

PRELIMINARY DATA ON DNA BARCODING OF GENUS *Elmis* (Insecta: Coleoptera: Elmidae) IN CROATIA

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INTRODUCTION

Conservation of biodiversity is nowadays recognised as a key priority, nevertheless integrative taxonomy is still undervalued. Many insect groups, such as water beetles from family Elmidae, are unfortunately still very poorly studied.



bioindicators for water quality and monitoring of their habitats

the dominant beetle family in fast flowing waters



DNA barcoding

reliable species identification especially in cases of closely related species

MATERIAL AND METHODS



field trips throughout the country

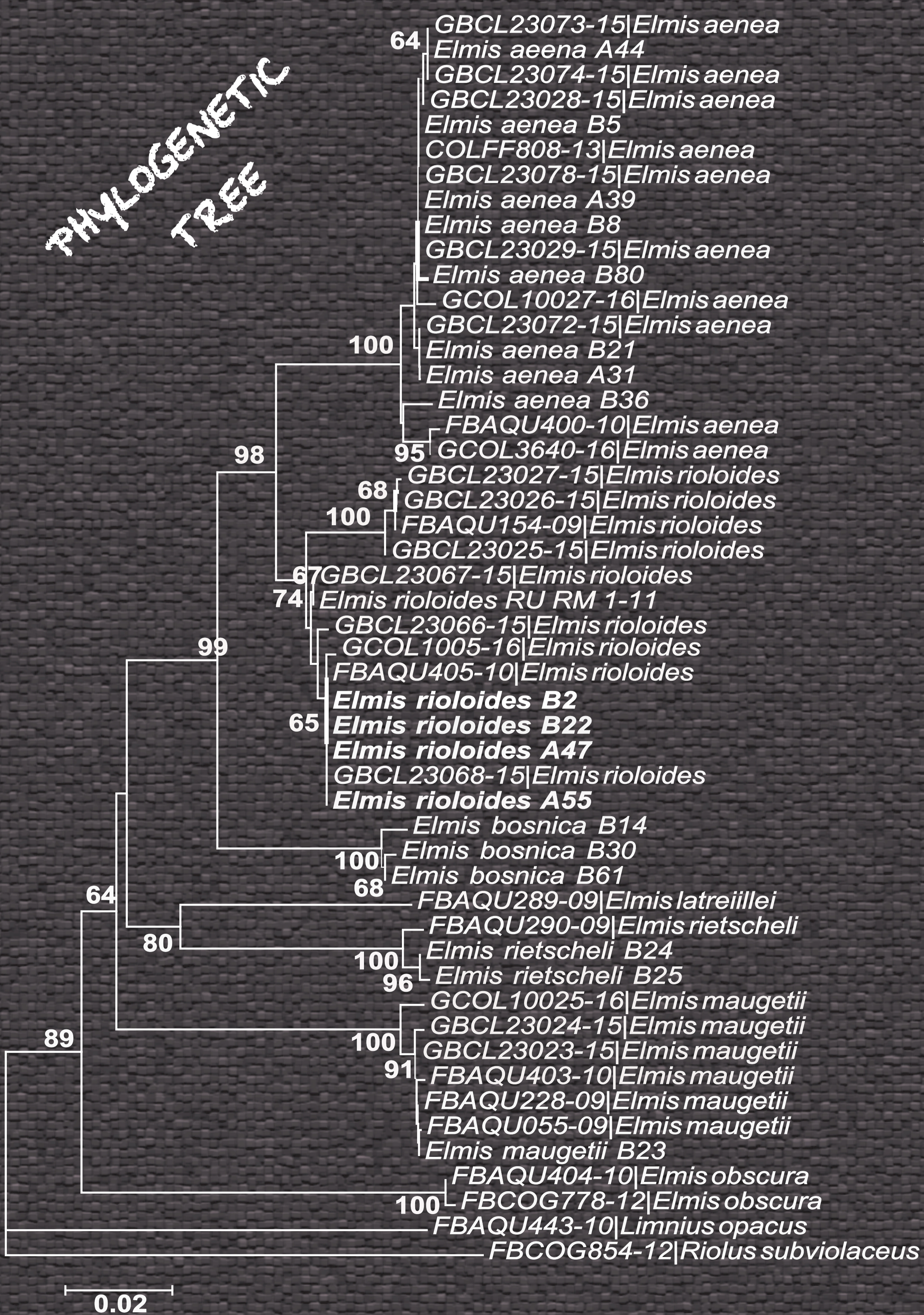
So far, there are 23 species of Elmidae recorded in Croatia!



sequencing -650 bp long fragment of mitochondrial (mt) cytochrome oxidase gene subunit I (COI)

RESULTS AND DISCUSSION

PHYLOGENETIC TREE



1. *Elmis rietscheli* Steffan, 1958 is recorded for the first time in Croatia, as 7th species in the genus.
2. *Elmis bosnica* Zaitzev, 1908 barcode is the first in the BOLD database!!!
3. Genetic distances within the particular species are low (below 0.5%), with the exception of *E. rioloides* (Kuwert, 1890) (up to 2.0%). The distances between the *Elmis* species are in the range of 4.0 - 13.3%.
4. In *Elmis rioloides* two separate subclades are observed indicating significant genetic differentiation of populations. ALL samples from Croatian group are in the separate subclade!!!
5. Two species from the current checklist, *Elmis latreillei* Bedel, 1878 and *E. obscura* (Müller, 1806), are not yet barcoded. Further sampling and studies are required!

IN CONCLUSION OUR RESULTS ...

- represent the base for future studies on the processes of the speciation of water beetles;
- contribute to the knowledge of freshwater biodiversity in Croatia;
- prove the existence of potentially rare, endemic and/or endangered species of water beetles, being essential in establishing projects on conservation of aquatic species and aquatic biotopes.