Identification and Protection of Important Bat Caves in Turkey
Project ID: 0534710

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Project title: Identification and Protection of Important Bat Caves in Turkey

Turkey, July 2010 - October 2011

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This project aims to identify the underground habitats having crucial importance for the conservation of bats in Turkey, and to take initiative for the protection of these sites

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Summary

In this report, we present the results obtained during the “Identification and Protection of Important Bat Caves in Turkey” project. In the field surveys, between July 2010 and October 2011, we investigated 28 sites; 25 of which, had bat colonies, summing up to a total of more than 30,000 bats, representing twelve species. Based on the population sizes, we evaluated 19 of the sites as ‘important bat areas.’ In order to assign these sites as legally protected areas, a detailed report for the governmental agencies had been prepared. During the project, we published popular articles about bats and their ecosystem services. The project is covered by more than 20 newspapers and magazines, and a documentary of our study was viewed in a nation-wide broadcasting television. In order to establish a network and to collect information about bat caves, a website, www.yarasalar.org, was published. Via this website, around 200 feedbacks were acquired and the site is currently getting approximately 100 unique visitors per day. As a part of networking and capacity building efforts, we collaborated with many caving groups both for data collection and to increase their capacity in bat conservation. In these regards, we arranged workshops in four cities and also participated in national biology and speleology symposiums.
Section 1 - Introduction

Background to the project site and its conservation significance

Turkey, with 39 recorded bat species, has one of the richest Chiropteran fauna in the Mediterranean region. Some of these species inhabit caves and the large karstic areas present in Turkey makes it suitable especially for the cave-dwelling bats. In some caves, colony sizes can reach up to tens of thousands individuals (Furman and Özgül, 2004; Paksuz et al., 2007) and inevitably destruction of these sites would have a critical effect for the local populations. Nonetheless, considering that populations in the southern Europe and Anatolia are generally much larger, such incidences would also affect the global status of the species. The national developmental policies in Turkey frequently threaten the underground habitats and their fauna. For instance, Dupnisa Cave, one of the largest hibernation roost in the Balkans, was opened to public and Havran Cave, which harboured more than 25,000 bats, is now flooded because of a water dam.

References


The conservation value of the project work

Many of the cave habitats that are important for bat populations in Turkey are under constant pressure due to the factors such as cave tourism, construction of water dams, and stone quarries. The lack of information on the distribution of bat colonies, governmental bodies and NGOs dealing with the conservation of bats, and proactive protections makes it difficult to prepare effective conservation management plans. In this project, we intended to identify important bat caves in Turkey and collaborate with the Cave Management Department under the Nature Protection and Natural Parks Directorate of Ministry of Forestry and Water Affairs to place them under legal protection. We also aim to create a foundation for a future monitoring programme by collaborating with regulators, research institutions, caving groups, and local people.

The conservation problem and issues addressed

We considered that three major issues had to be addressed for establishing a sustainable strategy for conservation of cave-dwelling bats in Turkey. First of all, none of the important
bat caves in Turkey have a legal conservation status and therefore, they are totally disregarded in local management plans. However, if such sites would be assessed as ‘nature protection areas’, bat populations inhabiting these caves could be secured against the developmental practices. So, initiating the assessment of conservation statuses was our primary aim. In order to achieve this aim, we intended to collect information about important bat caves in Turkey. Therefore, we contacted to the interest groups and gathered their observations. Based on these reports, we did field trips to document important bat underground sites. In these explorations, we documented more than 30,000 bats representing 12 species in 28 sites in 15 cities (Fig. 1 and Appendix A). Based on these, we prepared reports to be submitted to the MoFWA to assess the identified important caves as protected sites.

**Figure 1.** Locations of the investigated sites. See Appendix A for site details.

The lack of awareness about bats and especially their negative image was our final issue that we addressed in our project. In order to raise awareness, we published popular articles in various newspapers and had a half hour documentary in the television. Besides we used our website for sharing useful and interesting information about bats and their ecological services at the same site.

**Key partners and their role**

In our project we had two main groups of partners, which we considered as the key elements for a sustainable conservation programme of the bats in Turkey.
Governmental agencies:

Turkey is signatory of Bern Convention and accordingly, all the bat species present in Anatolia and their habitats are legally protected. However, lack of an active governmental body dealing with the conservation of bats made this legal protection mostly ineffective. On the other hand, based on the increased conflicts about caves, a new unit was established under the Nature Protection and Natural Parks Directorate of Ministry of Forestry and Water Affairs (MoFWA). The primary aim of this unit is to prepare management plans for caves. In our project, we established a close relationship with this department.

Caving groups

Although, the number of bat researchers is very limited in Turkey, there are many caving groups and the members of these groups have a high capacity to contribute to bat conservation. In order to involve them in bat conservation practices, we organized workshops for the caves and published a website to establish a network. We believe the contribution of cavers into conservation is a necessity for the sustainability of such projects.

Project Members

Emrah Çoraman (Project Leader)
Research assistant and PhD student in Boğaziçi University, Institute of Environmental Sciences. Studies on molecular ecology of bats. Vice president of Turkish Caving Federation and Boğaziçi International Speleological Society. 33 years old.

Yalın Emek Çelik (Project officer/Field coordinator)
PhD student in Boğaziçi University, Institute of Environmental Sciences. MA degree in sociology. Studies on molecular ecology of bats. President of Boğaziçi International Speleological Society. 37 years old.

Pınar Yıldız (Field Assistant)
PhD student in Ankara University Biology Department and research assistant in Sinop University. 26 years old.

İsmail Onur Gürses (Field Assistant)
Graduated from Marmara University Department of Finance. Works as a tax consultant/auditor. Member of Boğaziçi International Speleological Society. 26 years old.
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Mehmet Emre Döker (Field Assistant and responsible with website)
Graduated from İstanbul University of Management Department. Member of Boğaziçi International Speleological Society. 34 years old.

Öykü Yağcı (Communication Officer)
MA degree from London School of Economics Department of Social Anthropology. Works as a free-lance documentary producer. 32 years old.

Section 2 - Aim and Objectives
Our main aims were to identify important bat caves in Turkey and to start an initiative for their sustainable protection. In order to achieve these, we planned a three step strategy. At the first stage, we focussed on the knowledge about important bat caves. We considered that the lack of data about important bat caves as one of the major problems for protecting cave-dwelling bats in Turkey. Therefore, we collaborated with the cavers and collected their observations. Later on, our team visited these sites and made species identifications and population counts. As a part of the protection, making attempts to make these sites gain a legal protection status in collaboration with the relevant legal bodies was the second objective of our study. In order to achieve this, we worked in collaboration the Cave Conservation unit the ministry. Finally, we aimed to establish a network between the interest groups, such as caving groups, in order to ensure data collection and support for both the project and future monitoring activities. We also tried to include as many as university students within the project and tried to incorporate them to our network. The objectives of the project can be listed as:

- Objective 1: Identification of important bat sites
- Objective 2: Protection of important bat caves
- Objective 3: Building a network among interest groups (caving groups)

Methodology

Collecting information
Surveyed sites were identified from literature records and the reports of the national caving groups, which were collected via our project’s website, www.yarasalar.org. For online submission of observations, we prepared an electronic form in Google Documents, which keeps the submitted information in excel format. The form had questions about the reporter
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Field surveys

In order to identify important bat colonies in Turkey, we explored 28 sites (24 caves, one rock shelter, one old church, one old palace, and one active salt mine) between July 2010 and October 2011 (Fig. 1 and Appendix A). In each site, the roosting bat species were identified and their population sizes were estimated. Species identifications were done by following the identification keys (Dietz and von Helversen, 2004; Dietz et al., 2009). The census of large mouse-eared bats, *Myotis myotis* and *M. blythii*, which are morphologically very similar (Dietz and von Helversen, 2004; Furman et al., 2011) and therefore, difficult to identify in the field, were reported jointly as large *Myotis*. We also reported *Miniopterus schreibersii pallidus* as *M. pallidus*; current evidences suggest that it should be regarded as a full species (Bilgin et al., 2012; Furman et al., 2010). In order to identify species, some of the individuals were caught by using hand nets and were released after being sexed, measured, and photographed. During the summer period, depending on the size and the activity of the colony, population estimates were done either inside the cave during the day time or at the cave exit at dusk. If the colony sizes were small (less than 200 individuals) population estimates were based on direct counts and for larger colonies we used photographs.

References


Outsuts and Results

*Identification of important bat sites*

In 25 of the investigated sites, we found bat colonies with population sizes ranging from few individuals to more than 15,000. Totally, more than 30,000 bats representing twelve different species were identified (Appendix A). Nineteen sites had colony sizes that were larger than 100 and six sites had larger than 1,000 individuals. The biggest colony that we found was a hibernation colony in Ayvaini Cave (Fig. 2) with more than 15,000 bats representing four species. The highest species diversity was observed in Koyunbaba Cave, which had seven species. In thirteen sites, we observed potential threats to the bat colonies inhabiting those sites; tourism and human access were the most common threats. Sites, which had colony sizes more than 100 individuals, were regarded as important sites and those sites are being reported to the MoFWA to be assessed as protection areas. The outputs of our project will be also shared with the EUROBATS (The Agreement on the Conservation of Populations of European Bats - United Nations Environmental Programme) to be included to “List of Internationally Important Underground Sites.”

![Figure 2. Population count in Ayvaini Cave. One of the biggest known hibernation colonies of Miniopterus schreibersii in Turkey. (Photo credit: Metin Albukrek)](image)

In addition to cave surveys, wherever possible, we also did mist-netting in study areas. In addition to species that were identified in the caves, seven more species, *Myotis aurascens*, *M.*
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*mystacinus, Plecotus auritus, Pipistrellus pipistrellus, P. nathusii, and Barbastella barbastellus* were recorded (See Appendix C for the photographs of the identified species).

**Protection of important bat caves**

During our project, we established a highly collaborative communication with the Cave Management Department in the MoFWA. We reported the caves that need urgent action to the department and they asked our team to check some sites, which they consider as critical. Based on the request from the department, one such site, Ayvaini Cave, was surveyed during the CLP project, is now being declared as a protected area. Ayvaini harboured more than 15,000 bats and the local authorities were planning it to open to public (Supplementary File A; Ayvaini Cave report in Turkish submitted to the MoFWA). Based on the suggestions from this project, Cave Management Department will also prepare protection plans for the other important bat caves that were identified in this study.

**Building a network among interest groups (caving groups)**

In order to build a network among caver groups and also to collect their observations, we published a website, www.yarasalar.org. During the project period, around 200 sites were reported, most of which were caves. In addition to web-based data collection, we attended to most of the meetings of the caving federation and had stands to collect information about different caving groups’ observations on bats (Fig. 3). These also helped us get reports on around 40 sites. The website is still collecting the observations and we are planning to survey the reported caves in the future.

![Figure 3. Our projects’ stand in 5th National Speleology Symposium, İstanbul, 2011.](image)
In order to inform our target groups about the project and to discuss the conservation needs of bat caves, we arranged five workshops in four of the biggest cities in Turkey (İstanbul, Ankara, İzmir, and Antalya). As a total, more than 300 cavers attended to the meetings. Additionally, we contacted with the professors and students from three universities for the future conservation studies. Some of these contacts also joined to our field studies. Currently these institutions are not actively working on bat conservation but they accepted to participate in future studies. We are planning to initiate a monitoring program in collaboration with these institutions.

**Outreach**

Our project took place in many nation-wide and local newspapers, websites, and magazines. These include National Geographic Turkey and Turkey’s best selling newspapers (Appendix B for copies of the articles). Also, our project was filmed by İZTV (a documentary channel) as a 30 minute documentary and was shown on TV. Moreover, two of our members were interviewed about the project and bat conservation, in a live news program on the official TV channel of Turkish Republic (TRT) (Fig. 4).

![Figure 4. From a live TV news program in the national channel, TRT.](image-url)
Achievements and Impacts

Relations with the decision makers

One of the major aims of our project was to initiate the legal applications for assessing protection statuses to the identified important bat caves. For this, we planned to collaborate with a new unit in Ministry of Environment and Forestry. After the new governmental elections, both the structure of ministry and the unit changed, leaving the legal procedures unknown for quite a long time. Nonetheless, the Cave Conservation Unit is now promoted to department level, changing its name to Cave Management Department and operates under the MoFWA. During our project, the department was highly collaborative. They provided the necessary permissions and also helped us in the implementation of the field studies.

After the changes in the ministry, now the major task of the department is to prepare legislation for the protection of underground ecosystems. Our team is invited to take part in the preparation of this legislation and two members of the team are attending to the monthly based meetings in the MoFWA. We believe that this legislation will play a major in the protection of underground habitats and accordingly, is very crucial for protection of cave-dwelling bat species.

Media relations

At the beginning of our project, we were planning an outreach strategy mainly focussing to the interest groups, namely caving organizations. However, after the CLP training course, we also prepared a strategy for public media. Media showed considerable interest in the topic of bats and our project, and we acquired a significant coverage including nation-wide TV channels, newspapers, magazines and radio shows. This not only helped us to raise the public awareness about bats but also helped us getting information about the bat caves from local people.

Collaborations

We believe that we made bats and bat conservation a subject of interest among many of the caving organizations in the country. With the workshops that we organized, we have reached most of the caving associations and as a result of this, now there is a continuous data flow from cavers. This is very crucial for a long-term protection program and also for the sustainability of conservation efforts. Also, most of the caving organizations agreed to include bats and bat conservation in their training programmes.
We also collaborated with some conservation-related NGO’s (such as Doğa Derneği [partner of BirdLife International] and KuzeyDoğa Derneği [a CLP supported society]) and they supported the visibility of our project. Furthermore, we have managed to reach biology departments working on bats, and encouraged them to take part in bat conservation/monitoring programs in the future. Some students agreed to take part in future projects on bat conservation or monitoring programmes.

![Figure 5. A field study with the graduate students from Zonguldak Karaelmas University.](image)

**Awareness-raising**

Our website is still a functional means of gathering information on bat caves and became a relatively popular site among not only cavers but also other people who seek information on bats. The site now has around 100 unique visitors per day and it is the second site (after Turkish version of Wikipedia) that shows up in Google search when you search the term “yarasa” (meaning “bat” in Turkish). We believe that this has been a contribution for fulfilling the need for information regarding bats and underground habitats in Turkey.

**Future projects**

Two of the project members are now coordinating a new project sponsored by WWF, aiming the conservation of Egyptian fruit bats (*Rousettus aegyptiacus*) in Turkey. The experience gained throughout this project was a determining factor for us in getting this second project.
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Section 3 - Conclusion

Our project had two main contributions to its central conservation aim. Firstly, we identified a number of bat caves and started the procedure for assessing these sites as nature protected areas. Currently, none of the caves in Turkey have a conservation status to protect bats. Therefore, if these sites will get their legal conservation assessments, they will be the first of their kind. Furthermore, the procedure that we followed and the connections we established with the legal authorities will be useful guidelines the future studies. However, the bureaucratic procedures in Turkey usually take too long and the governmental decisions are prone to change quickly, therefore, we will not consider this as a full achievement till the final decisions are made.

The second main contribution of our project was its success in the getting the contribution of caving groups in the conservation of cave-dwelling bats. Considering the lack of NGOs dealing with the conservation of bats in Turkey, the involvement of caving groups in bat conservation is critical. We believe that future studies focussing on capacity building of these groups can significantly increase the knowledge about bat caves, as well as the efforts for their conservation. Nevertheless, as these groups are located all around the Turkey, they can react more quickly for independent cases. We also believe that, our project enabled us to
understand the problems of the not only about the cave-dwelling species, but also for the bats in general. Now based on our experiences from this project, we would like to implement larger scale conservation studies for bats in Turkey.

Problems encountered and lessons learnt

_Which project activities and outcomes went well and why?_

Field studies and assessment of important bat caves were completed without any significant problems, because of the providing of necessary permits by the ministry, the general hospitality of the local people, and the collaboration of the caving groups. Workshops and meeting with the cavers also helped us to collect information about bat caves and they are still cooperating and sharing their new observations.

In terms of the outreach of the project, because of the media’s unexpectedly high interest, we were able reach a wide audience without much effort. Indeed, after our story was covered in National Geographic Turkey and in a national newspaper (Doğa Derneği, partner of Birdlife International, wrote that news), reporters, both from newspapers and television, got into contact with us and our project was published in numerous places. We believe that the negative image of bats in Turkey made it interesting for media and the situation turned out to be advantageous.

_Deviations from original project plans_

In our initial plan, we intended to visit each cave twice in order to identify winter and summer colonies. However, as the number of reported sites were much more than we predicted and some the caves needed urgent action. Therefore, we decided to survey each site once in order to increase the number of surveyed sites. Nevertheless, if a site harbours an important winter or summer colony, that is sufficient for initiating the legal procedures for assessing it as a protected area.

_Recommendations for future enhancement_

At the beginning of our project, we were considering the lack of data about important bat caves as one of the major problems for bat conservation in Turkey. However, during our studies we comprehended that the lack of people and organizations working on bat protection is a more critical problem for sustainable conservation efforts. The number of biologists and
NGO’s working on bat research is very limited. On the other hand, Turkey hosts more than 40,000 caves and by a limited number of researchers, only a minority of these can be explored in the near future. Therefore, we believe that future studies should focus more on building the capacity of interest groups, which can later take part in bat conservation.

**In the Future**

**Field studies**
Since we are still being informed by both the governmental authorities and the caving groups about bat caves which are under threat, we are planning to conduct field studies focusing on such sites and then to report the results to MoFWA.

**Assessing legal protection status**
Currently, we are preparing a detailed report for the identified important bat caves to be declared legally protected areas in collaboration with the Cave Management Department in MoFWA, in which we discuss the importance of the sites for bat colonies and evaluating the threats to their habitats. After the submission of this report, the changes in the legal status of the caves we identified will be followed, and in cooperation with the department, we will continue developing conservation strategies and future regulations for bat conservation in Turkey.

**Academic Paper**
We are going to prepare a paper to be published in a peer reviewed journal, about the important bat caves in Turkey and the factors that threaten their underground habitats.

**Outreach**
After the final report is published, we plan to present our results to the media in order to make further contribution to public awareness on bats and bat conservation in Turkey. Furthermore, we will be updating and improving our website in order both to inform the cavers and other people about the bats, and also to collect data from them.
### Appendix A: Population counts in 28 sites. Last column shows the number of identified species in that site, NIS.

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Appendix B: Copies of media articles

1. “For bats” published in ntvmsnbc website
Publication date: 29.06.2011
Link: http://www.ntvmsnbc.com/id/25227824/
Identification and Protection of Important Bat Caves in Turkey

2. “Night watch for bats” published in National Geographic Turkey
Publication date: July 2011
3. “Year of bats” published in Radikal newspaper website
Publication date: 22.06.2011
Identification and Protection of Important Bat Caves in Turkey

4. “Year of bats” published in Radikal newspaper
Publication date: 22.06.2011
Identification and Protection of Important Bat Caves in Turkey

5. “This study is for bats” published in Posta newspaper website
Publication date: 29.06.2011
6. “The team is on the way for bat caves” published in RotaHaberwebsite
Publication date: 09.07.2011
Identification and Protection of Important Bat Caves in Turkey

7. “Protection for bats” published in ntvmmsnbc website
Publication date: 11.07.2011
Link: http://www.ntvmsnbc.com/id/25231188/
Identification and Protection of Important Bat Caves in Turkey

8. “Bat caves will be identified” published and distributed by Anadolu Agency
Publication date: 12.07.2011
Identification and Protection of Important Bat Caves in Turkey

9. “Bat caves will be identified” published in Milliyet newspaper (online and printed)
Publication date: 12.07.2011
10. “Bats in Turkey will be put under protection” published in Taraf newspaper (online and printed)
Publication date: 10.07.2011
Identification and Protection of Important Bat Caves in Turkey

11. “I want to report a bat” published in Yolculuk (a magazine of a travel company, Kamil Koç)
Publication date: July 2011
12. “Bats inside us” published in Zaman newspaper (printed and online)
Publication date: 11.09.2011
13. “I guess I saw a bat” published in Obruk (caving magazine)
Publication date: 2011
14. “Upside down” Documentary screened in İZTV
Date: 2011/2012
Link: https://www.digiturk.com.tr/belgesel/anadolunun-kanatlar-tersine-dunya
15. “Bats” Live Radio show in Açık Radyo
Date: 05.08.2011

www.yarasalar.org

5 Ağustos Cuma 10:30 - 11:00 arası
Açık Radyo 94.9’da canlı yayında.
16. “Bats and the Ecological Balance” Live TV show in TRT
Date: 22.09.2011
17. Links to the other articles published online

http://www.sondakika.web.tr/356111/yarasa-magaralari-belirleniyor.html
http://www.dogadernegi.org/yarasalarin-yili.aspx
http://dagmedya.com/2011/06/18/yarasa-bildirmek-istiyorum/
http://www.yazete.com/Haber/118012
http://www.hatayrehberim.org/haberler-7547-1-Ulusal_YARASA_MAGARALARI_BELIRLENECEK.html
http://www.bagcilargercegi.com/Yarasalara-koruma_haber_17538.html
http://www.aydinpost.com/yarasalarin-yili--111025h.htm?interstitial=true
http://www.sualtigazetesi.com/deniz-kizi/?p=2372
Appendix C: Photographs of the identified species

*Rousettus aegyptiacus*

*Myotis myotis/M. blythii*
Identification and Protection of Important Bat Caves in Turkey

Pipistrellus kuhlii

Pipistrellus nathusii
Identification and Protection of Important Bat Caves in Turkey

Plecotus auritus

Barbastella barbastellus
Rhinolophus euryale

Pipistrelus pipistrellus
Identification and Protection of Important Bat Caves in Turkey

*Myotis mystacinus*

*Myotis schaudi*
Identification and Protection of Important Bat Caves in Turkey

Myotis capaccinii

Rhinolophus hipposideros
Rhinolophus ferrumequinum

Rhinolophus blasii
Miniopterus schreibersii

Miniopterus pallidus
Bibliography


Address list and web links

- Selim Erdoğan
  Cave Conservation Unit, MoFWA
  Orman ve Su İşleri Bakanlığı
  Söğütözu 14/E ANKARA
  (0312) 207 50 00
- www.yarasalar.org, Projects website.

Distribution list

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