

Working with local students and forest owners to conserve biodiversity and improve livelihoods in Rodna Mountains, Romania



A Rufford Small Grant for Nature Conservation

**Working with local students and forest owners
to conserve biodiversity and improve livelihoods
in Rodna Mountains, Romania**

Final Report

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Table of contents

1. <i>Project Information</i>	4
2. <i>Project Background</i>	4
3. <i>Project Purpose and Outputs</i>	5
<i>Ecological surveys</i>	7
<i>Environmental education</i>	10
<i>Questionnaire analysis</i>	11
<i>Alternative income strategy</i>	11
4. <i>Project Expenditure</i>	12
5. <i>Impact and Sustainability</i>	12

1. Project Information

Project Ref. Number	202.01.05
Project Title	Working with local students and forest owners to conserve biodiversity and improve livelihoods in Rodna Mountains, Romania
Country	Romania
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2. Project Background

Since the collapse of the communist regime in 1989 Romania has undergone major political changes but also important changes in its lands ownership structure, which consequently affected land use. Following restitution, almost half of the forests in Romania have been transferred into private ownership (community and individual). These forests host biodiversity of great European and global value and there is a perceived threat that restitution leads to deforestation and forest degradation.

Rodna Mountains (N47° 55', S24° 73'; Figs. 1 and 2) were selected for this project because of their importance for biodiversity, as demonstrated by the creation here of a national park and a UNESCO biosphere reserve. However, this area registers tremendous pressures on natural resources largely due to economic hardship experienced by local people. In this region, most people's livelihoods depended on mining and forestry activities. With the recent closure of the mines, forests have become the main (and in some cases the only) source of income for the locals. Hence, this area rich in natural resources is also very susceptible to negative impacts.

The administration of the Rodna Mountains National Park was established in March 2004 and the first management plan for the park was completed in 2006. In addition to this, there are plans to extend the current biosphere reserve's boundary in the near future so that it can fulfil the requirements of the MaB UNESCO. This enlarged biosphere reserve will include local communities in addition to the existing national park, and will require the development of a separate management plan. Moreover, the development of the Natura2000 network will include the park, adding to the natural resources management requirements in this region.

To be viable in the long term, any biodiversity conservation strategy needs to consider the areas adjacent to reserves and how activities carried out their impact biodiversity. In the Rodna case, there was scope for a project combining research and work to promote biodiversity conservation with efforts to find sustainable income alternatives that could improve local livelihoods.

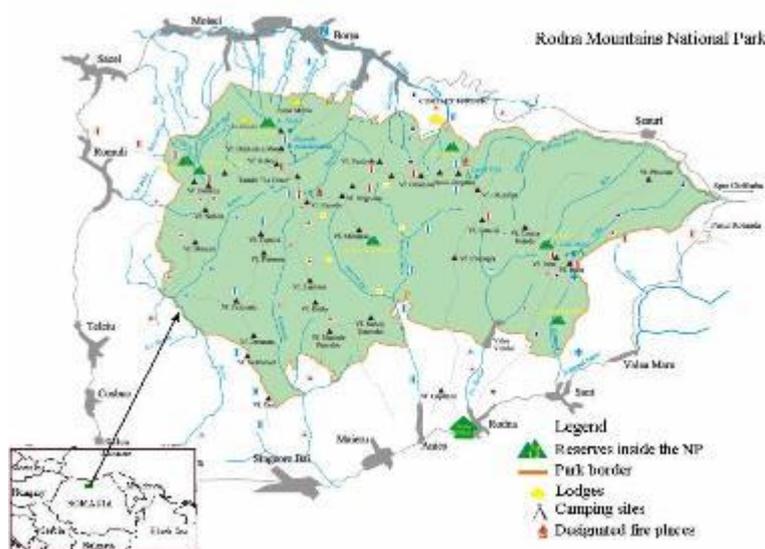


Fig. 1 Location of the study region, Rodna Mountains National Park in northern Romania

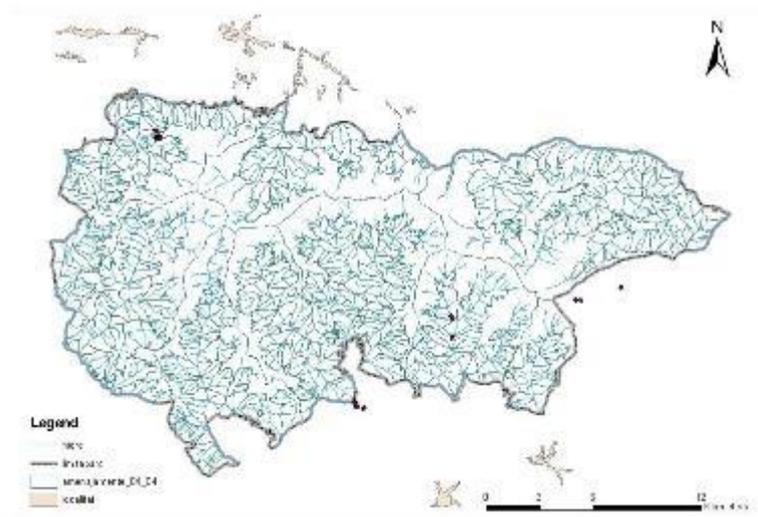


Fig. 2 Location of study sites; small mammals were trapped in several forests both inside and outside the national park.

3. Project Purpose and Outputs

We aimed to work on three plans: 1. to investigate forest biodiversity in Rodna Mountains National Park (RMNP) and adjacent private forests, focusing on small mammals; 2. to employ environmental education in a participatory way; and 3. to work with local forest owners to develop an alternative income strategy that could improve their livelihoods while being sensitive to nature.

For this purpose, the team: reviewed ecological literature and relevant legislation; selected the commune of Maieru as one of the major local forest owners in the region; carried out ecological surveys and monitoring with local students; conducted questionnaire surveys of local people and worked with them on devising an income strategy; the methods and outcomes were documented and will be used in other similar

circumstances by the RMNP's Administration in their work with other communities; the methodology will also be made available on the RMNP's website (<https://www.parcrodna.ro>) for other institutions/persons interested in participatory natural resource management.

Table 1 presents the project progress compared with the initial plan and timescale. In February 2006 we requested and were granted an extension of the duration of the project by 6 months. This was needed in order to achieve additional outcomes which were not listed in the project plan, namely developing a guide for biodiversity education and liaising between the national park administration and the local community with the aim of including in the reserve an additional area of community land. A more detailed description of project achievements is provided in the following paragraphs.

Table 1. Project achievements as compared to the grant proposal.

Activity	Date	Rationale	Achievements
1. Baseline creation	May 2005	Collecting: ecological literature and data on traditional resource use in the area; legislation on forest management and small business ventures. Selecting 1 community and signing of memorandums of understanding. Needed to establish context and ensure stakeholders' commitment.	Completed. A memorandum of understanding was signed with the mayor of Maieru in July 2005. Project team ensured his cooperation and support for the entire duration of the project. Ecological literature and legislation were collected throughout 2005.
2. Ecological surveys and monitoring.	June - July and October 2005	With local students achieve: Ecological censuses in park and private forests; establishing 6 monitoring plots. Necessary to understand how forest management affects biodiversity; and to achieve participatory environmental education.	Completed. Because of an unusually wet season in 2005 fieldwork was hampered and we started later than planned. Ecological surveys were carried out in August-September 2005 and throughout June-October 2006 together with local students and volunteers.
3. Questionnaire	June 2005	Questions centred on	Completed.

surveys of forest owners.	and April 2006	biodiversity and alternative sources of income. Needed to understand owners' values vis-à-vis biodiversity, any changes during project implementation, and views on alternative livelihoods.	Questionnaires were conducted in December 2005. A second round of questionnaires was undertaken at the end of the project.
4. Workshops with forest owners.	September 2005 and March 2006	Two workshops are proposed in addition to informal discussions. Necessary to develop alternative income strategy.	Completed. Forest owners and administrators were kept informed all along about the project progress. Meetings and presentations were held at the national park's headquarters and in the community. In addition, information materials were distributed in the community.
5. Data analysis and interpretation.	June 2005 to April 2006	Data will be analysed as they become available. Will ensure the success of points 2, 3, 4 and 6.	Data are being processed and papers drafted for publishing.
6. Methods documented and final reporting.	May 2006	All methods and outcomes of the project will be documented. Will assist dissemination of findings, reporting and future work.	Completed.

Ecological surveys

Many studies have focused on small mammals, a taxonomic group considered to be a model for answering questions at various spatial scales. This group presents many advantages: their biology is generally well-known, are short-lived, have relatively small home ranges, and disperse when reaching adulthood. All these factors render them suitable candidates for studies aiming to gain a better understanding of ecological processes at several scales.

For this study, 1230 night traps were spent in the field, in 5 periods: August-September 2005, June 2006, July-August 2006, September 2006, and October 2006. Several habitat types were investigated both inside the national park and outside its boundaries, in forests owned by the commune of Maieru (see Fig.3). In total, 215 small mammal individuals were caught belonging to 11 species (Table 2 and Fig. 4). Live traps were used; these were locally made out of wood and with a glass ceiling (Fig. 5). The two species of wood mice, *Apodemus sylvaticus* and *Apodemus flavicollis* are very similar and very difficult to separate in nature, the best method to identify them with certainty being the analysis of their crania; we preferred treating them as one group and released them back in nature after they were measured and weighed.

Species	No. of individuals captured (includes those recaptured)	Habitat type
<i>Apodemus sylvaticus/flavicollis</i>	167	Mature deciduous forest edge; mature deciduous forest; mixed forest edge; mixed forest; stream bank with mixed forest; conifer forest edge; <i>Rumex sp.</i>
<i>Apodemus agrarius</i>	2	Mature deciduous forest edge
<i>Clethrionomys glareolus</i>	26	Mixed forest; stream bank with mixed forest; conifer forest edge; conifer forest after cutting; mature conifer forest
<i>Microtus agrestis</i>	2	Dwarf Pine; <i>Rumex sp.</i>
<i>Microtus nivalis</i>	1	Dwarf Pine
<i>Sorex minutus</i>	5	Stream bank with mixed forest; conifer forest after cutting; mature conifer forest; conifer forest edge
<i>Muscardinus avellanarius</i>	3	Mature deciduous forest edge; Dwarf Pine
<i>Dryomys nitedulla</i>	1	Mature deciduous forest
<i>Myoxus glis</i>	4	Mature deciduous forest
<i>Sorex alpinus</i>	3	Stream bank with conifers.
<i>Sorex sp.</i>	1	Deciduous forest edge.



Fig. 3 Habitat types included in the ecological study: 1. conifer forest after cutting; 2. mixed forest edge, 3. stream in conifer forest; 4. mature, natural conifer forest; 5. Dwarf Pine and conifer forest; 6. *Rumex sp.*; 7. stream in mixed forest; 8. Mature deciduous forest edge; 9. mature deciduous forest; 10. conifer forest.



Fig. 4 Some of the small mammal species captured during the study



Fig. 5 Live traps used for capturing small mammals

Environmental education

The importance of environmental education in this case was realised early on in the project, after discussions with the mayor and local people; the proposals made by the team were welcomed and encouraged. The approach used involved the creation of information materials and their dissemination to a wide audience in the commune of Maieru; in addition, we focused on



Fig. 6 Measuring a captured Wood Mouse

the youth and employed environmental education in a participatory way. The project team strongly



Fig. 7 Students using a field guide to identify species

believes in the value of direct nature exploration and enjoyment as a means for developing long-term conservation consciousness. Therefore, we conducted small mammal surveys together with

students from the local high school (Figs. 6 and 7). In addition to discussions on various concepts related to biodiversity and its conservation, the students received training in using GPS units, live traps and learned firsthand how the data are collected. Field visits concluded with discussions when students had a chance to reflect on their personal experience and the newly accumulated knowledge (Fig. 8).

Future monitoring of small mammals will be assisted by a collection of hairs which the project team started and which facilitates the use of hair tubes. Moreover, dormice, protected species which are sensitive to forest management, will be monitored with the help of dormice houses purchased by the project.

There was a strong need for a practical guide to assist teachers who wanted to conduct field projects with students. Therefore, the project team embarked on developing



Fig. 8 Reflecting on the experience

a guide to biodiversity which includes several practical activities that can be undertaken with the students in the local forest and the national park, and which allows them to grasp the concepts of biodiversity and conservation while at the same time encouraging them to take action.

Questionnaire analysis

Local people's opinions on several aspects regarding biodiversity and forest management as well as their ideas on alternative sources on

income were collected by means of questionnaire surveys. These questionnaires were conducted in the villages of Maieru and Anies and total of 200 locals were surveyed in each surveying session (beginning and end of project). The data are being analysed for inclusion in a publication.

The results show that locals in general are sensitive to issues pertaining to nature and forest management. Most respondents considered forest important for themselves and for their community. However, when asked why forest was important the answers were different: the personal importance for most people resided in the services provided (i.e. climate, protection from flooding, fresh air etc.) while the importance for the community was considered to be given mainly by the wood used for fire and construction. The majority of respondents did not consider forest protection as an opportunity cost; 53.5% did not think they were losing out because some forests were protected while 41% perceived forest protection as a loss. In general, those questioned considered it important to protect forest because: it provides fresh air and protection from flooding, all forest components have a role in maintaining life; they also considered that forest is more than just a source of income and it must be managed for the next generations. When asked to list protected species, respondents tended to include more species than there are currently protected. The two main reasons given by those questioned for species protection were the fact that they were rare and/or endangered and that they contributed to the beauty of forests.

As alternative sources of income, the top three listed were: agriculture (23.5%), enterprises (18%), and tourism (9%), while 23.5% considered that there were no other alternatives to the forest or that income from forest is too difficult to replace.

Alternative income strategy

This project has facilitated communication between the national park's administration and the local community. From the discussions held during this project, tourism appeared to be the alternative that captured the interests of both park and community. With Romania joining the European Union on the 1st of January 2007, a new set of financial instruments became available for projects aiming to address tourism and protected areas and ideas developed in this project will be included in funding applications. Ecotourism and agrotourism have been emphasised as types of tourism that are most suitable to the local conditions while at the same time being sensitive to

biodiversity, and form part of the local tourism strategy. In addition, funding is being sought to enlarge the existing biosphere reserve and draft a management plan for it. This project has opened the way for the commune of Maieru to not only participate in this process but to become a model for others.

4. Project Expenditure

<i>Item</i>	<i>Budget (£)</i>	<i>Expenditure (£)</i>
1. Travel and subsistence	3,000	3,000
<i>Of which:</i>		
- Travel		711.46
- Subsistence		2288.54
2. Capital items/equipment	200	203.24
- 1 GPS unit	967	600
- Live traps		318.26
- other field equipment (Microscope, scales, GPS charger)		
- Hair tubes and dormouse houses		200
3. Workshops (room rent, snacks, etc.)	200	200
4. Printing	200	478.5
5. Overheads & contingency	433	See items 2&3
TOTAL	5,000	5,000

5. Impact and Sustainability

This project has ensured the future impact and sustainability of the activities carried out by working in cooperation with local institutions, and by creating a local partnership. In addition, the materials produced during the project are available to all those involved and provide a protocol on which to operate. These documents are also accessible to other institutions keen on embarking on participatory biodiversity monitoring or diversifying their environmental education programmes. Moreover, the papers written during this project will reach a wider audience in Romania and elsewhere.