

Introduction

On the initiative of the Arge NATURSCHUTZ (Carinthia) cross-border bat conservation projects with Slovenia and South Tyrol/Italy were initiated in 2002. The projects were funded by the European Union, the ministries of the three countries involved, the local governments of Carinthia, Salzburg and Tyrol and the province of Bozen-South Tyrol/Alto Adige. Leadpartners were the Arge NATURSCHUTZ in Austria, the Slovensko društvo za proučevanje in varstvo netopirjev (SDPVN) and since 2005 the Center za kartografijo favne in flore (CKFF) in Slovenia, and the Naturmuseum Südtirol/Museo scienza naturali Alto Adige/Museum Natöra Südtirol in Italy.

The aim of the INTERREG III A projects was extensive bat conservation with special emphasis on the conservation of summer and winter roosts as well as foraging habitats of endangered bat species. Further aims were the development and implementation of standardised monitoring schemes, carrying out conservation measures, assistance

at acute actions and accompanying public relation activities.

In Austria the project aims were implemented by a main coordinator at the Arge NATURSCHUTZ, a project coordinator at the KFFÖ, and local coordinators in the provinces of Carinthia, Salzburg and Tyrol. In Slovenia the project was carried out by staff members of the leadpartner, and in Italy by members of the working group „bat conservation“ at the nature museum South Tyrol.

The members of the project team in the different countries were in permanent contact via telephone and email as well as through regular meetings. The five official meetings of the project partners took place in Tyrol, Salzburg, Carinthia, South Tyrol and Slovenia. Meetings of the local project teams took place at shorter intervals. Furthermore, an international workshop was held in Carinthia in 2004.

Bat Research

Horseshoe bats were the main objects of the research projects in Austria and South Tyrol. Two master theses focussed on the foraging ecology, population ecology and roosting ecology of lesser horseshoe bats, respectively.

Greater horseshoe bats are critically endangered in Carinthia and Tyrol, while in Salzburg they are extinct. Therefore all historical and recent roosts were checked for the presence of this species. As a result only six individuals were found in four roosts.

Greater horseshoe bats are critically endangered in South Tyrol, too. Thus, master theses dealing with the feeding ecology and habitat choice of this species were conducted. Radio telemetry was used to study the selection of hunting areas. Nine adult

individuals were radio tracked and the first results gave interesting indications on the feeding territories and the foraging ecology of this endangered species.

At the beginning of the project in northern Slovenia only 57 bat roosts in buildings were known. In the course of two field seasons a total of 36 maternity roosts were found: 26 roosts of lesser horseshoe bats, two of greater mouse-eared bats, three of Geoffroy's bats, two of Serotine bats, and two of Long-eared bats. Moreover, some 80 additional roosts, mostly non-maternity roosts and roosts of uncertain species status were discovered.

Also, many potential hibernation roosts were checked. In Slovenia, detailed studies



of the microclimate were carried out in some roosts of Geoffroy's bats.

Another focal point of the Austrian research activities was the testing of a car-based monitoring protocol that has been established in the UK and Ireland. A pilot study should reveal the suitability of this detector protocol for Austria. Driving at a speed of 20 km/h along selected monitoring routes all bats passing by were recorded using a time expansion detector. During 2005 and 2006 a total of 1.606 bat recordings of 13 different bat species were made. This sample includes more than 500 recordings of the Common pipistrelle.

A ringing centre was established in Slovenia in 2006, where data of bat migration were collected, and several records of bat migration between roosts were found.

All bat recordings made during the project in Austria were included in the bat data base of the KFFÖ, which was established with the help of M. Palzenberger (Max Planck Institute, Munich). This data base currently includes 7.837 recordings from 4.609 different localities mainly situated in the provinces of Carinthia, Salzburg and Tyrol, as well as Upper Austria and Vorarlberg. Within the INTERREG III A projects a data base for the Carinthian cave registry was established, using the software „BioOffice“. This data base includes all necessary information (maps, reports, literature, photographs) about caves in Carinthia, supporting the ongoing research.

Austrian experience led to a digitalisation of all data gathered in South Tyrol and an incorporation of a total of 635 records in the data base of the Nature Museum in South Tyrol.

Vorbereitungen für eine nächtliche Fledermaus-Fangaktion.
(Foto: Klaus Krainer)

Preparativi per una battuta di catture notturne di pipistrelli.
(Foto: Klaus Krainer)

Priprave na nočno mreženje netopirjev. (Foto: Klaus Krainer)

Investigating the distribution of bats using mist nets. (Photo: Klaus Krainer)



Bat Monitoring

The monitoring of bat populations was one of the main focuses in the Austrian project. Many volunteers (47 persons looking after bat roosts on a regular basis) helped gathering the required data. A standardised monitoring program was developed, adopting specific programs for each of the different species. Monitoring schemes based on bat counts in maternity roosts were applied for the lesser horseshoe bat, greater mouse-eared bat and Geoffroy's bat. Other species, such as the barbastelle and the greater horseshoe bat, were counted at hibernation roosts. A total of 25 hibernation roosts hosting various species, 19 colonies of Geoffroy's bats, 39 colonies of greater mouse-eared bats (including mixed colonies with lesser mouse-eared bats), and 73 colonies of lesser horseshoe bats were counted every year.

In South Tyrol, all roosts known from inventory studies in the 1990s were selected for the monitoring program. The program in South Tyrol was supported by volunteers following the Austrian model. First results revealed stable populations for all species under survey. However, some individual colonies showed a marked decline of bat numbers, whereas other colonies faced a remarkable increase.

In Slovenia, a three-year monitoring program was initiated. At the beginning, few roosts were known, so only 15 hibernation roosts and 30 summer roosts were included in the program. In the meantime the situation has improved, so that a higher number of roosts had been included in the monitoring program. As yet, no population trends can be detected, primarily because of missing historical data. However, the collected data on birth dates in the different regions helped to improve the time schedule for the monitoring program.

Winterquartierkontrolle in einem Stollen.
(Foto: Guido Reiter)

Controllo di un sito di svernamento all'interno
di una galleria.
(Foto: Guido Reiter)

Zimski pregled opuščenega rudnika.
(Foto: Guido Reiter)

Hibernation roost count in an abandoned
mine. (Photo: Guido Reiter)





Bat conservation

Many bat species in the project area have their maternity roosts almost exclusively in buildings. When buildings are rebuilt or renovated, or other forms of disturbances take place, the roosts are seriously endangered, likewise the bats depending on these roosts. Therefore guidance in the planning and the implementation of renovations was of great importance.

For example, two major renovations of buildings hosting roosts of lesser horseshoe bats in the province of Salzburg were carried out successfully without affecting the bats, thanks to the incorporation of aspects of bat conservation into the official building regulations. In Slovenia the major bat conservation issue concerned the castle Grad na Gorickem, which is inhabited by four bat species of the Annex II of the Habitats directive of the EU. In South Tyrol a maternity roost of about 900 female greater and lesser mouse-eared bats was maintained thanks to the building of a new floor in the attic.

In the framework of the EUROBATS agreement Slovenia initiated and helped drafting the text for the resolution 5.7 “Guidelines for the Protection of Overground

Roosts, with Particular Reference to Roosts in Buildings of Cultural Heritage Importance“.

Activities within the projects in Austria, Slovenia and Italy included guidance of roost owners with bat-problems, as well as the nursing of injured and ill bats. Often the local coordinators were contacted by roost owners, because they felt disturbed by the presence of bats or by their droppings. In some cases smaller conservation measures like the attachment of a dropping board or louvers solved the problem and the bat roosts were saved.

To enhance the acceptance of bats by roost owners, bat guano was removed in many of the larger colonies, often in joint work of roost owners, bat experts and volunteers. These events were made public, and the locals were encouraged to use the bat guano as fertilizer.

During the course of the project injured or ill bats were often brought in. The bats were treated either by the project team or by veterinarians. Many bats could be released after a successful recovery. However, few individuals became permanently handicapped or died due to bad injuries.

Spezialanfertigung für eine Einflugöffnung. (Foto: Anton Vorauer)

Una costruzione speciale per il foro usato dai chiroterri all'involo. (Foto: Anton Vorauer)

Posebna preletalna odprtina za netopirje. (Foto: Anton Vorauer)

A construction for the entrance of a bat roost. (Photo: Anton Vorauer)



Volunteer network

Based on experiences of working with volunteers in Salzburg since 1998, a network of volunteers was established in the course of the INTERREG III A projects, inspired by similar programs carried out in the UK, Bavaria or Switzerland. The network consists of persons who take care of a bat roost in their vicinity by counting the bats in standardised emergence counts. These data were used for the monitoring program. Such volunteer work also makes it possible to gain information about renovations at a very early stage, so that necessary conservation measures can be put into action. The volunteers also assist in many other aspects of bat conservation work, like guano removal events, bat nights, and so on.

The volunteer network was a major aspect of the project in Austria and led to the establishment of similar networks in South Tyrol and Slovenia. At present, 47 people are looking after bat roosts in the Austrian project area, and 178 people are actively involved in bat conservation. In South Tyrol

Ausflugszählung durch eine Fledermausquartier-Betreuerin. (Foto: Klaus Krainer)

Conteggio all'involto da parte di una responsabile di rifugio comune. (Foto: Klaus Krainer)

Skrbnica zatočišča šteje netopirje med večernim izletavanjem. (Foto: Klaus Krainer)

Nightly emergence count conducted by a volunteer. (Photo: Klaus Krainer)



10 volunteers look after bat roosts, while in Slovenia the establishment of a volunteer network was at first rather limited due to the equally limited number of known roosts. However, the situation has improved considerably, and the development of a volunteer network in Slovenia is proceeding and involves mainly cavers in hibernation roost counts.

Important aspects of the volunteer network are motivation, instruction and constant education of the volunteers. Hence, regular events like bat determination courses, emergence counts, detector excursions and mist netting were organised. At the end of each field season, a meeting of the volunteers in the different provinces has become a tradition. Furthermore, bat research camps in Carinthia and Salzburg helped to enhance the individual knowledge of the volunteers.

Bat nights

- 18 Bat nights
- 16 smaller bat nights in Tyrol
- 3,000 participants

Excursions

- approximately 50 excursions
- More than 4,000 participants

Lectures

- about 100 lectures

Media work

- more than 250 contributions in newspapers, radio and television

Public relations

The different protection measures were accompanied by various activities like excursions, school projects, bat nights, lectures, a bat carnival in South Tyrol, brochures, a website, as well as radio, television and newspaper reports.

Initiated by EUROBATS, bat nights take place all over Europe between August and September. Together with local communi-

ties and NGOs many bat nights were organised between 2003 and 2006. In addition to that numerous excursions and lectures were held in the project area.

In Slovenia two seminars for teachers, seminars for pupils, bat research camps for students, and a weekend of workshops were organised. The Austrian project team participated at the „GEO days of biodiversity“ in Carinthia and Tyrol.



Bat night 2004 im Ökozentrum Neustift.
(Foto: Nadia Cazzolli)

Bat night 2004 nel Centro Convegni Abbazia di Novacella. (Foto: Nadia Cazzolli)

Noč netopirjev v Ekocentru Neustift.
(Foto: Nadia Cazzolli)

Bat night at Ecocentre Neustift.
(Photo: Nadia Cazzolli)

was released in eight editions during the course of the project (see www.fledermausschutz.at).

For the Italian project a project logo was designed, which was printed on T-shirts given to the project team, volunteers and supporters of the project.

Extensive media work accompanied the entire project. In all project countries regular reports were made to the media informing about the project activities. Contributions were also made for the local radio and television stations as well as for national and cross-border television programs. In South Tyrol and Slovenia a hotline was established at the beginning of the project.

The Slovenian project was presented on the website (www.ckff.si/projekti/interreg), while in Austria the KFFÖ website comprised the official website of the INTERREG III A projects (www.fledermausschutz.at/INTERREG/index.htm). The Italian project can be found at the website www.naturmuseum.it/de/197.htm.

Not only new media were used to communicate the project. In Slovenia three brochures on bats were produced and in South Tyrol a brochure called “Bats in South Tyrol” was published. „KOPFÜBER – The Bat Journal Austria“, the official newsletter of the Austrian Coordination Centre for Bat Conservation and Research (KFFÖ), informed about the INTERREG III A projects and



Informationsausstellung über Fledermäuse im Schloss Bruck in Lienz/Osttirol.
(Foto: Anton Vorauer)

Mostra informativa sui chiroterri nel Castel Bruck a Lienz/ Tirolo dell'Est. (Foto: Anton Vorauer)

Razstava o netopirjih v gradu Bruck v Lienzu na Tirolskem. (Foto: Anton Vorauer)

Bat exhibition in the castle Bruck in Lienz (Tyrol).
(Photo: Anton Vorauer)