

## THE PROJECT OF THE RE-INTRODUCTION OF SCHREIBER'S BENT-WINGED BATS (MINIOPTERUS SCHREIBERSII, CHIROPTERA) IN THE PENINSULA OF CRIMEA

I. Kovalyova<sup>1</sup>, PhD, Senior Research Associate  
L. Taraborkin<sup>2</sup>, PhD, Senior Research Associate, Associate Professor

I.I. Schmalhausen Institute of Zoology of the National Academy of Sciences of Ukraine, Ukraine<sup>1</sup>  
National Technical University of Ukraine "Kyiv Polytechnical Institute", Ukraine<sup>2</sup>

The background and objectives of the project are presented in detail. They are connected with implementation of the world first re-introduction of the local bats population, namely the species *Miniopterus schreibersii*, in the peninsula of Crimea (Ukraine).

**Keywords:** Bats, cheiroptera, re-introduction, schreiber's bent-winged bats, Crimea.

Conference participant

**C**heiroptera, or Bats are the most vulnerable group among vertebrate animals. The high vulnerability of bats is determined by their biological peculiarities, which are conditioned by their unique among all mammals specialization to active flight. Among the peculiarities are the following: low fertility (1-2 animal's young per annum); narrow trophic specialization (night insect diet); attachment to nesting-places of two basic types: hollows of tree-trunks (being intensively brought to nought by men) or caves (being intensively exploited by men); regular necessity of transition into the state of hypothermia, during which the animals being the most vulnerable owing to troubles and predators. The oppressed state of bats populations leads to their decrease in the number, particularly, in the number of speleobiontic species dwelling in caves and grottos, which are being undergone to barbarous invasions of tourists and natives.

Nevertheless, the order of Cheiroptera has the greatest among mammals number of species forming the order. Moreover, Bats are the most widely distributed species of animals inhabiting all continents (except Antarctica), prevailing numerically over other mammal species. Evidently, that is why up to now nobody has raised a question about the introduction or re-introduction of Bats.

However, during last decades the status of many bats species in many countries became worse largely. It is caused first of all by the negative influence of the anthropogenic factor.

One more special factor of the high vulnerability of this group is a specific interest showed by the part of biologists for bats. So, the Soviet state institution "Zoovetsbyt" conducted mass game

shootings of bats including colonial species with the purpose of making visual aids (skeletons, stuffed animals, and so on) for biological studies and rooms at educational institutions [1]. With the aim of carrying out laboratory tests and replenishing scientific collections soviet scientists have been withdrawn a great number of the animals from the nature. Even relatively not long ago Ukrainian parasitologists, in search of rare uncommon helminths, procured for their investigations tens and hundreds of individuals of all bats species including Red Book ones. Just because of these reasons, the portion of bats in the Red Book animals' species is the greatest.

In the territory of Ukraine there are 24 bats species, and 12 ones of them have been entered in the lists of protected animals (namely: the Red Book of Ukraine, species protected by the Bern Convention [2].

The Bent-winged Bat is exactly one of these especially vulnerable species, since dramatic decline in number in its populations being observed through all Central Europe. The significant decline of *Miniopterus schreibersii* populations in Central Europe is the reason to start in 1996 the European *Miniopterus* Conservation Program [3].

The today's situation with *Miniopterus schreibersii* in Ukraine must be characterized as a catastrophe. Really, in the Crimea the species finally vanished in the fifties of the 20<sup>th</sup> Century.

Then, the last finding of the species in the Zakarpatskaya region (1991) presented a colony being 200 individuals in number [4]. However, since 1994 the species has not been registered in this region. The special search for the species being realized there during 1997-1998

years in the frame of the international project on the conservation of the species gave no positive results. It confirms the thesis about the full vanish of the species through the human beings' fault definitely in the peninsula of Crimea and most probably in the territory of Ukraine [2].

One of the promising methods to prevent from declining mammal species in the Earth is re-introduction. The term "re-introduction" signifies an attempt to establish a species in an area, which was once the part of its historical natural habitat, but from which it has been extirpated or become extinct [5].

The process of a re-introduction requires a thorough preparation based on a multidisciplinary approach. The preliminary preparations include a research in problems connected with the biology, ecology and behaviour of the species as well as an analytical study in social, economic, and legal requirements.

Recently, in spite of the well-known financial problems, the Ministry of Ecology and Natural Resources of Ukraine has made more active its efforts of developing and fulfilling projects, action plans and programmes directed at the biodiversity conservation in Ukraine. So, the National Programme on the conservation of biodiversity has been worked out. Concerted actions with other countries in the sphere of the preservation of surroundings are being broadened considerably:

Ukraine has become a participant of international nature conservation agreements and conventions, including the Convention on Biodiversity and the Bern Convention on Conservation of the wild Flora and Fauna, and environment in Europe; the work of joining Ukraine

to the Bonn Convention on Migrate species of wild animals, its regional agreements and to the Convention on the international trade of wild flora and fauna species, which are under the threat of vanish (CITEC), is near completion. Based on the legal documents and laws, the concrete program on re-introduction of the species in Ukraine seems to be really feasible.

That is to say today there is a legislative basis in Ukraine, that allows in the frames of international co-operation to move a part of the species from its safe dwelling-places abroad into an area which was once a part of its historical range, but from which it has been extirpated and become extinct, i.e. to realize the re-introduction of the species.

Just now, it is expedient to attempt of carrying out the proposed experiment on re-introduction the Schreiber's Bent-winged Bat in Ukraine since there are all real possibilities for its successful accomplishment:

1) the area, from which the species has been fully extirpated and where the species has not been observed for the last 50 years, is available; that is the territory of the peninsula of Crimea;

2) the former Crimean bent-winged bats colony was not migrating one (in contrast to the Carpathian's colonies), being isolated in the peninsula by mountains from the north and by the Black sea from the other sides;

3) there is the guarantee of permanent protection, since the essential part of Crimea belongs to the national parks and protected zones being under the defence of the State of Ukraine; additionally one may hold talks with the local authorities and the administration of reservations on the allotment of lands to create a special protected area for realizing the re-introduction;

4) there is a real possibility to withdraw a necessary number of the animals from a wild donor-population without any prejudice to the latter. Such a population inhabits the Central Prebalkan area (the territory of Bulgaria) and number approximately 5000 individuals [6]; another large population inhabits the Caucasus Minor (the territory of Azerbaijan);

5) corresponding international agreements and by this time acting pro-

grammes give an opportunity to obtain necessary permits and sanctions to remove individuals of the species from their host sites outside Ukraine and to re-introduce them in the territory Ukraine.

The peninsula of Crimea is selected for the re-introduction of the Schreiber's bent-winged bats not only for once a numerous (of many thousands) colony of the species dwelt here, but also in connection with the geographic situation of the peninsula being practically isolated from neighbouring mountain-mass. It is prevent from return of re-introduced animals to their old roosts.

It must be the noted, that re-introduction of the species is generally a long-term project requiring long-term financial, political and international support. The main stage of the re-introduction process, that is the removal of a little part from the Bulgarian *Miniopterus Schreibersii* population or Azerbaijan one and the re-settlement of it in the peninsula of Crimea, should be very carefully prepared by an international team of re-introduction specialists and chiropterologists and coordinated intergovernmentally.

The main expected result of the project will be the first in the world re-establishment of a bat population, namely the *Miniopterus shreibersii* one in the peninsula of Crimea.

Realizing the first known experiment on re-introduction of bats, the project will give unique data and valuable experience for specialists in nature conservation and restoration and for chiropterologists even in case of failure.

However that may be, this experiment on the re-introduction of one bat species will definitely attract attention of the public to all representatives of the order Chiroptera that should be used with the purpose to promote the protection and conservation of bats.

In case of success, the results of the re-introduction of *Miniopterus schreibersii* in the Crimea will become experimental fundamentals when creating scientifically proved guidelines for re-introductions of bats.

## References:

1. Beskaravayniy M.M. The recent state of Karadagh bats fauna (Crimea)// Bats (morphology, ecology, echolocation, parasite, conservation). – Kyiv: Naukova Dumka, 1988. – P. 113-116 (in Russian).
2. Zagorodnjuk I.V. Mammals of Ukraine under Protection of Bern's Convention. "Bern's" species of Bats in Red Book of Ukraine. Mammals in Ukraine // Proceedings of the Theriological School, 1999. – Vol. 2, P.97-104 (in Russian).
3. *Miniopterus schreibersii* Conservation Programme // Eurobat Chat. – October 1997. – No. 8, P. 9.
4. Pokynchereda V.F. The new findings of *Miniopterus schreibersii* in West Carpathian // Vestnik zoologii. – 1991. – Vol. 25, No. 3, P. 59 (in Ukrainian).
5. IUCN. Guidelines for re-introductions. IUCN Gland. – Cambridge, UK. – 1998. – 20 p.
6. Pandurska R., Paunovi M. Bat news from Bulgaria and Yugoslavia // Bat News. – November, 1997. – No. 47. – P. 4-5.

