

The Rufford Small Grants Foundation

Final Report

Congratulations on the completion of your project that was supported by The Rufford Small Grants Foundation.

We ask all grant recipients to complete a Final Report Form that helps us to gauge the success of our grant giving. We understand that projects often do not follow the predicted course but knowledge of your experiences is valuable to us and others who may be undertaking similar work. Please be as honest as you can in answering the questions – remember that negative experiences are just as valuable as positive ones if they help others to learn from them.

Please complete the form in English and be as clear and concise as you can. We will ask for further information if required. If you have any other materials produced by the project, particularly a few relevant photographs, please send these to us separately.

Please submit your final report to jane@rufford.org.

Thank you for your help.

Josh Cole, Grants Director

Grant Recipient Details	
Your name	Leif Petersen
Project title	A pilot exercise of biodiversity mapping in Cape Town's illicitly harvested habitats for future conservation reference
RSG reference	10314-1
Reporting period	September 2011 – October 2012
Amount of grant	£5977
Your email address	Leif.petersen@livelihoods.org.za
Date of this report	4 October 2012

1. Please indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.

Objective	Not achieved	Partially achieved	Fully achieved	Comments
To accurately document and understand Cape Town's informal, cash driven economy of biodiversity.		Yes		<ul style="list-style-type: none"> This objective was fully achieved for harvested species of economic importance within the reserves under investigation. Documentation included the use of GPS technology, development of spreadsheets and acquisition of photographic and video evidence. Support and advice from a professional botanist and liaison with CoCT conservation officials also helped to achieve this objective. Research in Tygerberg was highly successful, although field work within Rondevlei Nature Reserve forced considerable changes in recording methodology, due to species morphology, seasonality and previous harvesting impacts.
To develop a methodological process for benchmarking local biodiversity for future conservation efforts, focusing on illicitly harvested biodiversity from protected areas within Cape Town.			Yes	<ul style="list-style-type: none"> As a pilot project, the methodological process developed held up well, but there would be scale issues if the methodology were to be utilised in other reserves such as broader landscapes of the Table Mountain National Park. In order for this to occur, a much larger team would be needed with more resources at their disposal. This methodological process was especially effective when benchmarking particular species in certain sites (for example when measuring the commonly harvested <i>Tulbaghia capensis</i> species in recently burnt sites), but faced difficulties in other areas, due to issues of seasonality and challenging terrain.
To conduct reserve level meetings with management staff at Rondevlei and Tygerberg Nature Reserves to			Yes	<ul style="list-style-type: none"> SLF held a focus group discussion with CoCT and TMNP stakeholders to discuss the field research and methodological approach in December 2011, and ongoing meetings with City staff throughout the project progress There was excellent cooperation with management staff, whereby the researchers were able to conduct their research at a time

determine existing plot data, fire, seasonal and management regimes that will ensure optimal data collection activity.				that fitted in well with fire regimes in Tygerberg nature reserve.
To secure the equipment, relevant data management protocols and technical support of the City of Cape Town.			Yes	<ul style="list-style-type: none"> This was secured through the office and assistance of Mr Arne Purves, from the City of Cape Town Environmental Resource Management Department based in Westlake. The Department supported the project by producing the necessary baseline maps for reserve management use. A Youtube video produced by SLF also serves to detail the methodological process – this will be of use in future revisiting of the research sites.
To develop background reports on Tygerberg and Rondevlei Nature Reserves to establish baseline knowledge.			Yes	<ul style="list-style-type: none"> These are annexed to this report in the broader project report.
To conduct field work in Tygerberg and Rondevlei Nature Reserves.			Yes	<ul style="list-style-type: none"> The research was conducted by: Leif Petersen, Eugene Moll, Leonard Macmillan and Nicola Freeman throughout 2012, with field work taking place during April, May and June 2012 to coincide with nature reserve controlled burning regimes and management strategy. City nature reserve staff accompanied the researchers in both sites at various times throughout the research.
To develop new research and reporting techniques, including biodiversity maps of			Yes	<ul style="list-style-type: none"> See example maps of Tygerberg Nature Reserve in annexed report Video documentaries illustrating the research process and findings can be seen on SLF's website at the following links: http://livelihoods.org.za/ecology-society/biodiversity-mapping/

harvested material sites and video documentaries on methodology utilised.				http://livelihoods.org.za/ecology-society/informal-economy-of-biodiversity/
To synergize the data collected with City of Cape Town databases.			Yes	<ul style="list-style-type: none"> The final datasets and maps were developed in collaboration with the City of Cape Town.
To report the findings to donor and data recipients.			Yes	<ul style="list-style-type: none"> An update was sent mid 2012 (slightly delayed due to field work delays from fire management protocols within the Tygerberg Nature Reserve). Documentary videos were uploaded to Youtube, and sent to the City of Cape Town and RSGF. Data and maps were presented to the CoCT.

2. Please explain any unforeseen difficulties that arose during the project and how these were tackled (if relevant).

Field research for the project was delayed for 3 months due to altered fire regime within City nature reserves. The delay was fortuitous in that field research after the fires in Tygerberg Nature Reserve revealed early sprouting of commonly poached *Tulbaghia capensis* plants – a primary objective of this project was to locate and map these species *in situ*.

The terrain in unburnt areas of Tygerberg and Rondevlei Nature Reserves was exceptionally difficult to manoeuvre through and navigate across. This presented a considerable challenge for the accessibility and measurement of some of the commonly harvested material within these sites. Within Tygerberg Nature Reserve, the site which posed the greatest difficulties for measurement was the Baronedy estate area, which had not been burnt for a number of years and had thereby established a very dense covering of vegetation. Rondevlei similarly had very thick, impenetrable vegetation at times, particularly in the more marshy areas. This kind of terrain made it difficult to identify some harvested species and also hindered the application of the same mapping procedures as those carried out in the more recently burnt sites of Tygerberg, such as the wider scale 100m x 10m transect measurements.

Within sites of increasingly difficult terrain, alternative methodology was undertaken, instead conducting circular plot measurements (2 metres in diameter) as an alternative to the 100m x 10m transect level measurements. Within these circular plots, each individual *Tulbaghia* plant was counted and the site was waypointed on the GPS. This kind of measurement opens up potential for researchers to return to the sites way pointed and re-calculate the number of garlic plants, facilitating comparisons of densities of garlic plants over a period of time. This will therefore allow

subsequent researcher who carry out measurements within these sites to make assertions about the potential rates of harvesting of these plants.

Another unforeseen obstacle to the research process in Rondevlei Nature Reserve was the identification of some of the most commonly harvested species (identified by Area manager of the Southern region of Cape Town and former manager of Rondevlei Nature Reserve, Dalton Gibbs). This problem arose because of seasonality issues and prior harvesting impacts, whereby some of the plants identified by Gibbs, including *Dianthus albands* and *Kedrostis nana* were not in flower and or had been extracted by illicit collectors – such plants were therefore unidentifiable given the limited resources at the researcher's disposal.

Given the expansive nature of Rondevlei Nature Reserve and at times difficult terrain, it was impossible to survey/ map the entire Reserve. Representative sample sites were chosen to offset this limitation, whereby different habitat types including sand dunes, marsh land, reeds, grass land, bogs and bush land were explored in order to clarify which environments the selected species grew best in and therefore which areas would be more susceptible to poaching.

An important methodological alteration took place, whereby the project partially supported an additional field worker – Nicky Freeman, who supported the development of two Youtube videos – the first documenting the methodological process followed in the research (for use by City nature conservation officials) and the second to give an overview of the issue of wild harvesting of natural resources in the City. These videos both increased awareness of the conservation issue and have been given to the City of Cape Town alongside maps and data products pertaining to the project.

3. Briefly describe the three most important outcomes of your project.

A principal outcome of this project is the secure datasets and methodological processes (shown on Youtube) produced for immediate locality and reserve levels, which document GPS data collected for the most economically important harvested species. These data are in spreadsheet formats, and also in the form of maps providing information on the localities and densities of the most commonly harvested species, essentially capturing a contemporary 'snapshot in time'. The data may therefore be used as a conservation tool for potential future reference.

Another important outcome of this project has been the consolidation of known information about the economically important harvested species and their habitats in Rondevlei and Tygerberg Nature Reserves; areas subject to high levels of illicit harvesting. This was achieved through documentation of key biological data on flora and fauna species, soils, structures, canopy cover, management regimes (e.g. fires) and other eco-physiological information – in immediate and representative localities under pressure from recorded illicit harvesting, where habitat integrity is potentially compromised from illegal extractions.

This pilot project has helped to establish a valuable set of methodological strategies for mapping illicitly harvested biodiversity within Cape Town's protected areas. Various aspects of the methodology used within this pilot project may be replicated and implemented in the remaining 21 City protected areas and commonage undergoing illicit biodiversity extraction, continuing to inform future habitat bench marking activities.

An important product of this research has been the consideration of future conservation strategies acknowledging the activities and cultures of resource harvesters, and developing ways to limit their ecological impacts. Extensive discussion with reserve managers and wild resource traders in preparation and actioning this project has evolved into an *ex-situ* conservation opportunity (with which we intend to approach RSGF for potential funding support).

4. Briefly describe the involvement of local communities and how they have benefitted from the project (if relevant).

The City of Cape Town was involved in helping to produce a baseline for some of the more commonly harvested species from the City's nature reserves. The CoCT was also a beneficiary of the data collected.

5. Are there any plans to continue this work?

There are plans in place to revisit this research; firstly through the revisiting of Tygerberg's recently burnt site, which provided an ideal controlled setting in which to take measurements. The same methodology used to collect data on the *Tulbaghia capensis* species will be implemented immediately after the next burn, in order to make comparisons of densities of the species. It is likely the next controlled burn will only occur in 5 years from present. Secondly, based on this research and extended liaison with CoCT conservation officials, SLF is working towards realisation for greater "off reserve" focus for these commonly harvested species. This work has already commenced through the Seawinds Habitat Restoration Project, of which more details can be viewed via SLF's website on the following link: <http://livelihoods.org.za/ecology-society/rebuilding-common-ground/>.

6. How do you plan to share the results of your work with others?

The results have been disseminated and made available to the public and funders through a variety of means, including through: a report outlining and explaining the methodological strategies employed throughout the project; a Youtube video documentary tracing the research process (both of which will be accessible via SLF's website); secure digital format maps, which illustrate the sites under investigation and densities of economically important harvested species within these. The maps are stored in limited, secured, and mutually agreed (by the City of Cape Town and SLF) localities for approved, restricted management and scientific access.

7. Timescale: Over what period was the RSG used? How does this compare to the anticipated or actual length of the project?

The research project was carried out over a period of 11 months. October / November included project planning and liaison with the City of Cape Town, including developing back ground studies of the reserves and talking to key stakeholders such as reserve managers. A focus group discussion occurred in December 2012 with senior City biodiversity officials to confirm methodology and field process. Although slightly delayed due to fire regimes at Tygerberg Nature Reserve, the field work occurred over 3 months between April and June 2012 which was as anticipated. Further liaison with the City occurred until September 2012 during the process of developing datasets and maps. Final reporting occurred in September and October 2012.

8. Budget: Please provide a breakdown of budgeted versus actual expenditure and the reasons for any differences. All figures should be in £ sterling, indicating the local exchange rate used.

Item	Budgeted Amount	Actual Amount	Difference	Comments
Management and Technical support	£2,857.14	£2,200	+£657.14	Funds diverted to additional support for N. Freeman and L. McMillan to support field work activity and prepare research video
Technical backstopping Eugene Moll	£266.67	£266.67	£0	As budgeted
Technical backstopping Andrew Charman	£333.33	£333.33	£0	As budgeted
Field researchers - subsistence for minimum 1 month per researcher (3 researchers)	£540.00	£1,197.14	-£657.14	Funds taken from project management support budget line. Reason for diversion was decision to appoint N. Freeman to produce two Youtube videos in addition to resource maps. The videos became important references for City conservation officials.
Transport	£960	£900	+£60	Transport costs slightly lower due to occasional transport support from City of Cape Town officials and strengthening South African Rand lowered fuel price during field work – this surplus was used to support field expenses which were moderately higher due to appointment of N. Freeman.
Field expenses	£480.00	£540	-£60	A small surplus from transport budget was used to offset additional field expenses from extra time spent in Tygerberg Nature Reserve with N. Freeman.
Stakeholder research and learning workshops	£540.00	£540	£0	As allocated
TOTAL	£5,977	£5,977		SPF provided the office space, computers and GPS equipment used in the project.

Exchange rate R10.5 = £1.00

9. Looking ahead, what do you feel are the important next steps?

SLF proposes to intervene in this pressing conservation issue, by establishing stakeholder partnership driven indigenous nurseries to propagate important local medicinal plant species, and regular planting activities to restore degraded habitats. Such an intervention will have a number of positive ramifications including:

- To support the greening of Cape Town by cultivating economically important medicinal plants species for habitat restoration on degraded (non- protected) land.
- To support local traditional healers to gain access to wild medicines by allowing open access harvested from these lands – thereby supporting an important cultural and economic activity and reducing current harvesting pressures on local protected areas. The open access principle is important as it decreases the potential for community conflict and reflects principles already established in the traditional healer community.
- Knowing traditional healer preferences for ‘wild’ medicines, it is not known how heavily the sites will be harvested. However should the sites remain unharvested the City will inherit enhanced habitats in support of the Biodiversity Network. Should there be local extraction of planted material this will potentially alleviate wild harvesting impacts from conservation areas, and support of local economic development through existing cultural business enterprise.
- Through linking nursery and planting activities with existing cultural interests and traditional healer links, a stronger conservation ethic amongst South African wild- harvested medicine consumer communities may be engendered.

There will be considerable local participation involved from economically marginalised people from the Cape Flats and in particular from resident traditional healers (such as those operating Hillview community nursery), who will advise and support the propagation, planting and management of rehabilitated sites. A pilot has commenced in Seawinds, working with the Hillview Community Nursery. To date more than 300 plants have been established on local road verges adjacent to the nursery, comprising locally indigenous and utilised traditional medicine species.

10. Did you use the RSGF logo in any materials produced in relation to this project? Did the RSGF receive any publicity during the course of your work?

The RSGF logo has been displayed on SLF’s website under the **Ecology and Society** project page ‘Biodiversity mapping’, which lists SLF’s supporters and funders. It can be seen at: <http://livelihoods.org.za/ecology-society/biodiversity-mapping/partners/>.

Thanks are given to RSGF in the credits of SLF’s documentary video ‘Mapping illicitly harvested biodiversity project’, which can be found both on SLF’s website at: <http://livelihoods.org.za/ecology-society/biodiversity-mapping/> and youtube at: http://www.youtube.com/watch?v=Oyfa97uEwaM&feature=player_embedded. RSGF’s logo is also exhibited within this video.

11. Any other comments?

SLF intends to apply to Rufford Small Grants again for further funding to develop a proactive conservation intervention which develops collaboration between conservation and natural resource

harvesting stakeholders. With a small additional grant from the Chicago Zoological Society, SLF have produced a short video on the story of illicit harvesting in Cape Town <http://livelihoods.org.za/ecology-society/informal-economy-of-biodiversity/> which begins to illuminate the extent of this complex conservation problem. We believe that this conservation issue demands a much greater awareness within society and stronger conservation management efforts in order to begin to address a situation which is becoming increasingly ecologically and economically unsustainable.

Thank you for supporting our project!