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. The Final Report must be sent in **word format** and not PDF format or any other format. 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. Please note that the information may be edited for clarity. 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	Bryan Maritz
Project title	Conservation of the threatened Namaqua dwarf adder
RSG reference	29.06.08
Reporting period	2008-2010
Amount of grant	£5,660
Your email address	bryanmaritz@gmail.com
Date of this report	16th April 2010

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
Population size, structure, and density estimation			X	The mark-recapture component of the project has been very successful. We have been able to estimate population density at two sites and have assessed population structure and demographics for a South African population of the species.
Home range size and space usage			X	Thanks to the radio telemetry techniques employed we have been able to quantify movement parameters for individual snakes during various seasons. Apart from providing insights into habitat usage and space usage, these data have also provided some important insights into reproductive and foraging ecology.
Habitat requirements			X	A combination of radio telemetry techniques, field observations and quantification of thermal environments has led to the conclusion that vegetation cover is likely to form a critical component of the habitat requirements of these snakes. Observations of Namaqua dwarf adders from other populations have also provided an indication of the variation in habitats that this species currently inhabits

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

While some problems resulting from the small size of the snakes were evident during the project, none of these influenced the components that were funded by RSGF. The mark-recapture component and radiotelemetry components were both very successful.

In terms of finances, I failed to adequately budget for the import duties associated with importing transmitters from Canada into South Africa.

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

1. As a result of this project we now have empirical measures of population density and age class structure within a South African population of this threatened species. These measures will be used in an upcoming re-evaluation of the species IUCN conservation status. An important finding was that in suitable habitat individuals can occur at relatively high population densities. These findings will be confirmed when further statistical analyses are finalised and published.

2. The radio telemetry work and the mark-recapture work conducted using RSG funding provided valuable insight into movement patterns. One important finding was that individuals utilise relatively small homeranges and exhibit strong site fidelity. This finding has important implications for gene-flow in fragmented habitats, which in turn can very important conservation implications.

3. Radio telemetry work conducted during this project shed light on the components of the environment that are being used by individuals. It has become evident that habitats hosting reduced vegetation cover are not likely to be optimal for snakes. We have hypothesised that this is driven primarily by thermal characteristics of the environment (shade from vegetation provides important thermal refugia for small snakes). Vegetation could also potentially providing cover from avian predators. An important implication from this finding is that habitat restoration post-mining needs to promote the growth of vegetation on plots of transformed habitat as very sparsely vegetated restoration plots are likely to provide suboptimal habitat and may limit recolonisation of these areas.

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

The field assistant employed during this project was a young gentleman who has grown up in the area. His development as a conservation-aware fieldworker has been significant.

5. Are there any plans to continue this work?

Yes, future work will focus on assessing genetic variation among populations for the species. This work will require funding to facilitate the collection of tissue samples.

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

The major findings of the work will be submitted for publication to various internationally recognised journals. These will include journals that cover herpetological issues, conservation biology issues, and ecological and evolutionary issues.

The work has already been presented at two international conferences (5th World Congress of Herpetology, Manaus, Brazil; 3rd Biology of the Vipers Meeting, Calci, Italy), as well as one local conference (8th Symposium of the Herpetological Association of Africa, KwaZulu-Natal) where it was awarded best student presentation.

Finally, I plan to publish a popular article describing adequate conservation actions for the Namaqua dwarf adder (*Bitis schneideri*).

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

The RSG was used over several years. The funding for the field assistant was used during 6 months of summer 2008/09, and 6 months of summer 2009/10. Additionally, a decision was taken to pay the field assistant to collect data for an additional period during winter.

The bulk of the funding was used for the purchase of radio telemetry equipment and was used within two months of receiving the grant.

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
Field Assistant	£1,560.00	£2,340.00	£780.00	I decided to pay the assistant for an extra 6 months to collect data during winter periods.
Radio Transmitters	£3,600.00	£3135.00	£465.00	These figures include import tax, a significant cost that I had not adequately budgeted.
Radio Receiver and accessories	£500.00	£500.00	£0.00	Quoted price
Total	£5,660.00	£5,975.00	£315.00	Recovered from other grant

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

The work supported by RSG forms an integral component of my PhD thesis regarding the conservation and ecology of the Namaqua dwarf adder. The next important steps are two-fold. Firstly, publication in the scientific literature of the findings obtained during my studies is critical as it will provide powerful support for conservation planners. Secondly, an additional aspect of research needs to be conducted. The current work has indicated that Namaqua dwarf adders are utilising very small home ranges and show strong site fidelity through time. An important conservation implication of this is that gene-flow may be limited between isolated populations of the species. Future work will include collecting DNA samples from populations along the length of the geographic range of the species and assessing the degree of divergence between potential isolates.

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 was incorporated into all conference presentations (see question 6 above).

11. Any other comments?

The Rufford Small Grant that I received played a critical role in the success of this project. Without the financial support gained from the grant the research that I was conducting would have been limited in its capacity to inform decisions regarding conservation of the Namaqua dwarf adder.