

## Final Evaluation Report

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Your Details	
<b>Full Name</b>	Heliana Dundarova
<b>Project Title</b>	Conservation of the Cave Dwelling Bat Communities in South Kazakhstan
<b>Application ID</b>	36630-2
<b>Date of this Report</b>	27.06.2023

**1. Indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.**

Objective	Not achieved	Partially achieved	Fully achieved	Comments
Establishment of a checklist of the important underground sites in South Kazakhstan				<p>During the project implementation, the research team visited 10 underground sites: eight located in Karatau Mountain, one in Karakus Mountain (the edge of Talas Alatau range) and one in Sayram-Ugam National Park on the Karzhantau range. We found significant summer/breeding colonies of the lesser mouse-eared bat (<i>Myotis blythii</i>) in two of them: the tunnels of Karakus and Sayram-Ugam National Park.</p> <p>The number of counted individuals exceeded 30 000 in Karakus (fig. 1 a, b) and 15 000 in Sayram-Ugam National Park (fig. 2 a, b). The breeding colonies of the lesser mouse-eared bat have a high conservation impact for south Kazakhstan and also for the whole Central Asia population of the species.</p> <p>In the natural caves we found only a bachelor male colony for the lesser mouse-eared bat, (see illustrative photo in the first report) in the first report. This particular site is Stalaktitovaya cave.</p>
Bat monitoring. The monitoring will include observation and evaluation of the cave-dwelling bat populations which will be implemented by the approaches described in the methodology. approved and adopted by EUROBATS				<p>Bat monitoring was conducted using standard methods. Visual observations were provided at all sites, capturing of individuals with mist-nets in Akmechit cave, Karatau Mts and Placheshtaya peshtera cave, Karakus Mts and registration of the ultrasounds at five sites: the three closest to the water bodies (Badan river, Bazhansau river and lake without name in Karatau Mountain) and two closest to the cave entrances (Akmechit cave in Karatau Mountain and Plachushaya peshera cave in Karakus Mountain). Bat records were kindly identified by our colleague Nils Bouillard</p>

			<p><a href="https://www.batacoustics.com/about">https://www.batacoustics.com/about</a>, with whom we are preparing a short communication. In total, 11 bat species were registered: Turkestan pipistrelle (<i>Pipistrellus aladdin</i>), Kuhl's pipistrelle (<i>Pipistrellus kuhlii</i>)?, lesser mouse-eared bat (<i>Myotis blythii</i>), Geoffroy's bat (<i>Myotis emarginatus</i>), Ognev's serotine (<i>Eptesicus ognevi</i>), Gobi big brown bat (<i>Eptesicus gobiensis</i>), common noctule (<i>Nyctalus noctule</i>), Leisler's bat (<i>Nyctalus leisleri</i>), European free-tailed bat (<i>Tadarida teniotis</i>), greater horseshoe bat (<i>Rhinolophus ferrumequinum</i>), and lesser horseshoe bat (<i>Rhinolophus hipposideros</i>).</p> <p>Ectoparasites (fig. 3) from nine bat species: greater horseshoe bat (<i>Rhinolophus ferrumequinum</i>), lesser mouse-eared bat (<i>Myotis blythii</i>), Geoffroy's bat (<i>M. emarginatus</i>), David's mouse-eared bat (<i>M. davidii</i>), Ognev's serotine (<i>Eptesicus ognevi</i>), Savi's pipistrelle (<i>Hypsugo savii</i>), common pipistrelle (<i>Pipistrellus pipistrellus</i>), Turkestani long-eared bat (<i>Otonycteris leucophaea</i>) and common noctule (<i>Nyctalus noctula</i>) were collected. The majority of identified parasites belong to spinturnicid mites (Mesostigmata: Gamasina: Spinturnicidae). Further, a new ectoparasite species of the Turkestani long-eared bat <i>Spinturnix otonycterisi</i> Dunderova &amp; Orlova, 2022 (Acari: Spinturnicidae), has been described by Maria Orova and published <a href="https://www.mapress.com/zt/article/view/zootaxa.5222.5.3">https://www.mapress.com/zt/article/view/zootaxa.5222.5.3</a>.</p>
<p>Raising public awareness and bat conservation capacity building through the One Health approach</p>			<p>A series of capacity building activities including lectures and practices for bat identification, ecology and conservation were conducted during the summer part of the project.</p> <p>In addition, we were able to present our conservation activities in front of the Reneco International Wildlife Consultant LLC team (fig. 4) working for the Houbara bustard monitoring and release in Kazakhstan project. They joined our</p>

				activities and also received Buff neck scarves and t-shirts, see photo in the first report.
Analysis of the results, paper writing and final report preparation				Several results from our work have been already published <a href="https://www.mapress.com/zt/article/view/zootaxa.5222.5.3">https://www.mapress.com/zt/article/view/zootaxa.5222.5.3</a> <a href="https://www.biotaxa.org/em/article/view/82505">https://www.biotaxa.org/em/article/view/82505</a> and other drafts/manuscripts are in progress. Further, the important underground sites for cave-dwelling bat species in South Kazakhstan which we monitor, will be included in research database named 'Beyond Species' which summarise bat distribution across the Palearctic region.

**2. Describe the three most important outcomes of your project.**

- a).** An updated list of the significant summer/breeding colonies of the cave-dwelling bat species in south Kazakhstan. The last available information was from the Soviet and post-Soviet periods of the 20th century.
- b).** Description and publication of one new ectoparasite species, previously unknown to science. This result confirmed the need for future in-depth research on the bat fauna and their parasite load in the region.
- c).** Fieldwork training which will lay the foundations for bat conservation in the region. Formation of a bat research group with perspectives to spread conservation activities and knowledge in the region.

**3. Explain any unforeseen difficulties that arose during the project and how these were tackled.**

First, the distance between underground sites is more than 500 km and the significant increase in the price of fuel influenced the detailed research of every point.

Second, unforeseen circumstances appear during the second part of the project and the leader was not able to join the team in Kazakhstan. Therefore, a proper inventory of the vulnerable species from the family Rhinolophidae was not possible at this stage of the project.

**4. Describe the involvement of local communities and how they have benefited from the project.**

During the project duration, engagement with the local community was provided in with the help of Kudaibergen Amireku (fig. 4). He is an enthusiastic young researcher focused on Kazakh biodiversity and its conservation. Kudaibergen rises the local

people's awareness of bat importance and the irreplaceable role of bats in the ecosystem.

#### **5. Are there any plans to continue this work?**

Cave-dwelling bat communities of south Kazakhstan are linked with those of Kyrgyzstan. The northern ridge of the western Tien Shan borders with Kyrgyzstan. Comparison of the bat species distribution in Kazakhstan with their distribution in Kyrgyzstan will provide a clear picture of the population trends of the study species which is key for sustainable bat conservation in Central Asia. Furthermore, a future project will help for compiling an inventory of the species from the family Rhinolophidae and clarify the taxonomic position of some questionable species such as *Rhinolophus* cf. *lepidus*, which present different species than traditionally accepted.

#### **6. How do you plan to share the results of your work with others?**

All results will be published in scientific journals present in the Web of Science, Scopus, ERIH+ and similar databases, as well as national and international forums. Expectations are that local environmental authorities will have the opportunity of using this information to change the basic regulations and prepare conservation bills.

#### **7. Looking ahead, what do you feel are the important next steps?**

I am still in close collaboration with the Dean of the of the Department of Zoology and Ecology at Osh State University. Therefore, internships for students from Kyrgyzstan to Kazakhstan, and vice versa, will contribute to sustainable capacity building in both countries. The main goal of the 1<sup>st</sup> RSG and the 2<sup>nd</sup> RSG is to link both countries via a Booster Grant, which will guarantee bat conservation and the continued existence of the bat working group of Central Asia.

#### **8. Did you use The Rufford Foundation logo in any materials produced in relation to this project? Did the Foundation receive any publicity during the course of your work?**

We used the Rufford logo on t-shirts, headscarf buffs, and presentations. We published two scientific papers, where we acknowledge the help of the Rufford Foundation: Dundarova, H, Orlova, M, Anisimov, N, Baskakova, S, Shakula, G, Shakula, F, Shakula, S, Amirekul, K. 2022. A new species of Spinturnix (Acari: Spinturnicidae) from the Turkestani long-eared bat *Otonycteris leucophaea* (Chiroptera: Vespertilionidae) in Kazakhstan. *Zootaxa*, 5222(5): 443-456, <https://www.mapress.com/zt/article/view/zootaxa.5222.5.3> and Orlova MV, Dundarova H, Anisimov NV, Shakula GV, Baskakova SV, Shakula FV, Shakula SV, Kuzminov IV, Boyarintsev, DI. 2023. New geographical records of spinturnicid mites (Mesostigmata: Gamasina: Spinturnicidae) in Kazakhstan. *Ecologica Montenegrina*, 63, 105–112. <https://doi.org/10.37828/em.2023.63.10>

**9. Provide a full list of all the members of your team and their role in the project.**

**Nazerke Bizhanova** – PhD student at the Institute of Zoology of the Republic of Kazakhstan. She helps with the dissemination and exploitation of the conservation outputs.

**Svetlana Baskakova** – Director of the Wild Nature NGO, Kazakhstan. She planned and implemented all the project activities to achieve all the objectives of the project.

**Alen Shakirov** – expert in Kaz-eco-project limited liability partnership.

**Georgiy Shakula** – Conservation expert, theriologist and speleologist in the Wild Nature NGO, Kazakhstan. He provided information about caves in the study region, recorded bat sounds and started to analyse them in BatSound 4.4.

**Fedor Shakula** – Geography expert, photographer, and speleologist in the Wild Nature NGO, Kazakhstan. He provides information about caves in the study region and filmed our research.

**Nikita Vikhrev** – Moscow State University Zoology Museum Senior Researcher. He provided valuable advice on some ectoparasites.

**Natilia Bogomolova** – Naturalist-photographer. He provided valuable advice how to film our project and provide PR.

**Maria Orlova** – scientist at the Tyumen State Medical University and National Research Tomsk State University. She collected and identified all ectoparasites.

**Ivan Pandourski** - scientist at the Institute of Biodiversity and Ecosystem Research at the Bulgarian Academy of Sciences. He provided valuable advice how to start to analyse recorded ultrasounds using BatSound 4.4.

**10. Any other comments?**

We are grateful to The Rufford foundation for funding our research focused on conservation of bats and caves in Central Asia. We are also thankful to Nils Bouillard for ultrasound identification and Christian Dietz for his advice about some important bat species for the region.



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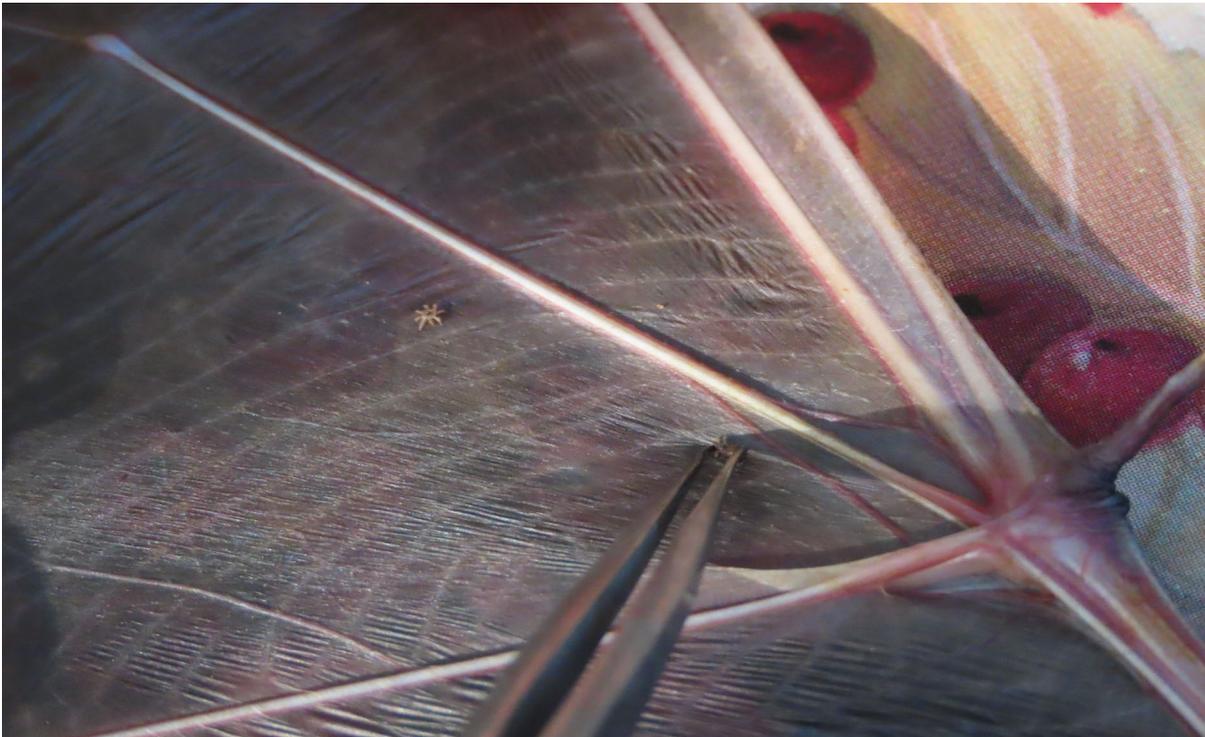
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