

The Rufford Small Grants Foundation

Final Report

Grant Recipient Details	
Your name	Almaz Orozumbekov
Project title	Insect-Plant Interactions in the walnut and fruit forests in Kyrgyzstan
RSG reference	05.11.06
Reporting period	January, 2008
Amount of Grant	4.800
Your e-mail address	almaz10@yahoo.com
Date of this report	16.01.2008

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

Objective	Not achieved	Partially achieved	Fully achieved	Comments
“Sustainable use of nut and fruit trees, identifying beekeeping and forest health monitoring capacity of partner organizations and involving direct collaboration with local communities to conduct multi-disciplinary education and training on biodiversity conservation issues”.			Fully achieved	<p>The training and practical work undertaken by the project relates to sustainable use, one of the three main objectives of the Convention, and one of the three elements of the CBD Forest Biodiversity Expanded Program of Work. As such, the forests represent an extremely valuable reserve of rich genetic diversity, which is of international significance, as walnut trees and a wide range of other fruits of world-wide economic importance originate in the mountains of the Central Asia. During the project: 20 ha study areas were selected in natural walnut and fruit forest types located in the Karalma forest farm. Sites were chosen to include east and west facing slopes, and ridge areas. Locations of plots were geo-referenced. The main tasks of the nature protection project in the walnut-fruit forests in Kyrgyzstan were:</p> <ul style="list-style-type: none"> • Undertake practical training and promote collaborative work on Insect-Plant Interactions in the forest • Facilitate beekeepers on bee ecology studies and honey marketing

				<ul style="list-style-type: none"> • Identify priorities among local communities and foresters on biodiversity conservation and forest health monitoring • Analysis of the impact of the gypsy moth on forest health, using pheromone-baited traps as monitoring tools • Dissemination of results through a community outreach program to develop in the study area a program on forest protection issues and sustainable use forest resources. <p>People's knowledge of insects varies in quality and quantity depending on their interest in the subject, their environment, and the relevance of insects to their lives. Knowledge and perception of insects is an important issue for agricultural extension programs.</p> <p>The results that the interdisciplinary practical project seeks to achieve is the sustainability of insect-plant interactions management practices and their role in the conservation of nut and fruit tree varieties in the mountainous southern region of the Karalma forest (Iezhose).</p> <p>The project location (41° 12' and 73° 20') and name of the village: Karalma, Suzak district, Djalalabat oblast, Kyrgyzstan.</p>
--	--	--	--	---

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

We did not have any difficulties during the project in walnut-fruit forests. Prior to this project, we discussed project implementation during project the fruit and nut forests in September, 2006, where we collaborated with FFI (UK), Community Business Forum (Bashat, Kyrgyzstan).

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

3.1 An important element of the project on Insect-Plant Interactions for the community of Karalma was to empower local people to develop their own social and environmental initiatives, to improve their livelihoods, to reduce the pressure on the nut and fruit forests, and to reduce poverty.

Forestry, as well as other sectors in the country, is currently facing problems related to the changing economic environment and policy. Transition to market requires adaptations (bottom-up planning procedures, stakeholder's participation, commercial approach, etc.). In support of the conservation and protection of forest resources, a new national forest policy will be defined with support from the National Government to ensure forest conservation and use of its resources according to common principles of sustainable development adapted to the socio-economic and ecological situation of Kyrgyzstan.

Considering this challenge, the role of forest biodiversity conservation in solving the complicated problems facing the forests sector is increasing. In order to increase the input of education into forestry, science-based curriculum should be established and coordinated in specialized professional schools to train forest health workers, wildlife conservation specialists, plant biologists, and forest ecologists.

An important aspect to this challenge is the knowledge that diverse groups of village communities bring diverse ideas to the process of forest biodiversity monitoring and evaluation, as it is these local communities that are often best positioned to understand the reasons behind successes and failures. In parallel, strengthening the legislation regarding rural development requires awareness about the importance of conserving cash crops (i.e., walnut, pistachio, and apple) and other fruit species. Knowledge concerning the stakeholders and institutions are also critical to the process.

3. 2 The conservation and sustainable management of these unique forests is currently uncertain. New visions and approaches to forest health management, with participation of the local population in assisting walnut-fruit forest conservation, are urgently needed.

We have conducted a number of investigations on forest insects, and a few on the diseases impacting natural and planted forests in the Karalma region. A risk rating system, based upon forest characteristics, has been developed for insect pests. The gypsy moth (*Lymantria dispar*) remains one of the most serious defoliating pests in our country's unique walnut-fruit forests.

It is important to expand monitoring networks and to take special measures for the conservation of biological diversity, including regulation and rational use of biological resources. According to the Convention we should establish protocols to conserve biological diversity while promoting environmentally-sound development in and around these areas. Such an approach requires the development of a comprehensive plan that outlines sound practices in support of the rehabilitation and restoration of threatened and endangered species.

The principal focus of this project was to provide assistance to determine the causes and consequences of pest outbreaks and to develop methods for managing these outbreaks using biological control. To develop sound approaches in addressing these problems, a system is needed to monitor forest conditions in the area.

We propose here the development of a system for monitoring forest health conditions such as the use of pheromone-baited traps to monitor gypsy moth populations in the walnut and nut region.

3.3 The Interdisciplinary practical project sought to determine the management sustainability of insect-plant interactions and their role in the conservation of nut and fruit tree varieties in the mountainous southern region of the Karalma forest (Izhos).

Pollination is the most important contribution bees make to human economies in Kyrgyzstan. Scientists from the Institute of Biosphere of the National Academy of Sciences and Osh Technological University confirmed that no pollination study had been conducted in the Kyrgyz Republic.

Knowledge of insects varies in quality and quantity within the community depending on the individual's interest in the subject, their environment, and the relevance of insects to their lives. Knowledge and perception of insects is an important issue for agricultural extension programs. We know that local beekeepers have more applied beekeeping skills than theoretical knowledge, and that they have limited basic information on bee ecology, the diseases can impact bee health, and in the planning of beehives.

Most local beekeepers should know how to develop their own beehives, but currently they lack the skills and knowledge to do this. Also, beekeepers lack knowledge of disease problems that can affect the hive. We should, in future work, target these specific knowledge gaps and facilitate the transfer of information more efficient, acceptable, and practicable for village communities.

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

A. The beekeeping and honey marketing practices are poorly developed in southern Kyrgyzstan. This deficiency should be addressed to facilitate the conservation of apple and other fruit varieties since their presence as a crop depends on planting decisions made by foresters and farmers. Losses of plant diversity in forest due to changes in social, economic and cultural changes have already been documented in other world regions.

In Karalma village, the community is aware of the deficiencies in their knowledge on Insect-Plant Interactions. In the future, inputs targeting specific knowledge gaps can render information and technology transfer more efficient, acceptable, and practical for the village community. The tools used to elicit beekeepers' perception and knowledge related to insects were very specific.

Currently in Kyrgyzstan, there are about 180 thousand bee colonies producing up to 2.5 thousand tons of honey, which accounts for only 65.9% of the forecasted level of honey production (NGO, Centre for Beekeeping in Kyrgyzstan). Moreover, we are unfortunately losing bee specialists as they migrate to neighboring countries in search of greater economic opportunities. Beekeepers in Kyrgyzstan also tend to use older technology and older tools for beekeeping practices and honey

production. For example, in Karalma village, the average price for 1 kg of honey is about 50-60 som (= 1 € in euro), which is far less than the market price for honey in neighboring countries.

In this project we tried to identify and initiate collaboration with local village community which have received grants from a small grant program of Fauna and Flora International (UK) collaboration with Bashat (NGO, Kyrgyzstan). We invited leading specialists in the fields of beekeeping, plant ecology, and forestry to attend the workshop. Invited workshop participants were asked to prepare presentations summarizing their own beekeeping approaches.

There were 30-35 participants that were invited, including representatives from the Karalma, Urumbash, Ortok and Kara-Kuldja village communities, NGOs and beekeepers. During the training seminar, we attempted to address the main objective: how to improve beekeeping in the Karalma village? The project was focused on establishing priorities in beekeeping management and practical training programs. The main focus was on facilitating an understanding of bee distribution and diversity, collection techniques, methods of beekeeping, initializing and maintaining bee hives, increasing honey production, and preserving bee conservation. The result is an increased capacity to address the many elements of biodiversity conservation and nature protection in the walnut-fruit forests.

These trainings will also play a key role in the organization of training for all categories of stakeholders, and will function as a supplement to the regional training centers. A significant amount of knowledge on beekeeping was transferred to farmers, farming associations, and local communities, which will assist them to manage their own bee populations. Solutions were identified, with some being beyond the scope of this particular project.

B. We engaged local communities on gypsy moth control in the Karalma forest (Iezhose). The training objective was to transfer management skills and knowledge on forest health protection issues, such as gypsy moth and other pests and diseases, to forest health staff and rangers (25 people).

Forest pest control strategies included pest monitoring, risk assessment, and the proper use, timing, and dose of pesticides for treating walnut forests and other areas. We also propose to develop a system for monitoring forest health conditions and use gypsy moth pheromone-baited traps for monitoring their population density in the walnut and nut region.

Our approach in using pheromone-baited traps has been to use one trap per 200 meters and 5 traps per hectare. We used a total of approximately 100 traps over 20 hectares in study areas that were selected within natural walnut and fruit forest types located in the southern Kyrgyzstan (including the Karalma forest (Iezhose)). The selection of study areas was assisted by local forestry staff.

During the season (20.06-5/08.07), we recorded about 200,000 gypsy moth males in traps deployed in the Karalma forest area. In this monitoring effort, we are a partner organization involved with local communities and in direct collaboration as educators.

These studies demonstrated practical work for village community and foresters will be much more essential to control gypsy moth in their forest or home garden. The traps are very simple to use, and are very effective monitoring tools. The principal focus of this project was to provide

assistance to determine the causes and consequences of these pest outbreaks and in developing methods for their management.

C. The local community has placed a moratorium on the cutting of walnut trees due to the inability to regenerate new walnut forests. In order to have a sustainable system, both ecologically and social-economically, it is necessary to conduct practical studies on walnut forest regeneration that looks at the interaction among grazing, nut production and harvesting, seedling initiation and growth, and silviculture treatments to provide increased light.

5. Are there any plans to continue this work?

We intend to expand our work and continue focusing, include specifically plant-insect interactions such as pollination ecology, beekeeping activities, and forest ecological methods, field surveys, data analyses and other techniques. Such kinds of supports are essential aspects in insect-plant interactions in walnut-fruit areas. A new central unit should be established to deal with monitoring programs, auditing, methodology, and the coordination of local and international projects.

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

Apart from some preliminary studies on insect-plant interactions of walnut-fruit forests in the Jalal-Abad region, we would like to address these interactions over a larger region using interdisciplinary approaches. As well as transferring knowledge to local communities, we also assisted in the long-term development of in-country training programs that will involve senior forestry staff from the Department of Forest Protection, forest and ecology students from different universities, forest rangers, local farmers, and local village communities.

We have also planned to introduce information-communication technologies, expand the participation of the local population in forest development, and organize training workshops for forestry specialists, and conduct environmental education activities to local communities.

For this study of Insect-Plant Interactions, we would like to recommend the following:

- To create a beekeeping association in Karalma village (villages as Karalma, Urumbash and Ortok) to help set up honey production and its successful marketing;
- To develop an education program on beekeeping and the planning of beehives;
- To implement special training programs on forest health issues for the benefit of local communities, forest health staff, and forest rangers;
- To develop a new forest pest management plan for the Karalma forest that is applicable in other forest farms (lezhoses) in southern regions;
- To facilitate the transfer of research results and practices to other areas of the walnut-fruit forests;
- To determine of sustainability of horticulture management practices and their role in the conservation of fruit tree varieties by using landscape ecological approaches in the mountainous walnut-fruit forest areas.

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

As we planned, RSG was used for 11 months, including the final report, instead of 12 months. Our timetable was as follows:

Implementation timetable for Rufford on “Insect-Plant Interactions” conservation project (2007-2008)

Fig.1

	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	March
Introductory													
Collect general information about the walnut –fruit forest	█	█											
Meet with other agencies engaged in similar work		█	█										
Insect –Plant Interactions (IPI) training/seminar for conservation and research													
Set up the plot area and conduct an assessment to identify training & resource needs		█	█										
Identify community representatives for IPI process involving forest staff and the local community			█	█									
Community training/seminar on IPI in Kara-Alma forest			█	█									
Work on bees and conduct gypsy moth studies with the local community and forest staff, and visit plot areas.				█	█	█							
Buy equipments and other supplies	█	█					█	█					
Analyze studies and trainings, visit plot areas									█				
Project management													
Identify & follow-up priority activities and make recommendations as identified in IPI									█	█			
Final report to Rufford											█		

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.

Budget: £ (sterling)

Fig. 2

Item	Budget amount	Actual amount	Difference	Comments
PI's	1000	829	171	Almaz's personal allowance
Post-graduate students and technical assistants	1000	1000	-	Student's and technical assistant's allowance
Diploma students	300	300	-	Diploma student's allowance during project work
Equipment	1600	1600	-	Field work
Supplies	400	400	-	Laboratory work
Domestic travel and living costs	500	500	-	House and car rental for field work
Bank charges & tax payments		122	122	Taken by bank in Kyrgyzstan
TOTAL	4800	4629	49	

Budget: 4800 £ (sterling) = 7104 €(euro) from Rufford

6923.60 €(euro) from Bank in Kyrgyzstan

1 % in Bank and 4% for tax

Total used: 6851 €(euro) = 4629 £ (sterling)

Exchange rate: 1 £ (sterling) = 1.48 € (euro).

1£ (sterling) = 70 som (kyrgyz)

1€ (euro) = 50 som (Kyrgyz)

- Allowance for Almaz's PI's – **829 £ (sterling) = 1227 €(euro)**
- Allowance of students and assistants – **1300 £ (sterling) = 1924 €(euro)**
- Lab equipment – **1600£ (sterling) =2368 €(euro)**
- Supplies for laboratory – **400£ (sterling) = 592 €(euro)**
- Domestic travel and living cost – **500£ (sterling) = 740 €(euro)**

Total used: 4629£ (sterling) = 6851 €(euro).

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

I am looking forward to developing new programs on the conservation of biodiversity, pollination ecology, and the impacts of pests on walnut-fruit forests. In particular, an interdisciplinary biodiversity project would seek to determine the sustainable use of apple orchards and other fruit tree varieties. Also, I would like to utilize landscape ecology approaches in fruit and nut forest conservation. Lastly, I would like to combine knowledge from the social and ecological sciences to determine the current status of pollination–pest interactions.

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?

During this project I used the RSGF logo in materials for training/practical seminars. One project I would like to consider in the future is the making of T-shirts with the RSGF logo to advertise the support of RSGF to participants of meetings, training courses, and field studies because very few people know about RSGF (UK) in Kyrgyzstan. I do hope through our project, FFI (UK), Community Business Forum (Bashat, Kyrgyzstan), people will know more about the support of RSGF.

11. Any other comments? Information about Karalma village structure.

The Karalma village government (Ail okmoty) was founded in 1996. It occupies the southeastern part of the district of the Suzak rayon (district), and shares a border with the Bazar-Korgon rayon (district). The village shares an east-west border with the Kyzyl-Kol village government, a southeastern border with the Toguz–Toroo rayon (district), and a northeastern border with the Kyrmanbek village government.

The total area of the Karalma village government is 55827 km². The distance between Karalma and the Suzak district is 55 km, and Karalma-Djalalabat city is 50 km away. All of the territories are mountainous. Such terrain presents additional challenges in developing a social infrastructure of the villages. The office of the Karalma village government is occupied in the Karalma village. There are three village governments: Karalma, Ortok and Urumbash. The distances between Karalma and Ortok are 27km, between Karalma and Urumbash is 3 km, and between Ortok and Urumbash is 30km (fig. 3).

Fig. 3**Karalma village structure**

№	Name of village	Total of population	Total of families	Distance from village government, km	Distance from Djalalabat city, km
1	Karalma	2109	387	0	55
2	Urumbash	117	23	3	58
3	Ortok	988	189	25	47
Total		3124	601	-	-

The population of the Karalma village government is 3214. Annual population growth is 1-2%. The level of poverty is 49%. Every year 1.0 hectare of land is loss to construction. The main resources are forest and pasture.

The present day reality is that agricultural jobs are being replaced by subsistence-oriented survival strategies in rural areas, which poses major challenges for socio-economic development. Karalma forest farm (lezhose) is located in the Karalma village including the Suzak rayon (district) of Djalalabat oblast. The Karalma forest occupies 52 km from the centre of Suzak rayon, and the total area of the forest farm is 30781.5 ha. In all, 38 people have been working in the Karalma forest farm.

The forest farm divided to 5 forest ranges (lesnichestva). The nation state has to rely mainly on its own resources and expertise in running the state economy and managing the available natural resources. Despite a decrease of livestock numbers, the pressure on natural resources increased. The forest farm has arable land for 6,1 ha and non-arable land for 113,7 ha. The main crops are potato and maize.

12. I agree to this report being published on the Rufford Small Grant website

Signature (or print name)


Almaz OrozumbekovDate of signature: **January 15, 2008**

List of acronyms and abbreviations

CBD	Convention Biological Diversity
BC	Biological Conservation
CBF	Community Business Forum
FB	Forest Biodiversity
JASU	Jalalabat State University
IB	Institute of Biosphere
IB NAS	Institute of Biology of National Academy of Science
IPI	Insect-Plant Interactions
FAO	Food and Agriculture Organization of the United Nations
FOWECA	Forestry outlook study for West and Central Asia
FRA	Forest Resources Assessment
FFI	Fauna and Flora International
KAU	Kyrgyz Agrarian University
KR	Kyrgyz Republic
NAS	National Academy of Science
NGO	None Governmental Organization
OshTU	Osh Technological University
RSGF	Rufford Small Grants Foundation
SFF	State Forest Fund

References

FAO (2004). Report on the study of criteria and indicators for sustainable forest management in Kyrgyz Republic (eds. L.Kondrashov, Rome).

Forestry outlook study for West and Central Asia. FAO, FOWECA. Kyrgyz Republic. Country outlook paper. Bishkek, 2005 (unpublished).

FAO (2006). Global Forest Resources Assessment 2005 – progress towards sustainable forest management. Forestry paper No.147. Rome, Italy.

Orozumbekov A.A., Moore B. with Allard G. (editor). FAO (2007). Overview of Forest Pest of Kyrgyz Republic. Department of Forestry. Forest health and Biosecurity paper. FBS/21E, FAO, Rome, Italy. 63p.

Turok, J. (2000). Forest genetic resources and conservation in Central Asia. FAO Forest Genetic Resources No.25.3 pp.