304 720.

The 2009/2010 harvest was limited to only two conservancies for the following reasons:

- The main reason was that most of the harvest from the previous season had not yet been sold and the amount of cash available to pre-purchase the resin was limited;
- The buyer, Behave, raised issues around the quality of the resin coming from Marienfluss conservancy – it seems that the person responsible for weighing and checking the resin did not pick up that resin from other *Commiphora* species were being mixed with the omumbiri resin;
- The staff member responsible for the weighing and payment of the resin in Okondjombo had resigned and there was no-one to take responsibility for this.

For the above reasons, it was decided that commercial harvesting would only take place in Puros and Orupembe conservancies for the 2009/2010 season.

## 2. REGISTRATION OF HARVESTERS

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 October 2009 before any harvesting was initiated, meetings were held with all the two conservancies to discuss and plan the harvesting processes and to register the harvesters.

The profile of registered harvesters from each conservancy is shown in the Table 1 along with that of the two previous seasons.

Table 1. Comparison of number of adults harvesting during the first, second and third harvest season

Conservancy	2007/2008			2008/2009			2009/2010		
	Men	Women	Tot	Men	Women	Tot	Men	Women	Tot
Marienfluss	28	76	<b>104</b>	20	17	<b>37</b>	0	0	<b>0</b>
Okondjombo	0	0	<b>0</b>	21	14	<b>35</b>	0	0	<b>0</b>
Orupembe	25	37	<b>62</b>	35	29	<b>64</b>	28	23	<b>51</b>
Puros	18	23	<b>41</b>	35	45	<b>80</b>	42	49	<b>91</b>
Sanitatas	5	23	<b>28</b>	29	30	<b>59</b>	0	0	<b>0</b>
<b>Total</b>	<b>76</b>	<b>159</b>	<b>235</b>	<b>140</b>	<b>135</b>	<b>275</b>	<b>70</b>	<b>72</b>	<b>142</b>

This table reflects the number of people that registered as harvesters and does not necessarily reflect the number of people that actually harvested and sold resin at the conservancy offices.

### 3. RESIN HARVESTED AND PAYMENTS TO HARVESTERS

Throughout the three year period, Puros conservancy has consistently harvested the most resin (Table 2). This is partly due to the fact that the trees are within easy access of the main villages and villagers can walk to the harvesting sites and return home in the evening. However, groups of villagers do go out to areas far from the village and camp out and harvest for extended periods. The conservancy has a vehicle and where possible supports the harvesters with the transport of drinking water to harvesting sites.

Table 2. Number of kilograms of resin harvested in each conservancy

CONSERVANCY	AMOUNT OF RESIN HARVESTED (kg)		
	2007/2008	2008/2009	2009/2010
Marienfluss	950,0	1 540,0	0,0
Okondjombo	0,0	529,6	0,0
Orupembe	1693,6	1 385,4	893,0
Puros	1781,4	1 919,4	2 194,9
Sanitatas	585,4	720,0	0,0
<b>TOTAL</b>	<b>5010,4</b>	<b>6 094,4</b>	<b>3087,9</b>

The amounts paid out to harvesters in each conservancy are given in Table 3. Harvesters tend to bring resin to the conservancy office on several occasions throughout the harvest season. This may be when they return to the village from an extended stay in a remote harvesting area or when they need to access cash. One of the rules is that resin can only be recorded and weighed when there is cash to make an immediate payment. Cash was delivered to the conservancy offices on a monthly basis. When this was delivered by an IRDNC staff member, the records of the payouts were checked against the cash on hand before additional cash was handed over. Weighing is done using a kitchen scale. This necessitates that a large bag of resin is divided into smaller quantities for weighing. This

helps with checking the quality of the resin and ensuring that no other objects (like stones) are embedded in the large lumps of resin.

Table 3. Total amounts paid to harvesters in each of the conservancies

<b>CONSERVANCY</b>	<b>PAYOUTS TO HARVESTERS</b>		
	<b>2007/2008</b>	<b>2008/2009</b>	<b>2009/2010</b>
Marienfluss	N\$ 47 500	N\$ 77 000	-
Okondjombo	-	N\$ 26 480	-
Orupembe	N\$ 84 680	N\$ 69 270	N\$ 44 652
Puros	N\$ 89 070	N\$ 95 520	Ns 109 748
Sanitatas	N\$ 29 270	N\$ 36 000	-
<b>TOTAL</b>	<b>N\$ 250 520</b>	<b>N\$ 304 270</b>	<b>N\$ 154 400</b>

Table 4. Highest individual earners in each conservancy for the 2009/2010 season

<b>Conservancy</b>	<b>Male/female</b>	<b>Total for season</b>
Orupembe	Female	N\$ 5 840
	Male	N\$ 4 000
Puros	Female	N\$ 5 660
	Male	N\$ 7 250

Each CMC identified the persons responsible for the weighing, the payouts and recording of data for their conservancies. The table below lists the persons responsible for each conservancy (Table 5). 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.

Table 5. Conservancy staff responsible for omumbiri activities

<b>CONSERVANCY</b>	<b>STAFF MEMBERS</b>	<b>DESIGNATION</b>	<b>PLACE</b>
Orupembe	Henry Tjambiru	Research assistant	Onjuva
Puros	Beartha Tjipombo	Community activator	Puros

The pricing for the 2009/2010 was structured in the following way:

Price of resin US\$ 10/kg

This means that about N\$70 will be received for each kg sold. This will be divided up in the following way:

- N\$50 back to the Revolving Plant Fund (to replace the N\$50/kg paid in advance to the harvesters);
- N\$5 to the CMC as a management fee when the resin is sold and
- N\$15 to cover expenses such as drums, bags, scales, cash boxes and transport.

#### 4. SUSTAINABILITY OF RESOURCE UTILIZATION

During 2006, four permanent monitoring plots were established and a baseline determined. These were in Orupembe and Puros conservancies. As soon as the harvest was completed in 2008, 2009 and 2010, these permanently marked plots were re-monitored. The plots are marked with metal droppers knocked into the ground. Each plot is 100m X 100m (1 ha). In addition to this, a 1 km X 10m transect (1 ha) was done at each of the sites where groups of harvesters were based (Table 6). The purpose of this was to determine whether any omumbiri plants had been damaged by the harvesters. The monitoring was done in June since harvesting continued in Puros conservancy until early May. Two teams, led by IRDNC staff ( Alu Uararavi and Bonnie Galloway) undertook the monitoring. The number of transects varied depending on the number of sites used by the harvesting groups. When a damaged tree was noted, the possible cause of damage was also recorded. Damage by humans is usually by cutting the tree with a panga. Most of the damage was caused by elephant which is not easily confused with that caused by people.

Table 6. Sites monitored after the 2009/2010 harvest

Date	GPS CO-ordinates		Monitoring
18/6/2010			Orupembe Permanent Plot 1
18/06/2010			Orupembe Permanent Plot 2
21/06/2010	-17.79413	12.38337	Orupembe transect 1
21/06/2010	-17.93076	12.37228	Orupembe transect 2
21/06/2010	-18.04174	12.43546	Orupembe transect 3
21/06/2010	-18.05174	12.55145	Orupembe transect 4
21/06/2010	-18.07536	12.54607	Orupembe transect 5
22/06/2010	-17.96267	12.47401	Orupembe transect 6
22/06/2010	-18.17505	12.53796	Orupembe transect 7
20/6/2010			Puros Permanent Plot 1
20/6/2010			Puros Permanent Plot 2
21/06/2010	-18.85375	12.00043	Puros transect 3
21/06/2010	-18.85407	12.99833	Puros transect 4
22/06/2010	-18.89189	12.02025	Puros transect 5
22/06/2010	-18.87983	12.04517	Puros transect 6
22/06/2010	-18.86249	12.06155	Puros transect 7

In all of the above transects, no damage caused by harvesters was noted.

#### 5. INFORMATION SHARING

Apart from the technical reports supplied to donors, the following information sharing has been done during 2009/2010:

- A programme on the omumbiri harvest was produced for the magazine programme Carte Blanche on M-Net was shown again in December 2009.
- A keynote address was delivered to the BIOPAD Conference in South Africa in February 2010.
- A presentation on the omumbiri was given at the Namibian Environmental and Wildlife Society in March 2010.
- A presentation was made at the Bio-cultural Protocols workshop held in Cape Town in September 2010.
- 4 groups of visitors have been hosted and shown the processes involved in the development of this community enterprise.
- Regular feedback given at the Indigenous Plant Task Team meetings.
- Information and data supplied to Phytotrade Africa and NACSO for their M&E and publications.
- Annual reports submitted to Ministry of Environment and Tourism to maintain the research permit for this work.

## 6. MARKETING

All of the harvest from the 2008/2009 is not yet sold. Behave has also not confirmed an order for resin for this year. For this reason, other partners have been sourced. Three new MTAs have been signed (Afriplex, South Africa; ANBESA, Italy; House of Mirr, South Africa).

An Access and Benefit Sharing (ABS) contract has been signed between the five *Commiphora* producing conservancies and Afriplex. In this contract, Afriplex agree to pay an additional 10% to the conservancy in recognition of traditional knowledge. Other than the southern African *Hoodia* ABS contract (of which Namibia is a part), this is Namibia's first ABS contract. Afriplex representatives have experienced difficulties with marketing the resin in Europe partly because it is a new product and not REACH registered.

## 7. OTHER ACTIVITIES

The revolving plant fund has been managed by IRDNC and has provided pre-funding this season for the purchase of 3 tons of *Commiphora* resin, 7.5 tons of mopane seed and a small amount of *Ximenia* kernels. High value plant activities supported by the Revolving Plant Fund are currently active in 10 conservancies: Orupembe, Sanitatas, Okondjombo, Marienfluss, Puros, Anabeb, Sesfontein, Orupupa, Ojtiu-West and Otjitanda.

*Ximenia* surveys have now been completed in 6 conservancies (Sanitatas, Otjitanda, Etanga, Epupa, Okongwati and Okangundumba) and the density of the resource indicates that it could be worthwhile setting up a supply chain in Kunene. Sanitatas represents the western extent of the distribution of *X. americana* and resources here are limited. However, the trial harvest in Otjitanda conservancy produced only minimal results. An amount of N\$2000 from the Revolving Plant Fund was spent on trial purchases. This

material will be delivered to CRIAA for quality testing. In order for this to improve, IRDNC will have to invest more in training of the harvesters and conservancy staff members. The absence of a conservancy office also makes buying and storage of material difficult. Currently, the market demand for *Ximenia* oil is being met by other supply chains. Should the demand increase, IRDNC could easily mobilise and train the harvesters in these conservancies.

Mopane seed harvesting is currently underway in 4 conservancies (Sesfontein, Anabeb, Orupupa and Otjiu-West). The seed will be transported to Opuwa where it will be processed in the newly constructed facility at the IRDNC Opuwa Training Centre. A total of N\$ 15 000 has been earned by harvesters.

Trial harvests were done on three additional species of *Commiphora* – *C. krauseliana*, *C. angolensis* and *C. virgata*. *C. angolensis* produced the highest yields while *C. virgata* yielded only small amounts of resin.



**Orupembe conservancy member undertaking the trial harvest of *C. krauseliana***

With funding and technical assistance from ICEMA, a processing facility has been developed in Opuwa. A building has been erected to house the machinery which was custom made in South Africa. The essential oil from Mopane seeds and *Commiphora*

resin will be distilled here and this will add-value and reduce transportation costs. This will also enable the marketing of these products to a much wider market since many of the smaller buyers do not have technology to do the distillation themselves. The machines are installed but problems are being experienced with the water quality in Opuwa.

A site in the Nadas Valley in Orupembe Conservancy was marked and all the *Sarcocaulon* plants counted and measured in November 2009. All the dead material lying on the ground was collected and cleaned to determine the quantity of waxy residue at the site. In October 2010, this area will again be visited to collect any dead material lying on the ground.

Seven conservancies have started on the process of registering as community forests (Puros, Orupembe, Sanitatas, Marienfluss, Okondjombo, Ojiu-West and Otjikongo). Efforts will be focused on supporting the five *Commiphora* conservancies to get registered. The registration processes is marked by milestones and some of these target conservancies have already completed 4 of the 11 milestones. The conservancy membership, management committee and staff are developing a community forest constitution which is complementary to the conservancy constitution and the conservancy boundaries are being used. In June, a workshop was held with the target conservancies to address issues of membership, decision-making and implementation. Technical expertise was provided by DED and LAC and in the process, the conservancies constitutions were reviewed as well. Constitutions are currently being drafted by LAC. The resource inventories are underway in Puros, Orupembe and Marienfluss conservancies.

Seed samples from 9 species were collected to contribute to the Millennium Seed Bank project.

IRDNC is part of a consortium (with CRIAA SADC, NNF and NRI) which successfully tendered for the implementation of the Indigenous Natural Products Sub-Activity of the Millennium Challenge Compact. Implementation started in July and IRDNC will receive funding to support activities and training in Kunene and Caprivi regions as from January 2011.

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