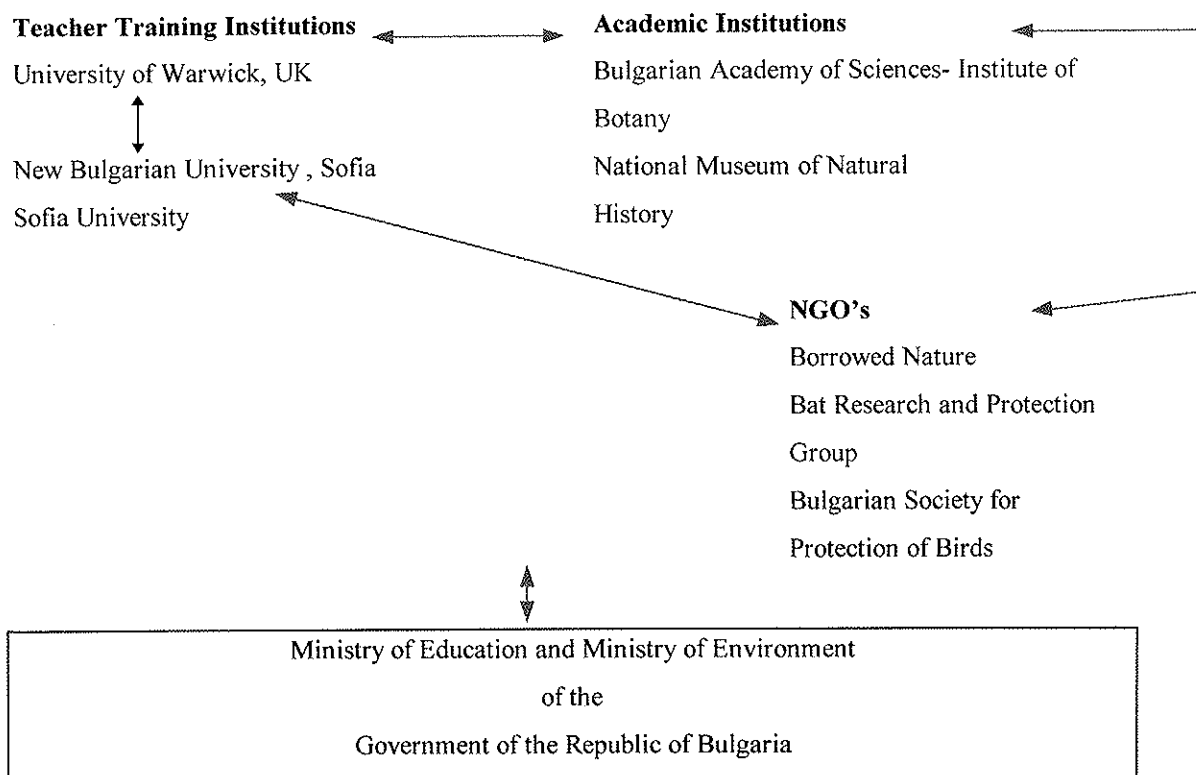


1. Project Title: Ecological Education in Bulgaria Ref No: 162/07/069

Contractor: University of Warwick
Host country collaborating institutes: See Figure 1

Fig 1. Adventures in Ecological Education Network



Grant Round: 6
Grant Value:£36,000

2. Project Expenditure

Total grant expenditure:£32,479.32

Breakdown of expenditure (*Appendix 1*)

Explain any variations in expenditure +/- 10%

The underspend was almost entirely due to economies purposefully made by the project leaders because of opportunities afforded to them by the Bulgarian colleagues, e.g. staying in economical guest house accommodation rather than western style hotels, budget car rental etc. In Bulgaria there are two prices for many commodities, one for foreign visitors and one for Bulgarian citizens. Our supportive team in Bulgaria was able to negotiate local prices for some items. In addition the Balkan war caused a dramatic reduction in airfares to Bulgaria and we were able to utilise that opportunity. Finally, illness of both project leaders on the first visit meant that the visit was shorter than planned with considerably less travelling.

3. Project Background/Rationale

An **urgent** need for environmental education promoting conservation of biodiversity in Bulgaria was identified in:

Dobris Assessment (European Environment Agency 1995), Pan European conference of NGO representatives in Sofia (1996), EAP task force bulletin (1997), OECD Environmental Performance Reviews: Bulgaria (1996)- "*data on species and ecosystems are ample....*

measures to raise public awareness of nature issues need to be developed" In summary these reports indicated that whilst there had been some success in obtaining outside funding for biodiversity assessment (90% international funding) there was little domestic funding for nature conservation *per se* which had a very low priority. Moreover, education and training in this area had an even lower priority and considering the extremely limited human and financial resources available anyway, the situation was quite serious. The war in the Balkans exacerbated these economic difficulties. A desperate need was also identified from within Bulgaria by those involved in teacher education and delivery of the school curriculum. As the curriculum was due to undergo reform the timing was appropriate.

Project development process.

The project was initiated by e.mail through existing contacts and followed up by a planning visit. The planning visit included working with the project team but also with officials from the Ministry of Environment and Ministry of Education. The training workshops took place over an intensive period in May 1999 and the final materials launched in February 2000.

September 1998	Planning/training visit (cut short due to ill health of both project leaders)
Sept 98- May 99	Writing and translating draft materials
May 1999	Training workshops (4 locations)
May 99- November 99	Refining of draft materials
Feb 2000	Launch of WWW-page (<i>Appendix 2</i>) and publication of the final booklet of materials (<i>1st Edition copy enclosed</i>)
Academic Year 99/2000	Teacher educators and new teachers integrating ideas into their own teaching. Bulgarian Biodiversity issues integrated into academic ecology and professional education courses at the University of Warwick. Funding secured for 2nd Edition by the Bulgarian network.

Throughout the project all members of the team remained in close contact via e.mail.

Relation to conservation priorities in Bulgaria

Most of the bilateral projects for conservation of Biological diversity in Bulgaria have been for habitat assessment and audits . All of these projects have identified the need for education and greater public understanding in order to protect habitats and species.

Meeting the requirements of the Convention on Biological Diversity.

The Convention on Biological Diversity was ratified in 1996 with a report submitted in 1998. Human resource development and training and public education awareness and information are both highlighted as '**important**' to meet Bulgaria's obligations.

End-users

The clear end users are teachers in schools and those working in informal education e.g. zoos and National Parks. However the impact on children and the general public is a major goal and we include them in the end-user community.

4. Project Objectives

Original Objective	Amended Objective	Achievement
to produce a teaching skills handbook to encourage the teaching of biodiversity in/out of the classroom in the local environment		Barker, S and Elliott, P (2000) <i>Adventures in Ecological Education: From the Classroom to the Karst. A Teaching Resource for Biodiversity.</i> Iskar, Sofia Bulgaria. (89 pages) ISBN: 954-90540-1-2 (<i>copy enclosed</i>)
to introduce interactive ecological activities that promote awe and wonder of the living world and a sensitivity to care for living organisms and habitats.		Activities within the publication, and hands -on experience in the workshops.
to help teachers look for the potential in their own surroundings and relate these well to the wider issues of biodiversity in Bulgaria particularly Karste habitats e.g. bats, wolves, raptors, Karste flora		Achieved.
consider ways of planning, teaching assessing and evaluating the use of biodiversity issues in the classroom within the context of the existing school curriculum but also looking to influence policy for future curricula		The book achieved official endorsement by the Ministry of Education with an recognised stamp of approval and registration number so that the book can be used in schools. (<i>Appendix 3</i>)
take into account traditional educational strategies, aesthetic and cultural dimensions		Achieved
help develop teaching styles to bring Bulgaria more in line with the rest of Europe		Achieved
develop environmental games which are related to Bulgaria's rich Biodiversity		Achieved
key features are transferable skills: skills transferable to other areas of the curriculum and transferable in the sense that the model could be applied to other countries		Workshops achieved objectives.
to run workshops for 'tomorrow's teachers' of Bulgaria at five regional institutions	The workshop participation was broadened to include teachers and those working in non-formal environmental education. The last workshop combined two institutions.	Achieved: http://fcis1.wie.warwick.ac.uk/~bgbioed (<i>Appendix 2</i>)

to set up WWW page for dissemination of information		Achieved: a definite network is now established and has already secured funding for a second edition of the resource from the Swiss Bulgarian conservation programme.
to collaborate with teachers, central government, ecologists and NGO's in the development of the handbook (to establish an internal network)		Achieved: (i) lots of media coverage in Bulgaria and UK. (ii) conference presentations (<i>Appendix 5</i>)
publicise the project to raise public awareness about Biodiversity issues in Bulgaria		Achieved.
to use the outcome of the project in our own teaching in the UK on ecological/biodiversity and professional education courses.		

5. Project Outputs

(i) **4 Training Workshops** (3 days duration) - 131 participants (all Bulgarian nationals plus two Macedonians) (4A, 4B, 6A) (*Appendix 6*)

(ii) **Seminar** in Sofia to launch the book (half day) - approx. 150 participants (14A)

(iii) **Published material- (11A/B)**

Barker, S and Elliott, P (2000) *Adventures in Ecological Education: From the Classroom to the Karst. A Teaching Resource for Biodiversity.* Iskar, Sofia Bulgaria. (89 pages)
ISBN: 954-90540-1-2 (7)

Barker, S and Elliott, P (2000) *Adventures in Ecological Education: From the Classroom to the Karst. A Teaching Resource for Biodiversity in:* de Haan, Gerhard, Mann, J. and Reid, A.M.(2000) *Educating for Sustainability (Umweltbildung und Agenda 21)* Peter Lang (Verlag) European Publishers. (*Appendix 4*)

Barker, S and Elliott, P (2000) *Planning a skills-based resource for biodiversity education* Journal of Biological Education (June in press)

Barker, S and Elliott, P (2000) *Ecological Education in Eastern Europe. Teaching Ecology News, British Ecological Society* (in press- this is a version of the German chapter *Appendix 4*)

Elliott, P. (2000) *In press. Bats and biodiversity education in Bulgaria. Bats* (magazine of Bat Conservation International). (*Appendix 7*)

(iv) **Newspaper articles/ Press Releases**

Bulgaria: 7 (15A)

UK- 1 Warwick University Newsletter May 2000 (15D)

(*Appendix 5*)

TV/Radio (15A)

1 TV interview National Bulgarian Television

3 radio interviews , 2 National radio Bulgaria and 1 local radio station in Bulgaria.

(v) **Conference/Seminar Presentations**

1. August 1999 Elliott, P& Barker, S. VIIIth European Bat Research Symposium, Krakow,

- Poland. (23rd August 1999).
2. November 1999 Barker, S and Elliott, P. Ecological Education in Bulgaria, University of Warwick, UK.
 3. December 1999 Barker, S & Elliott, P. Ecological Education for Sustainable Development in Bulgaria. British Ecological Society Annual Meeting, University of Leeds, UK
 4. January 2000 Barker, and Elliott, P. Council for Environmental Education Biodiversity Education Day at the Association for Science Education, University of Leeds.
- (Appendix 5)

(vi) **Exhibition** in Institute of Education, University of Warwick : September to July 1999/2000

(vii) **www page:** <http://fcis1.wie.warwick.ac.uk/~bgbioed> (7) (Appendix 2)

6. Project Operation/Management

Training was in the form of a series of four three day workshops. There were two main aims of the workshops:

- i) to introduce teachers and others involved in environmental education to a range of innovative teaching techniques for biodiversity education e.g role play, creative writing, poster design, model making, games and investigations. All of the techniques were of low cost or no cost;
- ii) to trial the draft resource, obtaining feedback prior to refining it for the final version. Each workshop covered all sections of the resource and all activities in the resource were trialed and/or discussed over the course of the four workshops. An on-going record was kept of participants' responses to the ideas and the resource and at the end of each workshop there was a more formal opportunity for them to provide written feedback.

The workshops were held at different venues and with a range of participants. All the participants were Bulgarian nationals except two Macedonians.

Workshop 1 National Museum of Natural History, Sofia

21 participants
 Invitations were sent to a range of educators at environmental NGO's, national parks and local universities. Some of our partners also acted as participants in order to familiarise themselves with the materials and ideas.

Workshop 2 American University of Bulgaria, Blagoevgrad

35 participants
 Participants were mostly members of a regional environmental education network in the Pirin region, Eko-eco. The majority were practising school teachers, but university staff were also present.

Workshop 3 School number 7, "Paisii Hilendarski", Smolian

24 participants+ 2 advisers
 Participants were invited via Eco World Rhodopi, a regional environmental education network. All were school teachers except the regional inspector of school biology.

Workshop 4 New Bulgarian University, Sofia

45 participants + 4 trainers

Participants were student teachers from the New Bulgarian University and Sofia University. They were joined by four of their lecturers.

Thanks to the enthusiasm and dedication of our partners the workshops arrangements went smoothly.

7. Project Impact

Under the Biodiversity Convention there is an expectation that countries will encourage universal involvement in the conservation of biodiversity. Yet it has been noted that in Bulgaria "data on species and ecosystems are ample...measures to raise public awareness of nature need to be developed" (OECD, 1996). The project will help Bulgaria to achieve this by placing in schools a resource that introduces the topic of biodiversity conservation and advises teachers how to teach it in an interactive, issues-based way.

One thousand copies of the resource have been distributed to schools and others involved in environmental education and to the people who attended the workshops at which the materials were trialled. Many of the workshop participants were students at the start of their teaching careers and others were education lecturers and school inspectors, leading us to believe that the resource will be actively used for several years to come and may act as a catalyst for future developments. We believe that the resource produced by the project will help to raise awareness of biodiversity and conservation issues among the young in Bulgaria and that by helping to change attitudes in this group will produce long term benefits for biodiversity as they grow up and make decisions that impact upon the environment. Short term benefits may accrue as youngsters raise the awareness of their parents and other adults that they come into contact with.

Although many of the participants in the workshops were already interested in and active in environmental education, few had considered biodiversity as a specific issue. The project has therefore raised the profile of biodiversity education within an active and often influential cross section of educators. It is hoped that this will have long term benefits and that workshop participants and other recipients of the resource will be inspired go on to develop projects and resources of their own. The teaching techniques introduced in the resource and used in the workshops proved to be unfamiliar to participants, as anticipated, but were gratefully received. By introducing these techniques and encouraging participants to try them we believe that we have developed new skills that will be of use in biodiversity education and other settings. We already have reports of school inspectors recommending the resource to teachers and running training courses using the ideas they encountered in our workshops.

Good collaboration took place with our partners, including the New Bulgarian University, University of Sofia, the Bulgarian Academy of Sciences, NGO's Borrowed Nature and the Bat Research and Protection Group. New links were forged with environmental NGO's in the Pirin and Rhodope regions when they facilitated workshops. All of these organisations hope that the opportunity will arise to work with us in the future. We are also pleased that the project has allowed new networking opportunities between our partners, some of whom have forged strong links as a result of participation in the project.

8. Sustainability

No monetary contribution came from Bulgaria for the project. Following the success of the resource produced by the project, our Bulgarian partners have sought and secured funding for a second edition of the book/resource. The funding for the 2nd Edition is from the Bulgarian/Swiss Biodiversity Programme.

9. In the absence of Darwin funding the project would not have proceeded.

If the project had not been undertaken it is difficult to predict whether the users/beneficiaries would have met their needs in other ways. There are other organisations working in the general field of environmental education in Bulgaria and some local projects have a biodiversity focus, but there has been no other project addressing biodiversity conservation through the formal educational channels and as a national issue.

10. Key Points

Successes:

- collaboration with Bulgarian partners and between our Bulgarian partners;
- identifying, exploring and communicating a representative range of biodiversity topics and issues;
- producing teaching resources and techniques that were innovative and that workshop participants found inspirational;
- running a successful series of workshops that introduced participants to new ideas and skills, but which also enabled us to make informed revisions to the educational materials;
- gaining approval for use of the resource in schools from the Ministry of Education of the Republic of Bulgaria;
- production of the final Bulgarian version of the resource in Bulgaria;
- demand for the resource has out-stripped supply;
- successful exit strategy with the Bulgarian network functioning independently securing funding for a second edition of the resource.

Problems

- delays over which we had no direct control (eg. printing);
- difficulties translating the draft and final versions of the resource into Bulgarian (eg. obtaining software with Bulgarian Cyrillic alphabet);
- illness during the first visit;
- Balkans war at the time of the second visit, causing uncertainty and possible interruption of the project. We had several people not turn up at the workshops because they thought that we would not turn up. (Most other foreign visitors were cancelling visits)

Key lessons

The strength of our relationship with some of our partners was critical to the success of the project. Detailed, on the ground planning would have been impossible without good local knowledge and our partners' enthusiasm to make the project a success. It was therefore crucial to win their commitment to the project, build relationships and ensure that they were not left out of pocket through their involvement.

Allow plenty of time for translation of materials and have this checked by a number of people, including a fellow scientist. The translation of our draft materials rather idiosyncratic and contained some interesting interpretations of some scientific terms.

11. Project contacts

UK Project Leaders

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Tsvetelina Petrova

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Ministry of Education

Dr Peter Yankov

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Bogdana Shopova (formerly of Borrowed
Nature).

References

European Environment Agency (1995) Europe's Environment: The Dobris Assessment.
OECD (1996) OECD Environmental Performance Reviews: Bulgaria. OECD Paris.

Acknowledgements

We gratefully acknowledge funding from the Darwin Initiative for the Survival of Species. We are indebted to our Bulgarian team who surpassed all our expectations in making this project successful and continuing with the work now the project has finished. We also warmly thank all those who participated in the workshops and who gave us valuable feedback in developing the resource.

Ref: 9120/FORMS/9120-FRS

APPENDIX 1

Expenditure

DARWIN INITIATIVE PROJECT 162/7/069

Ecological Education in Bulgaria

EXPENDITURE STATEMENT

Expenditure Details	Budget 98/99	Budget 99/00	TOTAL BUDGET	TOTAL SPEND	Over/ (under)
Rents, rates, heating, lighting, cleaning Postage, telephone, stationery Travel, subsistence Printing Conference, seminars Other: Translation costs Salaries					
TOTALS					

APPENDIX 2

Website

Teaching Biodiversity: Bulgaria



[Bulgarian Biodiversity site](#)

**ADVENTURES IN ECOLOGICAL EDUCATION:
FROM THE CLASSROOM TO THE KARST**



[Teaching Resources](#)

**A TEACHING RESOURCE FOR
BIODIVERSITY EDUCATION IN BULGARIA**

This site presents educational materials developed to raise awareness of the rich biodiversity of Bulgaria and the issues associated with its conservation.



[More About the Project](#)

**TO FIND OUT MORE ABOUT THIS PROJECT AND
TO VIEW THE RESOURCES USE THE ICONS ON
THE LEFT**



[Related Sites](#)



The Darwin Initiative
This project was funded by the Darwin Initiative

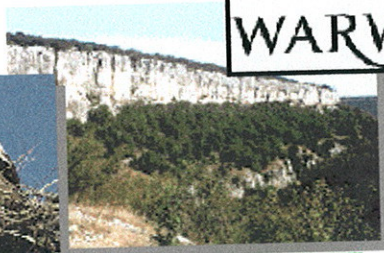
The Darwin Initiative for the Survival of Species is administered by the British Government. It funds projects led by British institutions that aim to promote knowledge and conservation of biodiversity in countries that are richer in biodiversity, but poorer in other resources.



Mediterranean horseshoe bat (*Rhinolophus euryale*)



Nesting white stork



Karstic scenery

Bulgarian Biodiversity

[Home](#)



[Bulgarian Biodiversity](#)



[Teaching Resources](#)



[What's About the Project](#)



[Related Sites](#)

Bulgaria is rich in biodiversity because of its highly varied climate, geology, topography and hydrological conditions. Of great significance are the alpine and sub-alpine coniferous forests, meadows, wetlands, peat bogs, lakes, caves and mountain gorges of the limestone Karst regions, sand dunes and coastal wetlands. The forests are particularly important 35% of Bulgaria is forested and 60% of this is of natural origin.

KEYTHREATS TO BIODIVERSITY IN BULGARIA:

LOSS AND DEGRADATION OF AQUATIC AND TERRESTRIAL HABITATS.

POLLUTION OF AIR, SOIL AND GROUNDWATER, FRESHWATER, AND COASTAL WATERS.

DIRECT EXPLOITATION OF SPECIES

Bulgaria's biota includes :

94 species of mammals
383 species of birds

36 species of reptiles
16 species of amphibians
207 species of sea and freshwater fish
27,000 (estimated) species of insects and other invertebrates
3,750 species of vascular plants

Bulgaria is in south-east Europe and forms part of the Balkan Peninsula. It borders the Black Sea and its climate is also influenced by the Mediterranean Sea and the

Bulgaria



Try these other web-sites to find out more about Biodiversity in Bulgaria
[ARD Bulgaria Biodiversity](#), [Bulgaria Bulletin](#),

TEACHING RESOURCES



Bulgarian Biodiversity



More About the Project



Related Sites

NINE CASE STUDIES EXAMINE VARIOUS FACETS OF BIODIVERSITY AND ASSOCIATED ISSUES, FROM THE LEVEL OF VARIATION WITHIN SPECIES TO THE IMPORTANCE OF HABITATS.

EACH CASE STUDY INCLUDES A RANGE OF IDEAS AND MATERIALS THAT ALLOW TEACHERS AND OTHER EDUCATORS TO ADAPT THEM FOR USE WITH DIFFERENT AGES AND ABILITIES. *Each resource will shortly be available here on-line.*



Seasonal Bird Migration

The diary of a stork introduces the problems faced by migrating birds. The risks to migrating Red-breasted geese are explored through role play.

Birds of Prey

Games are used to emphasise the reliance of birds of prey on other organisms and the vulnerability of being at the top of the food chain.



Snakes

Information about Bulgaria's rich snake fauna may be handled to create graphs, design conservation posters, make models or design and play games.

Grapes and Wine

Biodiversity within a domesticated species.

*How important is wine to Bulgaria?
How is it made? How do grapes vary?
Marketing Bulgarian wine.*



Bats and karst

Start by matching facts about amazing bats and learning about their year. Explore the karst landscape through model-making. How to help bats.

Wolves

How wolves are portrayed in stories, songs and film. Use games, role-play and creative writing to explore human-animal relationships.



Herbs

The exploitation of a wild resource. Investigating the potential uses of a wild plant species. Cultivating herbs.

Local Biodiversity

Biodiversity in the school environs. Creating micro-habitats for invertebrates. Mini-beast hunt game. What do woodlice like to eat?



Edelweiss

Bulgaria's symbol of tourism. Constructing edelweiss from scrap. Team role play

Home



Bulgarian Biodiversity



Teaching Resources



Related Sites

More About Ecological Adventures in Bulgaria

**Biodiversity Education
Teaching Philosophy of the Resource
Bulgarian Biodiversity**

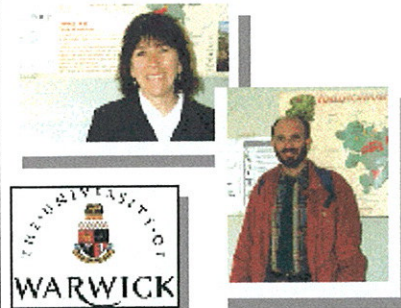
these files will be down-loadable as PDF (under construction)

UK team

Co-directors:

[Dr Susan Barker](#) and
[Dr Paul Elliott](#)

They are lecturers in Science Education and Ecology at the [University of Warwick](#).



Bulgarian team

Tea Ivanova and Antoaneta Georgieva of the Bat Research and Protection Group

Bogdana Shopova and Ludmilla Georgieva formally of Borrowed Nature, now Bogdana works for an NGO [Foundation for Local Government Reform](#)

Snezhana Tomova of the [New Bulgarian University, Sofia](#)

Natalia Tzanova of the [University of Sofia](#)

Ana Petrova and Dimitar Uzinov of the [Institute of Botany, Bulgarian Academy of Sciences](#)

Lilia Brezova of the Bulgarian Society for the Protection of Birds



[Home](#)



[Bulgarian Biodiversity site](#)



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[Teaching Resources](#)



Related Sites

[World Resources Institute](#)

World Directory of Country Environmental Studies. Summarises Bulgaria's National Biological Diversity Conservation Strategy.

[ARD Bulgaria Biodiversity](#)

Supports the Government of Bulgaria's National Nature Protection Service.

[Bulgaria Bulletin](#)

Gives a good account of biodiversity in Bulgaria. Produced by the Regional Environmental Center for Central and Eastern Europe.

[World Conservation Monitoring Centre](#)

Provides information services on conservation and sustainable use of Bulgaria's natural resources. Good site for legislation information.

[WWF:Conservation of Rhodope Mountains](#)

A WWF project to promote traditional sustainable practice in the beautiful Eastern Rhodope mountains in southern Bulgaria.

[WWF:Campaign for Europe's Carnivores](#)

The large carnivores of Europe are under threat. Bulgaria has important populations.

[Ecovolunteer experience](#)

A research project on wolves in Bulgaria, plus lists of books on wolves and other Bulgarian wildlife.