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	George Gorgadze
Project title	Human-Otter conflict management and conservation in Georgia.
RSG reference	32.11.07
Reporting period	March 2008 – February 2009
Amount of grant	£4990
Your email address	giorgi.gorgadze@nacres.org
Date of this report	02.03.2009

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.Collect and analyzing otter feaces			√	267 otter spraints were collected and analyzed. The main pattern we have observed was that only adult individuals and especially males cause damage to the fish farms. Other individuals usually visited pond areas and feed only on small size fish and especially non commercial fish (*Carassius carassius)* (81.25% BC).
2.Determine number and home range of individuals			√	Radio tracking, trail photo cameras and DNA analyzes were used in order to determine number and home range of otters. Using all above mentioned methods we have identified that one adult male, two adult females, two juveniles and one non resident male were spread in our study area.
3.Otter photo trapping			√	Five sets of Cuddeback NoFlash and one set of Cuddeback Expert scouting cameras were used to record otter activity at fishpond sites. Scouting cameras were set up during two hundred nine full nights: 189 with a single camera on each site and 20 with three cameras at one latrine.
4.Elaborate prevention measures to reduce otter-human conflict			√	Fish farm owners and their collaborators can identify "problem animals" on species level. Methods were provided by us and discussed within the group of stakeholders how to avoid otter presence in their territory (electric fencing, dogs and etc.); how to conserve otter habitat and which places are very important for animals.

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

We didn't encounter any serious problem during the implementation of the project.

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

3.1. Investigate otter feeding habits

The diet of otters was investigated through scat analysis. Sprainting sites were visited twice per month and in total, 267 scats were collected. Spraints were collected into paper bags, air dried, gently broken by hand and examined with binocular bioscope (x8 - x40).

Food remains were divided into eight groups: mammals, birds, reptiles, amphibians, fish, crayfish, insects and molluscs. Part of food remains were identified more precise, fish were identified on species level. Remains of fishes and mammals identified by rest of bones, teeth, furs, feathers using reference collections or key books such as Watson (1978) and Conroy et al (1993). Food remains of amphibians and fish were also identified through comparisons with available collections. Using this method we have investigated seasonal variability in diet, determine prey species composition and size. The frequency of occurrence (FO, percentage of the total number of scats) and biomass consumed (BC) were estimated.

Fish and amphibians made the bulk of the otter diet in the study area (58.5% BC, 69.2% FO and 22.9% BC, 35.4% FO, respectively). Reptiles were also important in otter diet (17.9% BC, 26.9% FO). Mammals, birds, insects, molluscs and crayfish (Astacus sp.) were of minor importance. *Carassius carassius* and *Cyprinus carpio* were the most important fish in the otter diet. Among amphibians, only frogs Rana sp. (mainly *Rana ridibunda*) were found; among amphibians, only *Natrix tessellata* and *Natrix natrix* were found in otter spraints. All mammals preyed by otters were rodents. Birds were not identified more precisely. Water beetles were the main group of insects consumed by otters.

Seasonal variation was observed in the study area. Consumption of amphibians and reptiles increased in the warm season, whereas fish biomass consumed was much higher in the cold season. Secondary food (mammals, birds, crayfish, molluscs and insects) was more frequently found in the otter diet in the warm season. The main pattern we have observed was that only adult individuals and especially males cause damage to the fish farms. Other individuals usually which visited pond areas, feed only on small size and especially non commercial fish (*Carassius carassius)* (81.25% BC).

3.2. Determine number and home range of individuals

Our study area is located in south-eastern part of Georgia and covers 17 km section of the river Alazani. Riverbank is reach with naturally flooded territories. Landscape with high agricultural activities is typical, agricultural lands are divided by wide system of ditches, often several kilometres long. About 27 fish farms are built on this section of the river Alazani.

To determine otter number and home range of individuals, several methods were combined: photo trapping, radio tracking, DNA typing of otter spraints and identification by tracks. We monitored 20 permanent latrines on river Alazani and adjacent channels for fresh spraints, three times a week on sequential days twice per month and collected fresh spraints for DNA analyzes. To identify otter activity level we recorded the number of fresh spraints at each latrine on the second day of each two day sequence. For each latrine we then calculated marking intensity, which we defined as the proportion of our second day visits to a specific latrine where we found a new spraint.

Five sets of Cuddeback NoFlash and one set of Cuddeback Expert scouting cameras were used to record otter activity at fishpond sites. At most time we were also able to identify individuals. By day, NoFlash takes high quality colour images; By night, it switches to invisible infrared. NoFlash also takes both day and night video clips. The second one captured full colour digital images day and night, plus daytime video clips. Both models were based on instant trigger technology with flash

range up to 60ft. Images were stored on Compact Flash memory cards, date and time were printed on all images and data/time activity was sensed and saved in Cuddeback`s electronic memory. Cameras were set at latrines at heights of 0–1,5m above water level, about 3-5 m from sprainting site during 5pm-9am of the three-day sequence. At first one photo and then video 40 sec. images were taken on NoFlash model and only one image were recorded for each event on Expert scouting camera.

Various aspects were recorded to analyze otter activity: time of visit, type of visit (swimming, surfacing, and sprainting), number of visits, individual's activity per night and the number of individuals per latrine per day. Scouting cameras were set up during two hundred nine full nights: 189 with a single camera on each site and 20 with three cameras at one latrine. Each morning about 8-9 am all latrines were visited and counted the number of otter presence.

According to these data we calculated the animal activity level, which we define as the proportion of nights when an otter was recorded (by the camera) in a specific latrine, of all filming-nights in the same latrine. We then used a simple linear regression to determine the relationship between the number of visits per night and the number of fresh spraints per night, the proportion of nights otters were recorded per site and the proportion of nights fresh spraints were found per site, and the proportion of nights otters were recorded in each site and the mean number of fresh spraints found per night for those nights where at least one fresh spraint.

In March 2008 one young male were captured and a transmitter manufactured by Telonics Inc. was implanted. The animal was soon released back into the wild in the same place where it was first captured. This individual was then constantly monitored throughout the remaining term of the project. Radio tracking of this individual helped us also to identify other individuals' home ranges.

Some DNA Samples were analyzed in Tbilisi at Faculty of Life Sciences in Ilia Chavchavadze State University and some in Israel in cooperation with Israel Mammal Research Center at Hebrew University of Jerusalem. Now we have obtained only first data and we intend to finalize our study till the end of this year in Tbilisi.

Using all above mentioned methods we have identified that in our study area one adult male, two adult females, two juveniles and one non resident male were spread. One young male of them was radio tracked by us and non resident male were trapped by poachers.

3.3. Elaborating prevention measures to reduce otter-human conflict

At the beginning of the project, a series of meetings were carried out with local stakeholders to identify major natural resource user groups, as well as their behaviour and resource use patterns that are harmful to the environment. Resource users include farmers, fish farm owners and households using water bodies for waste disposal.

Information leaflet and calendar were prepared and shared on otter ecology and conservation. Also manual was elaborated to guide local communities, wildlife managers, policy makers, and other people involved in community conservation, in ways to reduce otter-human conflict. It provides some background on the problem and gives specific examples of methods used to reduce human-wildlife conflict in other countries. Also methods were provided by us and discussed within the group of stakeholders how to avoid otter presence in their territory (electric fencing, dogs and etc.); how to conserve otter habitat and which places are very important for animals. The guide included

package of recommendations and prevention measures for reducing otter-human conflict. At the end of project it was distributed among fish farms and local authorities.

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

A field survey team was established, which included students and local young stakeholders. They have participated in data collecting and evaluated the easy and cheap techniques of otter control, which were elaborated during the project. More then twenty local fish farm collaborators were involved in the field survey team. They helped us during fieldwork, radio tracking and data collecting.

People themselves could follow radio tracked otter, find places where young male has eaten and identify fish species which were eaten. Regular visits to fish farms, shoving them images taken by scouting cameras, involving them into otter radio tracking step by step changed their negative attitudes toward wildlife and especially wild carnivores. Most of them could not even identify by tracks which animal has taken fish from their farm. In study area racoon is very common, which feed most time at night in shallow ponds and early farmers thought that all damage were caused by otters. Our studies also revealed that otters cause only insignificant damage to the commercial fish farm and attitudes toward the otter have dramatically changed.

Now fish farm owners and their collaborators can identify “problem animals” on species level. We provided them with list of changes in the design of fish culturing facilities and fish management for reducing predation losses from mammals and birds.

5. Are there any plans to continue this work?

Our otter research and conservation team in close cooperation with local stakeholders will continue otter population monitoring in the Alazani flood planes. We intend to capture more animals for radio tracking, use photo trapping and start to implement prevention measures for reducing otter-human conflict in the future.

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

A package of recommendations and prevention measures for reducing otter-human conflict was distributed among fish farms and local authorities. Results obtained from the fieldwork were shared with local stakeholders, fish farm owners and non-governmental organizations. The project results will be placed on NACRES website and in annual report for 2009 year. A scientific article will be published on otter-human conflict in Georgia.

Results of our work will be also shared during EIA & Otter Workshop 2009, which will be organized by IUCN Otter Specialist Group, ALKA WILDLIFE o.p.s., Landesumweltamt Brandenburg, University of Cottbus on 7th to 9th May 2009 in Germany.

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

Grant provided by The Rufford Small Grants Foundation was used in period from March 2008 till the end of February 2009. All activities have been implemented in accordance with the original work plan.

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
Per Diem/Lodging	£1600	£1820	- £220	More people were involved in the fieldwork as it was planned and difference was added from Photo trap and DNA analyzes budget lines
Photo trap	£1400	£1240	+£160	Only 6 cameras were used and difference was shifted to the Per Diem/Lodging budget line
GPS	£220	£250	- £30	Difference was added from the Seminars and meeting budget line
DNA analyzes	£1020	£960	+£60	Only 43 samples were analyzed and difference was shifted to the Per Diem/Lodging budget line
Calendar	£300	£300	£0	
Leaflet	£200	£200	£0	
Seminars and meetings	£250	£220	+£30	Difference was shifted to the GPS budget line
TOTAL	£ **4990**	£ **4990**	£ **4990**	

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

I think that next important step to solve otter-human conflict should be piloting and implementing prevention measures to reduce otter-human conflict. I believe that in close cooperation with local stakeholders and involving as much as possible fish farm owners into the process of piloting/improvement of prevention measures the conflict could be managed in proper way.

In order to be affective, a policy on otter-human conflict should be elaborated. In the event of an incident with a wild animal, there must be a policy that people can refer to for direction on the most appropriate action to take. If there are no guidelines then communities are in danger of taking action independently, which could result in greater losses in the long term. Any system for the reporting of incidences and the development of appropriate action, should, ideally, have been agreed upon by all stakeholders.

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?

RSGF logo was used in calendar and in informational leaflet on otter and all conditions was agreed with RSGF.