

# The conservation status and prospects of the endangered and protected *Carabus hungaricus* Fabricius, 1792 (Coleoptera: Carabidae) in Bulgaria



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## INTRODUCTION & AIM

*Carabus hungaricus* Fabricius, 1792 (Coleoptera: Carabidae) is a Natura 2000 species, protected by Directive 92/43/EEC (Annexes II and IV) and included in Berne Convention (II) and CORINE.

It is declining everywhere across its highly fragmented distribution range (from Central Europe to Eastern Siberia), sharing the fate of the temperate grasslands that are among the most threatened biomes on Earth.

In Bulgaria, it is protected by the Biological Diversity Act (Annexes II and III), added in the Bulgarian Red Data Book as “Vulnerable”, and included in the standard form of only one protected area (BG0000322 “Dragoman”) with an unfavourable status. This study shows part of the results from the work on the development of an Action Plan for its conservation in Bulgaria for the period 2023 – 2032.



## METHOD

During the three-year study (May 2021 – December 2023), with 252 pitfall traps we explored 42 plots in central-western Bulgaria.



## RESULTS & DISCUSSION

The habitats in the seven plots where *C. hungaricus* was found in Bulgaria were quite similar, karstic steppes or steppe-like stony meadows, at altitudes between 646 and 1185 m.

We proved the strong attachment of the species to the steppes, and its requirement for a lack of anthropogenic pressure or changes in the landscape structure, vegetation, edaphotope and microclimatic characteristics.

**DANGER**

We identified several concrete threats to *Carabus hungaricus*:

Construction of quarries for rock mass and mining of ore and other underground resources

Construction of photovoltaic and wind power plants

Fires during summer and autumn dry periods

Afforestation with atypical and non-native tree species

Uncontrolled grazing of domestic animals

Excavations by treasure-hunters or for shelters in the military training ranges

Disposal of domestic and construction waste and formation of unregulated dumpsites

In the developed Action Plan, restrictive measures related to the conservation of the old and new localities and the use of traditional extensive practices maintaining the karst steppe biome in an unchanged state were set. However, there are concrete measures that need to be taken:

- Research on the distribution and population status;
- Elucidation of the phenological and ecological characteristics;
- Clarification of the genetic status of the Bulgarian population;
- Designation of three new protected areas;
- Development of Management Plans for the Natura 2000 sites and Protected areas;
- Annual monitoring;
- Promotion of conversation, awareness, public consciousness and nature conservation education.

## CONCLUSION

All localities of *Carabus hungaricus* in Bulgaria are situated in the karst steppes of the small mountains around the Sofia Basin. Since they represent the southernmost areas from the entire Eurasian steppe biome, the existence of the whole steppe complex in this border refugium is highly vulnerable and dependent on the conservation measures requiring full conservation, which can only be achieved by the designation of strictly protected areas.