

List of potential threats to bat species and threat assessment methodology. Criteria developed for classification and assessment of potential threats and factors affecting bat populations in the project territory.

In the frame of project:
"Sustainable bats conservation in the cross border area"
1846 BatsConserve

Representing BatMap

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Consortium BatMap

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In accordance with the Technical Specifications of the Assignor and our Technical Proposal, we will implement the following sub-actions in the implementation of Action 3: **"Identification of potential threats and factors affecting bat populations in the project territory"**:

- *Identifying types of threats and developing criteria for their classification and assessment;*
- *Mapping of threats to bat fauna in the project area.*

In connection with the implementation of the first sub-action „**Identifying types of threats and developing criteria for their classification and assessment**“, we have created a list of potential threats to bat species and threat assessment methodology. For this purpose, we identified and analyzed the types of bats for bats. We have developed criteria for their classification and assessment (for each of the identified threats we have developed evaluation criteria). Criteria are based on environmental assessment parameters, the types and extent of impacts being determined on the basis of matrix-based criteria and expert judgment. When developing the list, account was taken of threats related to climate change, land use, breach or loss of habitats of bat species, direct destruction, industry, human bias, chemicals, natural threats, etc..

As a result of the implementation of the first sub-Action "Identification of Threat Types and Development of Criteria for their Classification and Evaluation", a List of Potential Threats for the Bat and Methodology for Threat Assessment was established and Criteria for Classification and Evaluation of Potential Threats.

Insectivorous bats occupy the units in the food chain of ecosystems. This place determines their strong sensitivity to natural or anthropogenically induced changes in the environment. Threats and specific impacts may be direct, affecting individuals in a particular population, or indirect - such as changing habitat characteristics. The actual effect on the bat species resulting from the identified threats must be assessed in terms of their possible cumulative effect.

The National Priority Framework Action for Natura 2000 for Bulgaria for the EU Multiannual Financial Period (2013-2020) has defined and classified the main threats to species of bats on the territory of Bulgaria.

The identification of potential threats and factors affecting bats' populations in the design territory and their classification were carried out in accordance with the criteria laid down in Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (EU Habitats Directive). The parameters of each criterion are defined according to the specific ecological features of the project territory, which will allow the planning of real-life measures to prevent or mitigate adverse effects.

The degree of exposure to bats is represented on a three-tier scale, depending on the projected changes that would be made in the conservation status of bat species specifically in the project territory:

Table 1 *Level of exposure of bat threats*

Level	Evaluation criteria
Low level (level 1)	The threat has one - off or short - term effects and does not result in changes in the population structure. No cumulative effect is expected. The current conservation status does not change.
Average степен (level 2)	The threat has a long-lasting, reversible impact. Cumulative impacts are possible.
Significant level (level 3)	The threat has a long - lasting / irreversible impact with expected unfavorable changes to the present conservation status of species.

Table № 2 List of potential threat to bat species and threat assessment methodology (basic categorization of potential threats to bats in the project area)

Code (under Directive 92/43 EU)	Threat/Factor	Description (under Directive 92/43 EU)	Description (further applicable to the project territory)	Nature of impact	Degree of manifestation (level 1 - 3)
A	Agriculture	A02.01, intensive farming A03.01, intensive mowing or intensification A07, use of biocides, hormones and chemicals	Intensification of tobacco and cotton production	Removing areas from potential habitats and/or changing their natural features; Changing the species composition of the bat community; Mortality of individuals; Permanent loss of habitats.	Will be defined in the relevant polygon of the project territory (defined territorial scope).
B	Forestry	B02.01.02, reforestation (non-	-	Loss of refuges and habitats; Removing areas from	

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		<p>native tree species)</p> <p>B02.02, clearing forests</p> <p>B02.03, exploitation of forests without re-planting or natural growth</p> <p>B02.04, removing dead and dying trees</p>		<p>potential habitats and/or changing their natural features;</p> <p>Changing the species composition of the bat community;</p> <p>Mortality of individuals.</p>	
C	Mining, extraction of materials and energy generation	C03.03, generation of energy	<p>Explosive activities in mining;</p> <p>Discovery of new landfills from the extractive industry and tailing ponds</p>	<p>Individual anxiety;</p> <p>Loss of refuges and habitats;</p> <p>Removing areas from potential habitats and/or changing their natural habitat;</p> <p>Changing the species composition of the bat</p>	

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				community; Mortality of individuals.	
D	Transport and transport corridors	-	Road construction; Tunnels and bridges; Automobile traffic	Fragmentation; Disruption of bio-corridors; Anxiety; Mortality of individuals.	
E	Urbanization and commercial development	E06.01, destruction of buildings and man-made structures	Expansion of urban territories	Fragmentation; Anxiety; Mortality of individuals; Loss of refuges and habitats; Removing areas from potential habitats and / or changing their natural habitat; Changing the species composition of the bat community.	

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F	Use of biological resources other than agriculture and forestry	F03, Hunting and wildlife collections	-	Mortality of individuals and anxiety; Discharging individuals.
G	Human interference and anxiety	G01.04.02, speleology G01.04.03, recreational cave visit G05.04, vandalism G05.08, closures of caves or galleries	treasure-hunting	Discharging individuals; Mortality of individuals.
H	Замърсяване	H02, groundwater pollution (point and diffuse sources)	Waste disposal in caves - domestic, biological and chemical; Unregulated landfills	Removing areas from potential habitats and/or changing their natural habitat; Changing the species composition of the bat

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				community; Mortality of individuals.
I	invasive and other problematic species and genes	-	Increase of hideaway entrances	Changing the species composition and number of bats in the asylum.
J	Changes in natural systems	J01, fires; J02.07, underground Natural biotic and abiotic processes (no catastrophes)water catchments	Fire of fire in the caves	Discharging individuals; Mortality of individuals; Changing the species composition and number of bats in the asylum.
K		K01.01, Erosion; K02, Biocenotic Evolution, (succession)	-	Removing areas from potential habitats and/or changing their natural habitat; Changing the species

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				composition and the size of the bat community.
L	Geological events, natural catastrophes	-	Landslides	Removing areas from potential habitats and/or changing their natural features.
M	Climate change	M01.01, temperature changes	-	Removing areas from potential habitats and/or changing their natural habitat; Changing the species composition and the size of the bat community.
U	Unknown threats and pressures - newly identified in the project territory	-	-	-

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In the implementation of the following activities and sub-activities, the terrain of the threats and factors affecting the bat populations in the project territory will be confirmed, as well as the preparation of a Report containing information (including spatial) on the identified potential threats and factors affecting the bat populations in the project territory (in English).

Threat identification will be done for each polygon of the project territory. A summary expert assessment of the threats will be presented for the different regions - the cross-border territories along the Mesta River along both sides of the border and caves from the Eastern Rhodopes (Momchilgrad - Komotini).