

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 | Gerardo Acosta |
| Project title | Promoting the conservation of kodkod through a combination of ecological epidemiological and sociological research in the fragmented forests of central Chile |
| RSG reference | 39.07.09 |
| Reporting period | 2010 |
| Amount of grant | £6,000 |
| Your email address | gerardo.acosta@docentes.uach.cl |
| Date of this report | 05 th December 2011 |

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 |
|--|--------------|--------------------|----------------|--|
| 1. To determine the distribution of kodkod in fragmented forests | | | x | Although we were unable to determine kodkod presence by the scent-station method (see figure 5) as proposed due to weather constraints, we were able to determine its presence by questionnaires survey (see figure 2). |
| 2. To determine habitat use and selection | | x | | Due to the difficulties in trapping wild cats we have activated 2,000 traps/night and have trapped just 2 animals (see pictures below). Due to impossibility in obtaining extra funds for conducting the proposed project we have concentrated in other 1, 3 and 4 and have been unable to conduct radiotelemetry study as proposed. Instead, we are using a combination of GIS and faecal sampling/DNA tool in a collaborative study with researchers from U. of Biobío in Chile, to determine the species of each sample collected. With this info habitat selection will be assessed within the Nahuelbuta National Park and other two areas (see figure 1). Additionally, occupancy models were constructed to assess presence of kodkods, which gave as result that kodkod presence is associated to closeness to rivers (see figure 2), which is in agreement with previous studies (Acosta-Jamett and Simonetti, 2004). |
| 3. To determine human attitudes upon kodkod in rural settlements | | x | | In this region humans do not recognise kodkods as a threat to their poultry. Instead, they argue that foxes and/or puma cause higher impact to their livestock. Therefore, they do not have negative attitudes to this species. |
| 4. To determine prevalence to pathogens | | x | | Unfortunately, we have been unable to capture enough animals for obtaining a clear feature of pathogens prevalence. This is currently in progress and we expect to increase the sample size. Nevertheless, faecal endoparasites have been tested and presented in table 1 and figure 5. As a proxy for risk of disease transmission to kodkods we have tested blood samples of urban and rural cats for Feline Leukaemia virus. We got 8% |

| | | | | |
|--|--|--|--|---|
| | | | | (1/12) and 27% (15/56) of prevalence in rural and urban areas, respectively (Figure 6). |
|--|--|--|--|---|

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

The whole proposed project was planned with the support from other agencies. This was not successful as initially thought. Additional support was requested from the Chilean Animal Health Service. However, after the earthquake on late February 2010 these funds were not approved, therefore some of the objectives were not fully accomplished. Additionally, we were not authorised to get access to Nahuelbuta National Park where we had plans to start the project, until late September 2010.

One of the methods (Scent-stations: see figure 4) for determining the distribution of kodkod (objective 1) was not adequate for the study site. This technique has proved to work in dry and mild sites; however in the mountainous and moist area such as these in southern Chile did not work. Therefore, for determining the distribution of kodkod we used questionnaire surveys instead, which worked and gave us some interest results (see figure 2).

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

1. Kodkod is rare in the fragmented forest existing between the Nahuelbuta National Park and the city of Angol, since only 7% (9/ 129) of interviewed recognised to have seen this cat near their homesteads. Its presence is mainly associated to closeness to rivers (bottom creek) which can be used as corridors for this species, which is in agreement with previous studies (e.g. Acosta-Jamett and Simonetti, 2004).

2. Kodkod is fairly abundant in the southern part of the Nahuelbuta National Park by analysis of faecal samples, which will be confirmed by mitDNA analysis.

3. Depredation by kodkod upon poultry is not of big importance for the conservation of this species in this area (none of the 129 interviewers reported kodkod preying upon poultry) , probably due to the small population size and the lack of interaction between the species and poultry.

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

Local communities were involved as a source of information of the presence of kodkod in a highly fragmented area and also they were asked whether kodkod were seen depredating their poultry to assess the threats to this species.

5. Are there any plans to continue this work?

This project has been extended and will continue for 2 more years, expanding its distribution to other two areas (B and C) in the Araucanía region (see figure 1). Additional funds were obtained from the National Fund for Science (Fondecyt Nº 11100303).

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

These results will be shown in national and international scientific meeting and will be published in peer-reviewed journals. Additionally, meetings with officials of National Services for the wildlife Conservation (SAG and CONAF) will be held in order to promote the conservation of this species.

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 within 18 months of its approval, around 6 months more as planned.

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 |
|-----------------------|-----------------|---------------|------------|--|
| Accommodation/lodging | 1,400 | 1,400 | 0 | |
| Equipment | 4,600 | 4,600 | 0 | Used for acquiring a second hand jeep (see figure 4) and 10 tomahawks traps. |
| Total | 6,000 | | | |

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

Next steps are: 1) replicate this project in other areas of the Araucanía region as proposed (see figure 1); 2) Increasing number of kodkods for assessing pathogen prevalence; 3) modelling the presence/absence of kodkod at a higher scale with the results obtained from questionnaire surveys; and 4) transfer results obtained in this project to governmental agencies, NGO and forestry companies and involve them in the conservation of this 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?

Yes, the logo has been used in an oral presentation entitled 'Demographic of dog and cat populations in Chile and its implication on disease transmission to wild carnivores' at the 2nd Symposium of Conservation Medicine. Universidad Andrés Bello, 23-25 November 2011, Santiago, Chile. Also it is used continuously in the jeep acquired with funds provided by the RSG and used to get to field areas (Figure 4).

References

Acosta-Jamett G, Simonetti JA (2004) Habitat use by *Oncifelis guigna* and *Pseudalopex culpaeus* in a fragmented forest landscape in central Chile. *Biodiversity and Conservation* 13:1135-1151
Chame M (2003) Terrestrial mammal feces: a morphometric summary and description. *Memorias do Instituto Oswaldo Cruz* 98:71-94

Table 1. Parasites found in faecal samples of wild carnivores within the Nahuelbuta National Park. Species were assigned by visual characteristics and by dietary contents (Chame, 2003). Genetic analyses (mt DNA) will be used to determine the species to which assign each fecal sample.

| | <i>Pseudalopex spp.</i> | <i>L. guigna</i> | <i>P. concolor</i> |
|----------------------|-------------------------|------------------|--------------------|
| Nº of samples | 37 | 19 | 6 |
| Parasite | | | |
| Toxocara spp. | 15 | 10 | 3 |
| Capillaria spp. | 8 | 5 | 4 |
| Trematodos | 8 | 6 | 2 |
| Tenia spp. | 2 | 2 | 2 |
| Toxascaris leonina | 1 | 2 | 0 |
| Strongilidios | 3 | 1 | 1 |
| Coccidias | 7 | 3 | 1 |
| Protozoo | 1 | 1 | 0 |
| Spirometra | 1 | 0 | 0 |