# REPORT

## OF THE TRAINING WORKSHOP ON BATS DETECTORS AND MONITORING METHODS

## (SHARING KNOWLEDGE TO DEVELOP GOOD PRACTICE FOR MONITORING EUROPEAN BAT POPULATIONS)

Report prepared by Ioseb Natradze (Campester), Colin Catto (BCT),
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17-20 June, 2004
Tbilisi, Georgia

Draft report for Georgian Workshop. August 2004. BCT

**CONTENT**

**Executive Summary**


1) A workshop was held in Georgia with the aim of sharing knowledge to develop good practice for monitoring of European bat populations

2) The workshop was funded by the Department of Environment, Food and Rural Affairs (DEFRA, UK) through the EUROBATS Secretariat. Additional funding for bat detectors was provided by WWF Netherlands and a Dutch NGO 'Milieukontakt Oost-Europa'

3) The workshop was organized jointly by the Bat Conservation Trust (UK) and 'Campester' (Georgia). Workshop participants came from 6 countries: Armenia, Azerbaijan, Georgia, Russia, the Netherlands and the UK

4) Main topics covered in workshop lectures included: Approaches to bat conservation in the UK and the Netherlands, monitoring experiences and examples of monitoring programmes, involvement of volunteers and capacity building for bat NGOs. Participants discussed standard recording forms for recording hibernating bats and a proposal to survey caves and involve more people in bat conservation in the Caucasian region

5) Training was provided in effective bat detector usage. Fieldwork in the evening enabled practical demonstrations of using detectors to identify bats and also to carry out survey work.

6) A total of 12 species were identified with bat detectors and another probable species in addition. This was the first record of *Hypsugo savii* and the second record for *Nyctalus lasiopterus. M. capaccinni* was identified provisionally though further work is required for a positive identification. This would be the first record of this species if confirmed. Fieldwork demonstrated the value of bat detectors as effective survey tools

7) A number of caves and structures were surveyed during the day and seven species of bat recorded. Some of the sites contained breeding sites of internationally important species: *Rhinolophus ferrumequinum, R. euralye, R. hipposideros, Myotis blythii, M. emarginatus* and *M. schreibersii*. At 2 cave sites potential problems connected to proposed development were identified

8) Outcomes of the workshop were
    - Participants from each country were provided with bat detectors
    - Participants were trained in using bat detectors effectively
    - Participants discussed the issue of involving more people in bat conservation and agreed the approach
    - A standard form for recording cave bats was discussed and agreed on by participants
    - Participants from 4 countries agreed to work collaboratively on a project to survey caves in the Caucasian region and to recruit new people through

9) Participants found the workshop very interesting and they enjoyed learning about approaches to bat conservation in other countries. The workshop has stimulated them to work on a collaborative regional project to increase awareness of bats and to survey caves in the Caucasian Region.

## I BACKGROUND INFORMATION

Georgia has been a party to the Agreement on the Conservation of Populations of European Bats (EUROBATS) since 2002 and has a responsibility to implement obligations under the Agreement. A fundamental obligation of the European Bats Agreement is the successful monitoring of priority bat species. Monitoring enables the identification of threats, development of targeted conservation measures to address the threats and a method of measuring progress against any actions taken. There is tremendous variation throughout Europe in terms of the level of monitoring and the methodologies used and at the 8th Meeting of the Advisory Committee in Norway there was a request for the opportunity to share knowledge and develop good practice in this area.

Georgia was keen to gain experiences of bat monitoring techniques and develop the necessary skills to use bat detectors as effective bat monitoring tools. Consequently Georgia formally asked the Bat Conservation Trust (BCT) to organize a bat monitoring workshop and invited participants from countries in the Caucasian region, ensuring knowledge would be shared throughout the region.

The workshop was funded via EUROBATS through a grant from the UK's Department of Environment, Food and Rural Affairs (DEFRA). WWF Netherlands and the Dutch organization "Milieukontakt Oost-Europa" made generous donations to the workshop to enable the purchase of bat detectors that were presented to participating countries.

## II INTRODUCTION

The workshop on ``Bat Detectors and Monitoring Methods`` was convened on 17-20 June, 2004 in Ckaltubo, Georgia. It was organized by the Georgian NGO - ``Field Researchers` Union`` (Campester) in close cooperation with the Bat Conservation Trust (BCT).

The workshop was attended by field researchers, scientists, speleologists, forestry workers and bat experts from governmental and non-governmental organizations representing four countries – Armenia, Azerbaijan, Georgia and Russia (see ***Appendix 1*** – List of Workshop participants). The Workshop was led by invited resource persons - Colin Catto (BCT / UK) and Herman Limpens (VZZ / NL).

**The main goals** of the Workshop were to:

1) Share knowledge/experiences of methods for monitoring bats and to gain agreement on monitoring protocols.
2) Provide training in how to use bat detectors as effective survey and monitoring tools

**Specific objectives** of the Workshop were to:

- Provide key equipment (bat detectors) to enhance assessment possibilities for bat workers;
- Train workshop participants in how to use bat detectors as effective monitoring tools
- Discuss methodologies for monitoring for priority bat species;
- Introduce the concept of monitoring using volunteers;
- Agree monitoring protocols according to bats species;

- Identify a clear way forward including canvassing opinion on a Pan-European monitoring project.

## III OPENING OF THE WORKSHOP

The workshop was opened by Mr. Ioseb Natradze, representing the Georgian NGO ``Field Researchers` Union``. He welcomed participants and made a short overview about the main goal and objectives of the training workshop. Mr. I. Natradze stressed the importance of the event in terms of application and using of bat detectors and monitoring methodologies in practice. At the end, he introduced the invited resource people - Dr. Colin Catto (BCT / UK) and Mr Herman Limpens (VZZ / NL) to the workshop and wished workshop participants success in their deliberations.

The workshop was declared opened on 17 June, 2004.

## IV WORKSHOP PRESENTATIONS

Pursuant to the objectives and expected outputs of the workshop, the following main presentations were made (see ***Appendix 2*** – Agenda of the Workshop):

1. Introduction of EUROBATS and DEFRA, by Colin Catto;

2. Identifying bats with bat detectors (heterodyne), by Herman Limpens;

3. Approach to conservation of bats in UK and the Netherlands, by C. Catto and H. Limpens;

4. Experiences of bat conservation in each country, by representatives of each participated country;

5. Using broadband detectors to identify bats and using Batsound to analyse bat calls, by H. Limpens;

6. Monitoring and surveying - experiences in the UK and the Netherlands, by C. Catto and H. Limpens;

7. Standard recording forms/protocols for recording hibernating bats. Agree standard protocol/form similar to UK and Romania, by C. Catto.

## V WORKING SESSIONS

Working sessions of the workshop were divided into two parts: lectures and field works.

Also, field excursions were made outside of the workshop days. In particular,

- the first field work was arranged on 16 June in Vake Park and Turtle Pond (Tbilisi);
- the second - on 20 June in Tbilisi Botanical Garden;
- the third – on 21 June to the South from Tbilisi city – Gorge of river Khrami;
- the fourth on 22 June in the east part of Georgia - Complex of artificial caves of David Gareji, Natlismcemeli and Tetri Senakebi.

**LECTURES**

Lectures delivered by the resource people were centered on

1) Strategies for conserving bats including monitoring and survey methodologies
2) Involving volunteer in bat conservation
3) Training in effective bat detector use

The invited resource persons made a detailed presentation and explanations in the field concerned. This was interspersed with discussions of all the issues raised with contributions from all participants.

Strategies for conserving bats including monitoring and survey methodologies

During the workshop attention was focused on bat conservation measures in place in countries that attended the workshop. Firstly, the resource people presented information on approaches to conservation of bats in their countries. Representatives of each country gave information on their national approaches to bats conservation as well. It became clear that conservation approaches in different countries vary considerably and there is a need to identify the best way forward for bat conservation. Participants were very interested in the issue of monitoring methodologies and this stimulated active discussion between all participants.

Workshop participants considered a standard protocol / form for recording hibernating bats. This standard recording form was discussed and approved by participants who agreed to discuss them with bat colleagues in each country after the workshop had ended and try and get them adopted as national recording forms.

Involvement of volunteers in bat conservation

The invited resource people presented experiences in the UK and the Netherlands of involving volunteers for monitoring and surveying bats in the field. All country representatives discussed volunteer action for bat monitoring and agreed that involvement of more people in bat conservation was a good way forward. It was pointed out that travel is relatively expensive in the Caucasian region and that volunteers would need help with expenses incurred although time could be donated freely.

It was suggested that speleologists could provide valuable assistance in conserving and monitoring bats. This suggestion was discussed with Georgian speleologists who were attending the workshop and they fully endorsed the principle of helping bat workers on a voluntary basis. The speleologists proposed to take a bat worker on their future expeditions in order to help them take the conservation of bat into consideration. This was a very good example of co-operation between different specialist groups that furthered bat conservation.

A clear way forward

Following on from the discussions on monitoring and involving more people in bat conservation, participants expressed an interest in developing a specific monitoring proposal. Therefore time was given in the workshop to discuss such a proposal as it provided an opportunity for ideas stimulated from lectures to be crystallized into a discrete document. The process involved input from all participants with detailed notes recorded onto a laptop

computer as discussions took place (see ***Appendix 3*** – showing detailed process of discussion and design of the proposed project).
In summary, participants realized the value of collecting data regionally (Caucasian region) and working together as opposed to each country developing separate projects. Caves were identified as an important resource for bats in the region and potential threats to cave roosting species were identified due to development pressures. Ideas for involving more people in bat conservation centered on recruiting education experts who would develop resources for schools and train teachers how to use the developed resources effectively. Participants enjoyed the process of developing the project and working together and stressed it would be very beneficial follow-up to this project after the workshop.

Participants discuss and plan proposed regional project


Training in effective bat detector use

Training involved a mixture of lectures and practical sessions in the field. This was one of the most popular parts of the workshop and, in conjunction with the donation of bat detectors will provide another tool for monitoring and surveying bats. However it should be noted that more bat detectors and trained personnel are required before bat detector monitoring projects can be implemented.

Herman Limpens discusses the finer points of bat echolocation

Herman Limpens and Colin Catto discuss key points of using of bat detectors

Fieldtrips were made to cave sites and areas likely to be good for foraging bats. A full description of workshop visits can be found in Appendix 4.

**Summary of species identified during cave and structure visits**

| Date | Location | Species | Numbers | Comments |
|---|---|---|---|---|
| 17/6/04 | Gliana Cave[1] | *R. euryale* | 100 | Seen |
| 17/6/04 | Gliana Cave | *M. blythii* | 400-600 | Seen |
| 17/6/04 | Gliana Cave | *M. schreibersii* | 600+ | Seen |
| 18/6/04 | Tskaltubo Cave | *R. euryale* | 20 | Seen |
| 18/6/04 | Tskaltubo Cave | *R. hipposideros* | - | Heard on detector |
| 18/6/04 | Tskaltubo Cave | *R. euryale* | - | Large pile of droppings |
| 21/6/04 | River Khrami gorge | *R. ferrumequinum* | 1 | Seen |
| 20/6/04 | Tbilisi, sulphorous water tunnel | *M. nattereri* | 10+ | Seen |
| 22/6/04 | David Gareji monastery | *R. ferrumequinum* | 150+ | Seen |
| 22/6/04 | David Gareji monastery | *M. blythii* | < 10 | Seen |
| 22/6/04 | David Gareji monastery | *M. emerginatus* | < 10 | Seen |
| 22/6/04 | Natlismcemeli monastry[2] | *M. blythii* | 250 + | Seen with young. 10 dead ones found |
| 22/6/04 | Tetri Senakebi | *R. ferrumequinum* | 200+ | Seen with young |
| 22/6/04 | Tetri Senakebi | *M. emarginatus* | 30-40 | Seen |

[1] *Immediately outside the cave entrance there was evidence of recent development as a fish farm is being developed. However discussions with local people raised awareness of the importance of bats (who were every interested to know that bats feed on mosquitoes) and the site*

[2] *The cave containing the M. blythii is being considered for development and there are threats to this colony*

A total of seven species were observed in caves

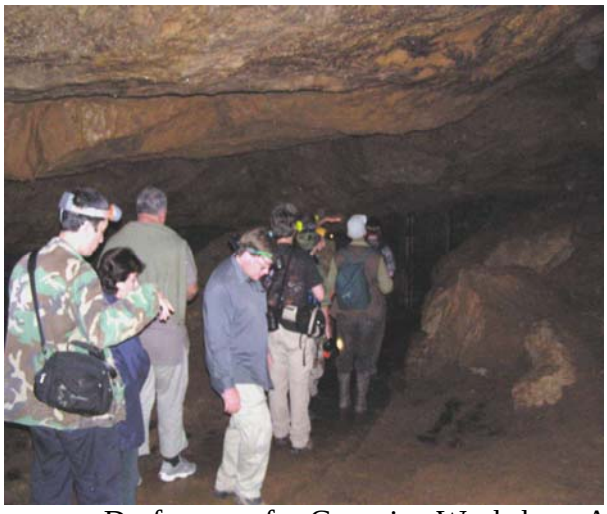
**Summary of species identified with bat detectors/mist nets**

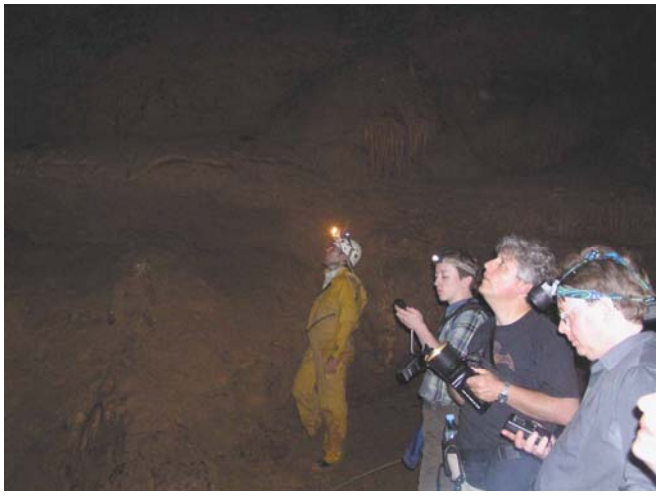
| Date | Location | Species | Comments |
|---|---|---|---|
| 16/6/04 | Tblisi, Vake Park and Turtle Pond | *P. pipistrellus* | Heard and caught |
| 16/6/04 | Tblisi, Vake Park and Turtle Pond | *M. emarginatus* | Heard[1] |
| 16/6/04 | Tblisi, Vake Park and Turtle Pond | *R. hipposideros* | Heard/seen |
| 16/6/04 | Tblisi, Vake Park and Turtle Pond | *P. kuhlii* | Heard |
| 16/6/04 | Tblisi, Vake Park and Turtle Pond | *E.serotinus* | Heard |
| 16/6/04 | Tblisi, Vake Park and Turtle Pond | *M daubentonii* | Heard/seen |
| 16/6/04 | Tblisi, Vake Park and Turtle Pond | *Plecotus* sp | Heard |
| 17/6/04 | Outside Gliana Cave entrance | *M. daubentonii* | Heard |
| 17/6/04 | Outside Gliana Cave entrance | *P. kuhlii* | Heard |
| 17/6/04 | Outside Gliana Cave entrance | *P. pipistrellus* | Heard |
| 17/6/04 | Outside Gliana Cave entrance | *M. blythii* | Heard |
| 17/6/04 | Outside Gliana Cave entrance | *N. leisleri* | Heard |
| 17/6/04 | Outside Gliana Cave entrance | *E. serotinus* | Heard |
| 17/6/04 | Outside Gliana Cave entrance | *M. schreibersii* | Heard |
| 18/6/04 | Outside Tskaltubo Cave | *R. euralye* | Heard |
| 18/6/04 | Outside Tskaltubo Cave | *P. pipistrellus* | Heard |
| 18/6/04 | Outside Tskaltubo Cave | *E. serotinus* | Heard |
| 18/6/04 | Outside Tskaltubo Cave | *M. emarginatus* | Heard |
| 18/6/04 | Outside Tskaltubo Cave | *R. ferrumequinum* | Heard |
| 18/6/04 | Outside Tskaltubo Cave | *M. blythii* | Heard |
| 19/6/04 | Workshop venue | *P. pipistrellus* | Heard |
| 19/6/04 | Workshop venue | *P. kuhlii* | Heard |
| 19/6/04 | Workshop venue | *E. serotinus* | Heard |
| 20/6/04 | Tblisi botanical Gardens | *P. pipistrellus* | Heard |
| 20/6/04 | Tblisi botanical | *P. kuhlii* | Heard |

[1] Hear with detector = mostly seen and heard with detector

| | | | |
|---|---|---|---|
| | Gardens | | |
| 20/6/04 | Tblisi botanical Gardens | *E. serotinus* | Heard |
| 20/6/04 | Tblisi botanical Gardens | *N. noctule/leisleri* | Heard |
| 20/6/04 | Tblisi botanical Gardens | *R. ferrumequinum* | Heard |
| 20/6/04 | Tunnel under spa | *M. nattereri* | Heard and caught |
| 20/6/04 | Outside Tunnel | *P. kuhlii* | Heard |
| 20/6/04 | Outside Tunnel | *P.pipistrellus* | Heard |
| 20/6/04 | Outside Tunnel | *R. ferrumequinum* | Heard |
| 20/6/04 | Outside Tunnel | *N. leisleri* | Heard |
| 21/6/04 | River Khrami gorge | *P. kuhlii* | Heard |
| 21/6/04 | River Khrami gorge | *R. ferrumequinum* | Heard |
| 21/6/04 | River Khrami gorge | *P. pipistrellus* | Heard |
| 21/6/04 | River Khrami gorge | *M. emarginatus* | Heard |
| 21/6/04 | River Khrami gorge | *N. noctule?* | Heard |
| 21/6/04 | River Khrami gorge | *N. lasiopterus* | Heard |
| 21/6/04 | River Khrami gorge | *E. serotines* | Heard |
| 21/6/04 | River Khrami gorge | *M. blythii* | Heard |
| 21/6/04 | River Khrami gorge | *M. daubentonii / capaccinii??* | Heard |
| 22/6/04 | Tetri Senakebi valley – lake | *P.pipistrellus* | Heard |
| 22/6/04 | Tetri Senakebi valley – lake | *P. kuhlii* | Heard |
| 22/6/04 | Tetri Senakebi valley – lake | *E. serotinus* | Heard |
| 22/6/04 | Tetri Senakebi valley – lake | *N. noctule* | Heard |
| 22/6/04 | Tetri Senakebi valley – lake | *H savii* | Heard |
| 22/6/04 | Tetri Senakebi valley – lake | *M. daubentonii??* | Heard |

12 species were identified with bat detectors and another (*capaccinii*) provisionally. As this was 5 (6) species more than identified from cave surveys it demonstrates the value of bat detectors for increasing species coverage. Species such as *N. noctule, N. lasiopterus* are rarely found in caves but are relatively easily identified with bat detectors.





**Summary**
Overall a diverse range of species was encountered on both site trips and bat detector surveys. Bat biodiversity in Georgia is amazing. However threats that could impact on important breeding sites is in evidence and prompt action is required to achieve a balance of development and biodiversity. In connection to this last point, it is significant to stress that during our field trip we identified that species occurred in one of the important underground sites – Natlismcemeli Monastery are under threat from reconstruction development. It is planned to apply to head of this Monastery and discuss this question to avoid expecting threats on bat species.

Also, it should be mention that short information meeting we had with local people in Village Kumistavi gave real results. They have positive attitude towards protection of bats and willing to be involved in conservation activities.

## VI OUTPUTS AND CONCLUDING REMARKS

1. Workshop participants personally were provided with bats detectors.

2. Representatives of four countries of Caucasus eco-region were trained in using of bats detectors and monitoring methodologies.

3. Participated countries discussed volunteer action for bat monitoring and approved this approach.

4. A standard protocol / form for recording hibernating bats was considered and approved.

5. Clear way forward including canvassing opinion on a Pan-European monitoring project is identified – In particular, a draft regional project on ``Cave Bats Species Survey and Monitoring, including Public Awareness Campaign`` was designed.

## VII ASSESSMENT OF THE WORKSHOP

At the end of the event, participants assessed the workshop. The following questions have been distributed for the assessment process:

- What did you think of Lectures?
- What did you think of Field Trips?
- What was the best part of the Workshop?
- What would you like to do in future workshop?
- General opinion on the workshop?

Workshop participants assessed all lectures and field works with quality – ``very good``. Participants mentioned the best part of the workshop was training in using of bats detectors during field works and caves investigation.

Participants expressed their wishes for future workshops. They would like to learn more about echolocation difference of different bat species and arrange more field trips. Additionally, they wish to conduct one coordination meeting / workshop for planned regional project.

According to general opinion of all participants, workshop was very interesting and useful. They pointed out that this workshop was the best opportunity for learning more about the conservation, survey and monitoring methodologies of bats. In addition, this workshop gave good chance to all participants to cooperate with other specialists from different countries of Caucasus Eco-region. Also, workshop participants mentioned that they gained more experiences from invited resources persons on bats detectors and monitoring methodologies. Moreover, all participants emphasized that a draft regional project on ``Cave Bats Species Survey and Monitoring, including Public Awareness Campaign`` designed during the workshop is the most valuable result following this event.

## VIII CLOSURE OF THE WORKSHOP

The workshop was closed by Mr. Ioseb Natradze. He summarized all results of the workshop and talked about follow-up of this event. Mr. I. Natradze thanked all participants for their effective work and active discussions. He expressed special appreciation and thanks towards invited resource persons for very interesting presentations and beneficial field works. Finally, he thanked interpreters and all who participated in the convening and successful conduction of the workshop.

The workshop was closed on 20 June, 2004.

## IX APPENDIXES

Appendix 1 - List of participants
Appendix 2 - Agenda of the Workshop
Appendix 3 - Process of discussion for initiation and design of the regional project on cave bats species survey and monitoring, including public awareness campaign
Appendix 4 - Results of fieldwork
Appendix 5 - Summary table of the species encountered in Georgia during the workshop

**Acknowledgements**
We would like to thank DEFRA and EUROBATS for making the workshop possible, WWF Netherlands and a Dutch NGO 'Milieukontakt Oost-Europa' for providing bat detectors. The Georgian Ministry of Environment Protection and Natural Resources provided invaluable logistical help and wonderful accommodation for the workshop.

## *Appendix 1* - List of participants

| | Name and Surname | Institution | Contact details |
|---|---|---|---|
| 1 | Zaza Kvantaliani | The Ministry of Environment, Department of Forestry | Shrosha street, Tbilisi, Georgia<br>Tel: +995 233665, Mob.77 401829 |
| 2 | Margarita Arutunian | State University of Erevan | 8, Charenca street, Erevan, Armenia<br>Tel: 556778<br>e-mail: anpuorg@freenet.am |
| 3 | Eduard Iavroian | State University of Erevan | 8, Charenca street, Erevan, Armenia<br>Tel: 556778<br>e-mail: anpuorg@freenet.am |
| 4 | Irina Rakhmatulina | Institute of Zoology of Azerbaijan | Road 1128, block 504, Baku, 370073, Azerbaijan<br>e-mail: rakhmat@azeurotel@com |
| 5 | VitaliiMatveev | State University of Moscow | 3 Nikita street, 125009, Museum of Zoology of Moscow State University, Russia<br>e-mail: vital-m@mail.ru |
| 6 | Suren Gazarian | Bats Research Group of Russia | 94-23, Russian street, Krasnodar, 350901, Russia<br>e-mail: s-gazaryan@yandex/ru |
| 7 | Nidjat Gasanov | Institute of Zoology of Azerbaijan | Road 1128, block 504, Baku, 370073, Azerbaijan<br>e-mail: hasniiat@yahoo.com |
| 8 | Andrey Kandaurov | Institute of Zoology of Georgia<br>WWF Caucasus Program, "Campester" | 11, Aleksidze street, Tbilisi, 0197, Georgia,<br>Tel: 8-24-192537<br>e-mail: ndrei.kandaurov@myhome.ge |
| 9 | George Kumsiashvili | Volunteer | 12, Rodiashvili steer, block 43, Georgia<br>Tel: 995 32 531924 |
| 10 | George Laliashvili | Volunteer | Tel: +995-32-998713 , Georgia |
| 11 | Kiazo Rakviashvili | Institute of Geography of Georgia | 1, Aleksidze street, block 8, Georgia<br>Tel: 331418, 337449 &<br>+995 32 95 68 15 |
| 12 | Manana Lataria | Interpreter | 44, Pavliashvili street, Tbilisi, Georgia<br>Tel:.+995 93 356575 |
| 13 | Rusudan Aphakidze | Interpreter | 44, Pavliashvili street, Tbilisi, Georgia<br>Tel: +995 77 437656 & 22 31 67 |
| 14 | Alexander Bukhnikashvili | NGO -"Campester" | e-mail:campester@campester.ge |
| 15 | Ioseb Natradze | MGO - "Campester" | e-mail: ioseb.natradze@campester.ge |
| 16 | Herman Limpens | Society for Study and Conservation of Mammals | Roghorst 99, 6708 KD Wageningen, The Netherlands<br>e-mail: herman.limpens@vzz.nl |

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|---|---|---|---|
| 17 | Colin Catto | Bat Conservation Trust | 15 Cloisters House<br>8 Battersea Park Road<br>London UK SW8 UBG<br>e-mail: ccatto@bats.org.uk |
| 18 | Amiran Ljamrishvili | Institute of Geography of Georgia | 10/7 Petricki street, Tbilisi, Georgia<br>Tel: 995 32 533954,<br>Mob: +99 732401 |
| 19 | Inessa Kuzanova | NGO ``Aquamelia`` | 50, Abashidze street, Tbilisi, Georgia,<br>Tel: 995 32 232083,<br>Mob.77 731132<br>e-mail:inesa@myoffice.ge |

## *Appendix 2* - Agenda of the Workshop

**17 June, 2004**

| | |
|---|---|
| 14:00 | Arrival in Tskaltubo (Workshop venue) |
| 15:00 – 15:20 | Welcome speech and official opening of the workshop (Ioseb Natradze representative of NGO ``Campester``) |
| 15:20 – 15:30 | Introduction of workshop participants |
| 15:30 – 16:00 | Introduction of EUROBATS and DEFRA, by Colin Catto, BCT |
| 16:00 – 16:20 | Discussion |
| 16:20 – 16:30 | Break |
| 16:30 – 17:00 | Identifying bats with bat detectors (heterodyne), by Herman Limpens |
| 17:00 – 17:20 | Discussion |
| 17:20 – 17:50 | Preparation and planning of field work schedule |
| 17:50 - 18:00 | Summarizing and closure of the first day |
| 18:00 – 19.00 | Dinner |
| 19:00 - 12.00 | Field work |
| 12:00 – 12:45 | Night tea |

**18 June, 2004**

| | |
|---|---|
| 9:30 – 10:30 | Breakfast |
| 10:30 -11:45 | Approach to conservation of bats in UK and the Netherlands, by C. Catto and H. Limpens |
| 11:45 - 12:00 | Break |
| 12:00 - 13:10 | Continuation |
| 13:10 -13.30 | Discussion |
| 13:30 - 14:30 | Lunch |
| 14:30 - 15:30 | Experiences of bat conservation in each country, by representatives of each participated country |
| 15.30 – 15.45 | Discussion |
| 15:45 – 16:00 | Break |
| 16:00 – 17:30 | Using broadband detectors to identify bats and using Batsound to analyse bat calls, by H. Limpens |
| 17:30 – 17:50 | Discussion |
| 17:50 -18:00 | Closure of the second day |
| 18:00 - 19:00 | Dinner |
| 19:00 – 12:00 | Field work |

**19 June, 2004**

| | |
|---|---|
| 9:30 – 10:30 | Breakfast |
| 10:30 -11:45 | Monitoring and surveying - experiences in the UK and the Netherlands, by C. Catto and H. Limpens; |
| 11:45 – 12:00 | Break |
| 12:00 – 13:10 | Continuation |
| 13:10 – 13:30 | Discussion |
| 13:30 - 14:30 | Lunch |
| 14:30 – 15:45 | Standard recording forms/protocols for recording hibernating bats. Agree standard protocol/form similar to UK and Romania, by C. Catto |
| 15:45 – 16:00 | Break |
| 16:00- 17:30 | Continuation |
| 17:30 -17:50 | Discussion |
| 17:50 -18:00 | Closure of the third day |
| 18:00 - 19:00 | Dinner |

**20 June, 2004**

| | |
|---|---|
| 9:30 – 10:30 | Breakfast |
| 10:00 – 11:15 | Discussion session for issues raised during the workshop |
| 11:15 – 11:30 | Break |
| 11:30 - 13:00 | Summarizing and closure of the Workshop |
| 13:00 – 14:00 | Lunch |
| 14:00 | Departure from Tskaltubo |

## *Appendix 3* - Process of discussion for initiation and design of the regional project on cave bats species survey and monitoring, including public awareness campaign

### *I - General Topics*

**1. Involving more people in bat conservation. Is it a good idea? Yes it is**

**Barriers**

- Lack of resources
- Political issues
- More pressing issues than bats
- Too expensive for volunteers
- Present bat specialists don't have experience of working with volunteers
- Variety of terminology confusing
- Special permits required put people off

**What is needed to remove them?**

- Public awareness – pre-school age
- General ecology education
- Leaflets
- Provide equipment/tools to volunteers
- Promotion of bats
- Mass media e.g. TV programmes
- Regional organisers
- Training managers for NGOs
- Need staff with good people skills
- Working in partnership with access to caves
- Controlled access to sensitive sites
- Showing people bats can make them interested
- Train managers of National Parks ecological skills and people skills
- Educational programme for schoolteachers
- Protection of woodland species

**Target groups?**

- Speleologists especially young ones
- Local administrators
- Teachers (multipliers)
- Students
- Univerisities
- Forest managers
- NGO's who work with young people
- Education ministers
- Clergymen (bats in churches)
- People adjacent to sites for education

**2. Imagine you are a bat – what will help you most? or What information is needed to help bats?**

- What is the occurrence and distribution?
- Reduce human population?
- Design artificial roosts species specific?

- What factors influence populations?
- Population dynamics
- Taxonomic problems?
- Population trends
- Define population
- What I appropriate environment?
- Identify threats to roosts and hunting habitats?
- Better environmental policy
- Forest protection
- Rank sites in terms of importance to population

**3. What type of projects do you need?**

- Trans-boundary migration study (P.n, N.n,N.la)
- Population gaps i.e. known in summer but not in winter
- Implement regional monitoring programme? General agreement
- Identify priority species
- Identify new protected areas
- Survey & register all caves in region – allocate 'status' to each cave
- Survey for trees and do the same as caves
- Project must be inclusive for all countries
- Mobile educators – develop shared resource pack to be used by all countries
- Empower local teachers
- Locate roosts through word of mouth
- Produce targeted educational literature

**4. How to implement projects *what do you need*?**

- Money!
- Financial resources
- Transport
- International skill transfer to Caucasus region
- Better to work at regional level than country level
- Support for each country educators
- Close co-operation of professionals between countries
- Make use of internet
- Feedback
- Use volunteers for specific projects
- Use results to influence government administrators
- Support grassroots
- Establish new NGOs

**5. Project Organisation**

- Co-operation between colleagues
- Managing project
- Feedback to participants
- Ensure data is used to help conserve bats
- Influencing government
- External
- Co-operation between countries
- Regional projects

**6. About Survey, monitoring and education**

- Education Officer – educates teachers then pupils cascade effect''
- Who is interested in collaborating on bat conservation?
- Involved pupils in projects
- Mobile trainers require more resources
- Organise ecological classes
- Develop workshops for keen recruits
- Azer – already run workshops and will expand network
- What should be outcome of discussion?
- One specialist group per region?
- Questionnaire could be more efficient – send to teachers and monitor response
- Need to set up specialist monitoring group to co-ordinate project
- Should be education target
- Need 'focal point' education officer first
- Officer will build on existing education system
- Officer will also carry out surveys when travelling to schools
- Needs to be specialist in education – not bats!
- Training to new recruits provided by bat specialists
- Need to think long term – don't raise expectations then not deliver them
- Can target interesting bat areas first
- Who has overall management of the project?
- Ministry of Environment & education should be joined
- Officers have to be managed
- Georgia is best placed for training centre
- Mandate one NGO
- One main centre with regional structure
- Each country already has an existing relevant NGO
- Russia already surveyed most caves. Other countries have not
- Need better quality data – what time of year is most important for bats?
- People need to share data – put to central source in each country and possible Caucasian Region

## *II - **Proposed Project Structure***

**1. Project Outcomes**

- Cave bats protected

**2. Project Outputs**

- All potential caves surveyed in Caucasian region
- Grading system for identifying most important sites
- Grading system for identifying most threatened sites
- Long term monitoring structure in place
- Excellent long term educational support resources developed
- List of potential sites identified *e.g.* churches, houses, woodland
- More people engaged in bat conservation in Caucasian region
- Training to ensure new recruits are effective (Skills transfer)
- Keep government informed – develop joint Action Plan for each country and Caucasus region

**3. Project Staff**

- Professional bat surveyors (assisted by volunteers = training)
- Professional educators (assisted by volunteers)
- This needs more discussion! Joint surveyor/educator other option
- Management – one NGO has overall management of project
- Steering Group composed of people from each country. Should agree on what can be done with data and in what form it should be submitted.

**4. Professional bat surveyors**

- One per country
- Should develop partnership with relevant speleological organisations
- Surveys caves in targeted regions
- Trains volunteers (cascade)
- Data centralised for Caucasus and each country. Discuss with Steering Group
- Produce agreed protocols/recording forms

OUTCOME = All cave sites surveyed and graded and informed Action Plan developed

**5. Professional Education officers**

- One per country- each has core skills to delver results but each gain expertise in particular areas and transfers to other teachers.
- Develop excellent training resources *e.g.* leaflets, books
- Empower teachers
- Teachers empower pupils (cascade effect)
- Records data on potential roosts *e.g.* churches, houses, caves, forests
- Trains and supports local volunteers for education

Target – 30 schools/5 countries/3-year = 450 in Caucasus region

**6. Job description of Education co-ordinator**

- One person from Caucasian region to work closely with specialist educator to develop appropriate resource materials – may have to travel to west Europe. Return to CR and train the educators – possibly through Caucasian region.
- Another model would be to invitee trainers from Germany and UK to CR to train in CR.
- Identify potential schools/educational establishments – areas to be discussed with overall project manager.
- Develop resource packs with input from specialist educational NGOs
- Contact appropriate teaching establishments
- Give talks at different grades and identify potential roosts
- In third year identify 20 ‘key’ teachers and hold workshop to develop there skills – gives long term sustainability

OUTCOME = Capacity building resulting in pool of effective volunteers enabling deliverance of bat conservation at the local level

3 year project

## *III - Timetable of Events*

**1. Assessment of costs** – identify all likely costs. Be realistic and precise.
How many sites can be surveyed each year?

**2. Estimated costs (bat surveyors)**

**2.1 Capital equipment costs**

- Bat detectors
- Netting equipment
- Digital video cameras + infrared light
- Binoculars
- GPS (need licence)
- Climbing ropes
- Harness
- Ascent/descent equipment
- Helmet
- Torches
- Appropriate clothing + footwear
- Batteries- lots!
- Mobile phones
- Walkie-talkies
- First aid kit
- Lamps
- Rabies vaccination
- Tents/sleeping bags
- Insurance

**2.2 Employment costs**

- Depends on how many caves
- 4 caves/day?
- Will do at night with detector?
- Visits – once in winter, and once in summer
- 25% available for extra visits
- For safety, need minimum of 2 people
- Some caves need specialist speleologist
- Need time for discussions with speleologists
- Local guides

**2.3 Travel & subsistence**

- Fuel costs
- Donkeys
- How to estimate annual kms? Establish formula
- Accommodation/food
- Vehicle rental?
- Vehicle purchase?

**2.4 Training (workshops)**

- Speleological training including safety
- Bat identification and protocol training
- Annual regional workshops for training trainers and surveyors

- On site training for volunteers

**2.5 Ancillary costs**

- Phone
- Computing
- Stationary
- Photocopying
- Internet

**3. Co-ordination costs (for whole of project: both surveyors and education officers, and all four countries).**

- Co-ordinator costs
- External consultants
- Steering group costs – annual meeting?
- Translation costs
- Financial management
- Distribution of papers
- Data management
- Publicity – general
- Publicity – scientific writing a paper, tacking part in a scientific conference
- Lobbying - government
- Report writing
- Unexpected costs

**4. Estimated costs (education officers)**

**4.1Capital equipment**

- Bat detectors
- GPS (need licence)
- Torches
- Batteries- lots!
- Mobile phones
- First aid kit and training
- Insurance
- Laptop computer for presentations + beamer (all expensive plus need power) or … Pre-prepared flipcharts with illustrations (easy to use, evening outdoor situations)
- Excellent bat pictures

**4.2 Employment costs**

Depends on how many schools/towns/villages a year
30 per country per year (try to estimate what is a realistic target)
development of educational resources should be spread among the /5 educational officers, where each can specialise, but all work together

**4.3 Travel & subsistence**

- Fuel costs
- How to estimate annual kms? Establish formula
- Accommodation/food
- Vehicle rental?
- Vehicle purchase?

**4.4 Training (workshops)**

- Training of officers by the education officers who were trained in e.g. Germany.
- Bat identification and protocol training
- Annual regional workshops for training and exchange on experiences and developed resources between education officers

**4.5 Ancillary costs**

- Phone
- Computing
- Stationary
- Photocopying
- Internet

## *Appendix 4*

**FIELD WORK**

### 16th June, Tbilisi, Vake Park and Turtle Pond

A small colony (c. 15 individuals) of *R. hipposideros* was seen in derelict buildings on the west side of the lake. *P. pipistrellus* were heard on detector and some were caught in 'Flap' net. *M. emarginatus* and *R. hipposideros* were heard on detector. Good numbers of *P.pipistrellus* and *P. kuhli* were heard and some *E. serotinus*. Whilst walking from derelict buildings to the pond we heard *Myotis* calls that were possibly *M. daubentonii*. On reaching the shore of the lake *pipistrellus* and *Kuhlii* were heard in large numbers and *M. daubentonii* was observed foraging over the lake but in low numbers. *E.serotinus* was then encountered in high numbers flying between the lake and the tarmac path.

We then walked down the road to the city and *Kuhlii* was heard on many occasions with only an occasional *pipistrellus*. On a bend in the road a loud social call was heard and subsequently identified as *Plecotus* (most likely *Auritus*). *Kuhlii* was heard in the hotel garden.

### 17th June, Tskaltubo, Kumistavi village

We took a trip to Gliana cave and a maternity colony of (estimated) 400-600 *M. blythii* was observed. A smaller colony of (estimated) 100 *R. euralye* and a colony of (estimated at more than 600) *Schreibersii* was seen. Individual *Hipposideros* and *ferrumequinum* were distributed throughout the cave.

Outside the cave, 7 species were heard on detectors. *M. daubentonii, P. kuhlii, P. pipistrellus, M. blythii, N. leisleri, E. serotinus* and *Schreibersii.* Interestingly, although *Rhinolophus* were observed in cave no calls were picked up outside the cave – indicates weakness of heterodyne detectors for surveying *Rhinolophus* species due to use of specific CF frequencies by *Rhinolphus*.

### 18th June, Tskaltubo Cave, Kumistavi village

Cave is approximately 2km in length. About 20 E*uralye* seen hanging spread throughout the cave. *Euralye* and *hipposideros* both heard on detector. About halfway along a large area of bat guano was noted but no large groups of bats seen.

Outside the cave entrance at dusk, good observations of *Euralye* flying were made and heard on detector. *Pipistrellus* and *Serotinus* were seen outside the cave entrance. At the mountain slope near the cave we heard *pipistrellus, emarginatus, serotinus , ferrumequinum and blythii*.

Later we returned to palace and walked round stream. Heard and caught *pipistrellus*. Heard many social calls and potential mating site in autumn.

### 19th June at the workshop place

*Pipistrellus, kuhlii* and *serotinus* were heard.

### 20th June, Tbilisi Botanical Garden

We visited the lowest level of the Garden, near a river and small pond. Very high activity of *P. pipistrellus*, with an occasional encounter of *P. kuhlii*, was recorded over the park road.

Subsequently a high number of *E. serotinus* were encountered. Although some *Serotines* were observed hunting above the road, most of them were seen higher up along the vegetation of the cliff/slope.

After these observations *N. noctula/leisleri* was heard, but the observation was too short to be definitive. In addition a passing *R. ferrumequinum* was heard and a *Myotis* bat but encounter time was too short to identify to species.

We then moved to a nearby tunnel noticeable for its sulfurous water. Here *M. nattereri* was observed flying in the tunnel and about half way down the tunnel a maternity roost was found. The roost was in cracks along a pipe in the ceiling of the tunnel. One lactating female was caught. Inside the tunnel *P. pipistrellus* was also observed. Outside the tunnel *P. kuhlii*, *R ferrumequinum* and *N. leisleri* were heard. From the tunnel we went down to the river for a brief visit and heard *P. kuhlii* again.

**21st June, to the South from Tbilisi city – Gorge of river Khrami**

Gorge of river Khrami – checked caves in afternoon. One *R. ferrumequinum* in cave scattered droppings in other caves.

Evening – at River Krami Down from caves. *P. kuhlii*, *R. ferrumequinum* (2 commuting from upstream), *P. pipistrellus*, *M. emerginatus*, possible *N. noctula*, *N. lasiopterus*, *E. serotinus*, *M. blythii*, 2 bats – probably *M. daubentonii* but needs checking in case *M. cappaccini*. Flight behaviour seemed fast for *daubentonii*, consistently rising from water surface, fast change in direction and sound was coming in suddenly and then leaving. Slight shallow FM at around 40-45kHz.

**22 June, in the east part of Georgia - Complex of artificial caves of David Gareji, Natlismcemeli and Tetri Senakebi.**

Afternoon – checked David Gareji monastery and in tower found *R. ferrumequinum* (estimated at 150+), a few *M. blythii* and some *M. emarginatus*.

Then checked Natlismcemeli monastery – more than 250 *M. blythii*, many with young. At least 10 dead young observed. May be future development problems at site.

Then checked caves at Tetri Senakebi. At least 200 *R. ferrumequinum* seen, many with young. 30-40 clustering *M. emarginatus* within *R. ferrumequinum* cluster.

Evening – went to lake in Tetri Senakebi valley. Many *P. pipistrellus* observed, fewer numbers of *P. kuhlii* and *E. serotinus*. One observation of *N. noctula*. *H. savii* heard for at least 2 minutes. Possible *M. daubentonii* heard but could not be seen.

Whilst travelling back, *P. kuhlii* heard on detector through valley especially where water and/or vegetation was present. Checked channel at river Mtkvari, called Mareen channel – *P. kuhlii* heard but wind picked up and not good conditions.

## *Appendix 5*

Summary table of the species encountered in Georgia during the workshop

| *Species* | GRD | USRD | IUCN | AZRD | ARRD | RRD |
|---|---|---|---|---|---|---|
| *E. serotinus* | | | | | | |
| *H. savii* | | | | | | |
| *M. daubentonii* | | | | | | |
| *M. blythii* | | | | | | |
| *M. daubentonii / capaccinii??* | | | | | | |
| *M. emerginatus* | X | X | X | | | X |
| *M. nattereri* | | | | | X | |
| *M. schreibersii* | X | X | X | X | X | X |
| *N. lasiopterus* | X | X | X | | | X |
| *N. leisleri* | X | X | X | | | |
| *N. noctule* | | | | | | |
| *P. kuhlii* | | | | | | |
| *P. pipistrellus* | | | | | | |
| *Plecotus* sp | | | | | | |
| *R. euryale* | X | X | X | X | X | |
| *R. ferrumequinum* | X | | X | | | X |
| *R. hipposideros* | X | | X | | | X |

GRD - Georgian Red Data Book
USRD – USSR Red Data Book
IUCN – Red list of threatened Species
AZRD – Azerbaijanian Red Data Book
ARRD – Armenian Red Data Book
RRD – Russian Federation Red Data Book