

# Communities of the endangered and protected *Carabus hungaricus* Fabricius, 1792 (Coleoptera: Carabidae) in Bulgaria

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## INTRODUCTION & AIM

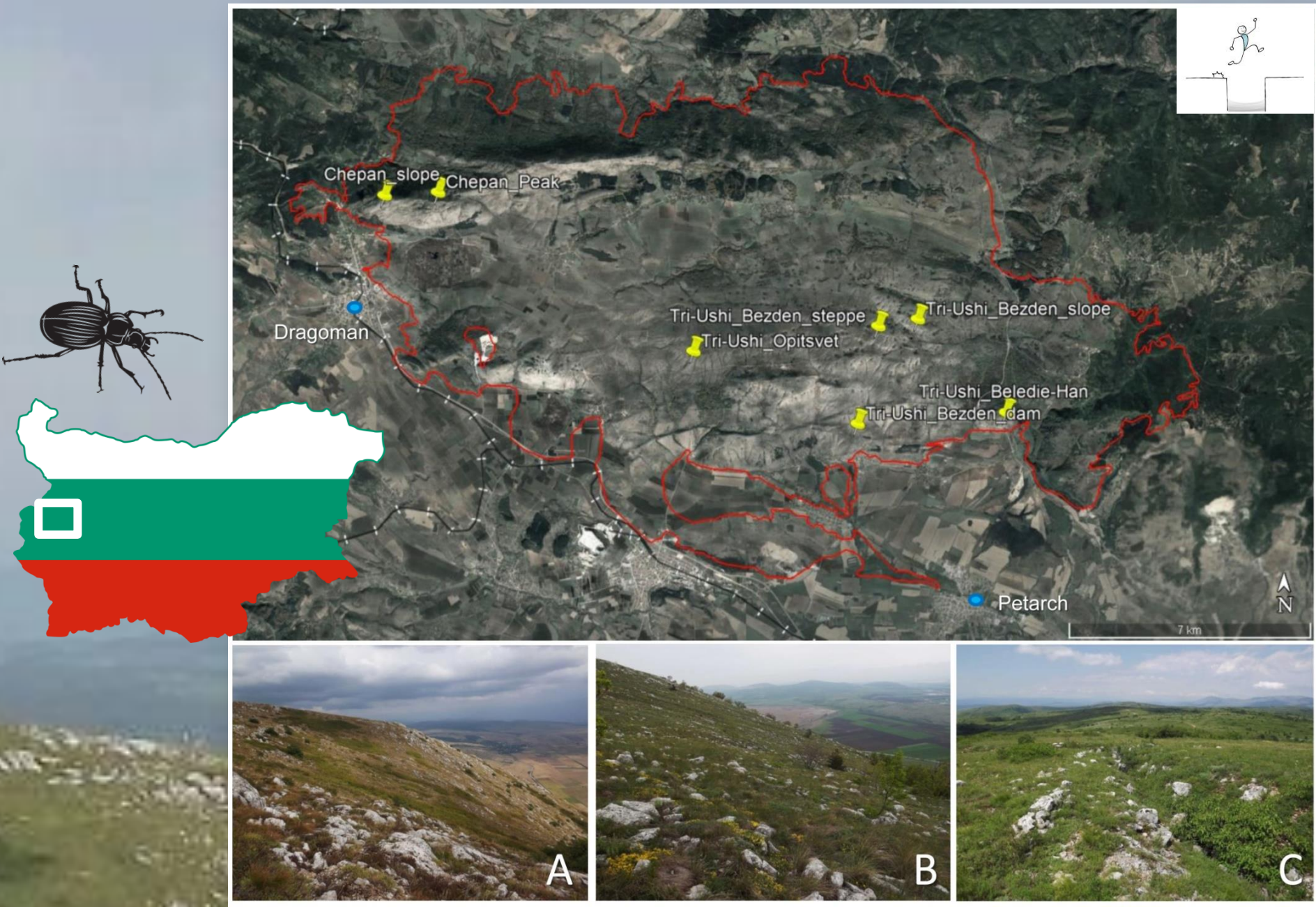


*Carabus hungaricus* Fabricius, 1792 (Coleoptera: Carabidae) is a zoophagous, mesoxerophilic beetle, which is an endangered stenotopic species, representing Pannonian steppe invertebrates in European legislation.

Most of the research on *C. hungaricus* concern its habitats, conservation status, taxonomy or given populations, but the papers on its ecological relationships and parameters are very scarce. This study examines the communities of this protected species in Bulgaria.

## METHOD

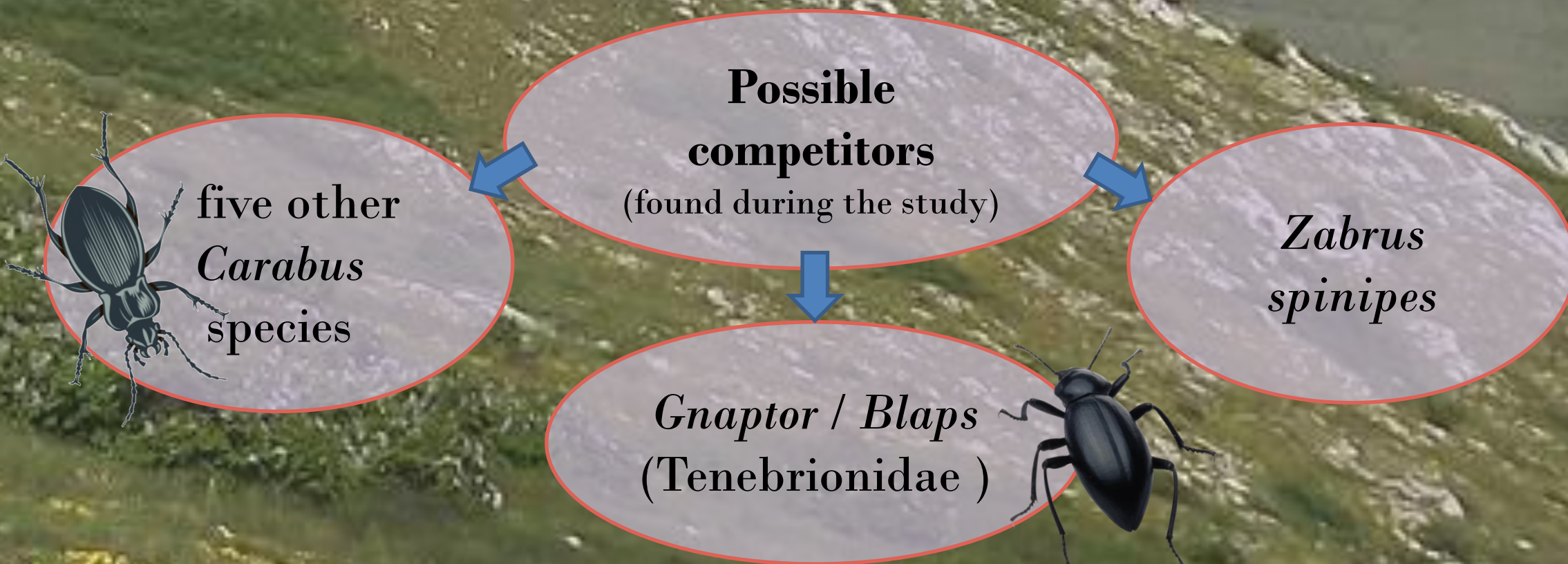
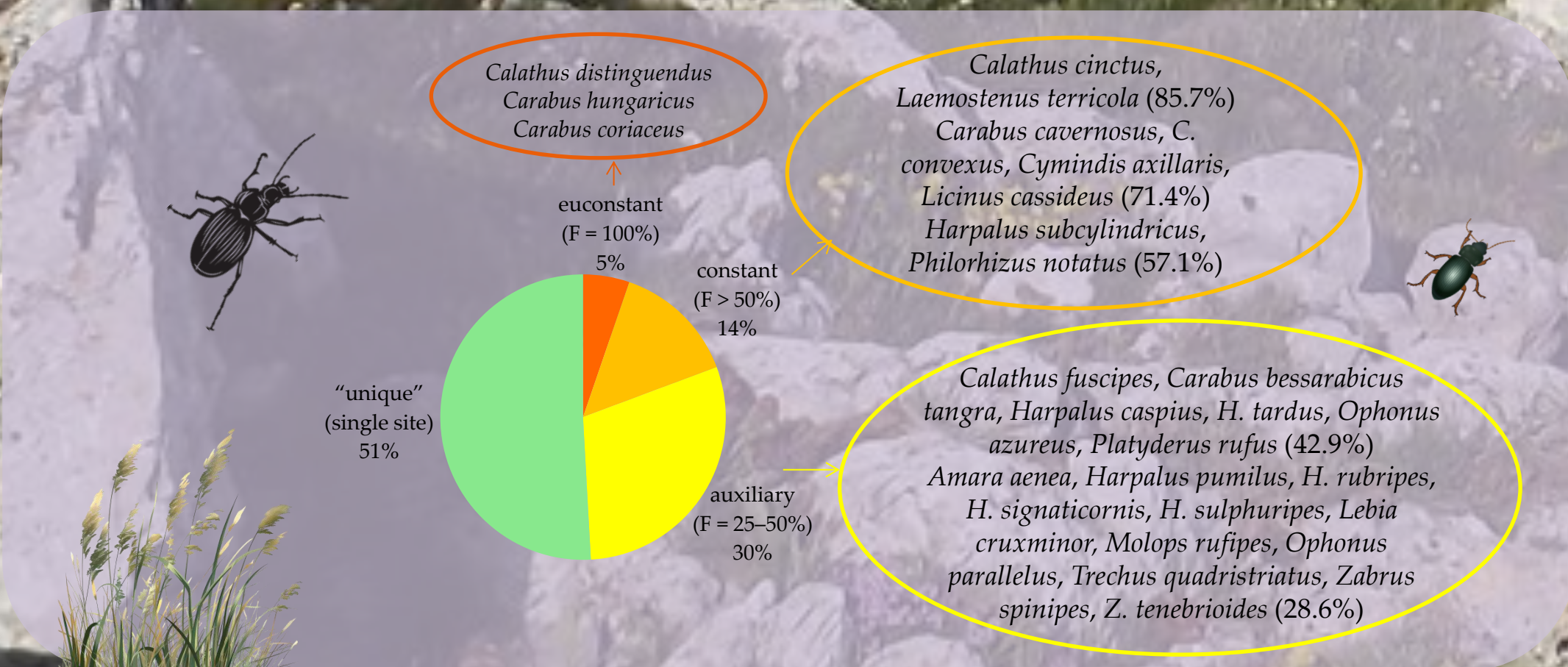
During the three-year study (May 2021 – December 2023), with 252 pitfall traps we explored 42 plots in central-western Bulgaria.



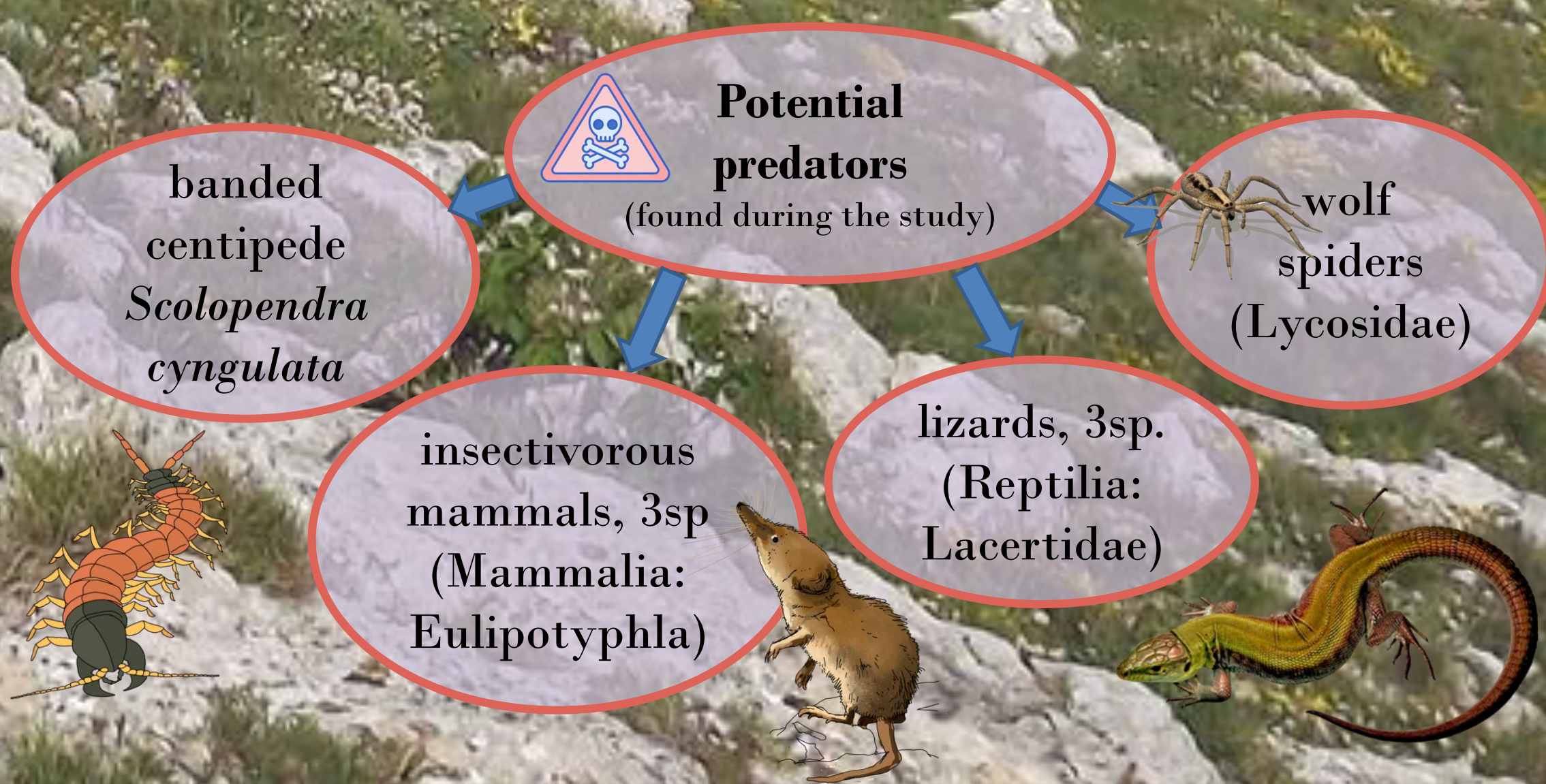
## RESULTS & DISCUSSION

*Carabus hungaricus* was established in seven of the sampling sites, with a total of 198 specimens. In these seven sites, we found 57 species belonging to 23 genera and 12 tribes, mostly open habitat dwellers. Tribe Harpalini had 19 of the species (33%). The most species-rich genera were *Harpalus* (13 sp., 23% of all), *Amara* (8 sp., 14%) and *Carabus* (6 sp., 10%).

The most represented species were the superdominant *Calathus distinguendus* (>71% of all carabid specimens), the dominants *Carabus coriaceus* and *Laemostenus terricola*, and the subdominants *Calathus cinctus*, *Carabus cavernosus*, *C. hungaricus* and *C. convexus*. Euconstant species, collected in all seven sampling sites were *C. coriaceus* and *Calathus distinguendus*. Common and abundant were the constant species: *Calathus cinctus*, *Laemostenus terricola*, *C. cavernosus*, *C. convexus*, *Cymindis axillaris* and *Licinus cassideus*.



Competition might be expected from the closely related *C. morio*, and to some extent from *C. torosus*, which is more xerophilous. However, they do not occur in the area where *C. hungaricus* lives in Bulgaria. *Carabus scabriusculus* seems to occupy a different ecological niche, and has a wider tolerance in its requirements.



## CONCLUSION

For the first time in Bulgaria, some characteristics related to the life history, associated taxa, community structure and potential competitors, prey and predators of this endangered and protected species have been studied.