

Hard to deal with: attempts for eradication of marbled crayfish from a small urban pond



¹Buřič, M., ¹Ložek, F., ²Görner, T., ³Štruncová, E., ³Svobodová, J.

¹University of South Bohemia in České Budějovice, Faculty of Fisheries and Protection of Waters, Zátíší 728/II, 389 25 Vodňany, Czech Republic

²Nature Conservation Agency of the Czech Republic, Kaplanova 1931/1, Prague, 14800, Czech Republic

³T. G. Masaryk Water Research Institute, Podbabská 30, Prague 6, CZ-16000, Czech Republic

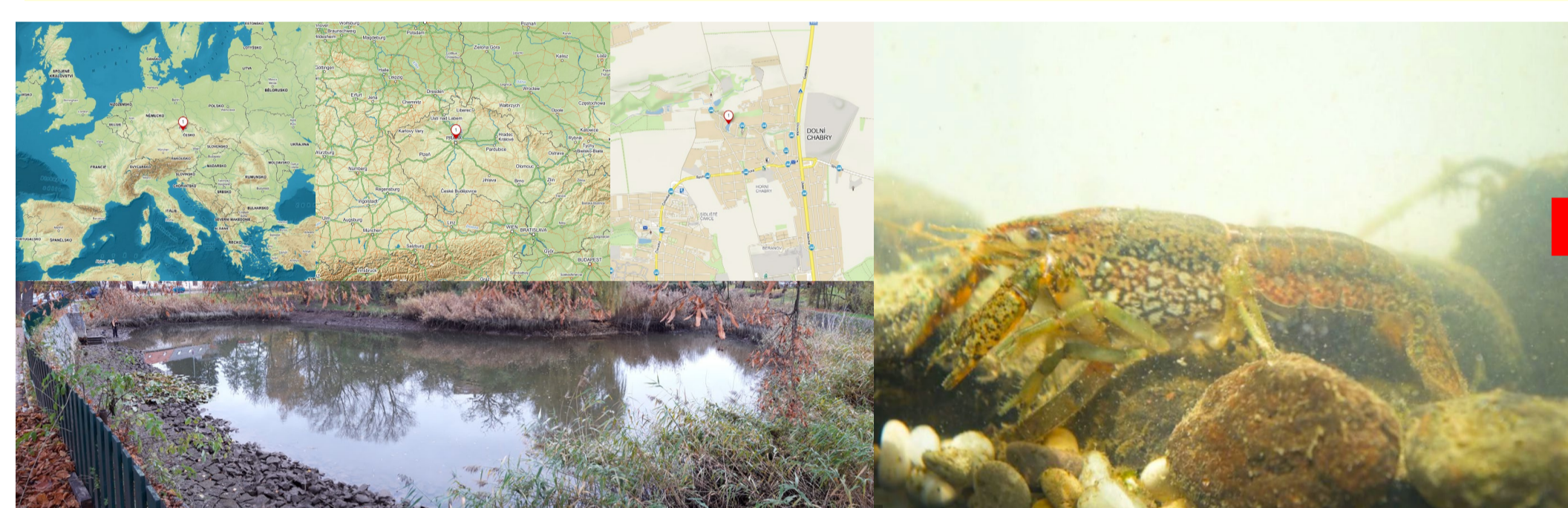
Introduction

Marbled crayfish is an emerging invasive species worldwide. It poses a serious threat for many freshwater waterbodies due to its parthenogenetic mode of reproduction (only one individual can be enough to establish a population) and high adaptability to new environments. Evidence from natural localities increasing especially in urban areas (propagule pressure effect). The established population of invasive crayfish is nearly impossible to eradicate.



Methods

The small urban pond (0.26 ha) in Prague, Czech Republic. Marbled crayfish found in summer 2020.



2020

October - trapping, 15 crayfish analyzed for crayfish plague infection
November - **pond harvesting**, all crayfish removed - pond stayed 2 months **drained**
December - **hydrated lime** was applied at the pond bottom



2022

April - pond drained and bottom substrate excavated in June filled again
June - August - **monthly trapping** in the pond, adjacent brook **night hand searching**, **eDNA sampling**.

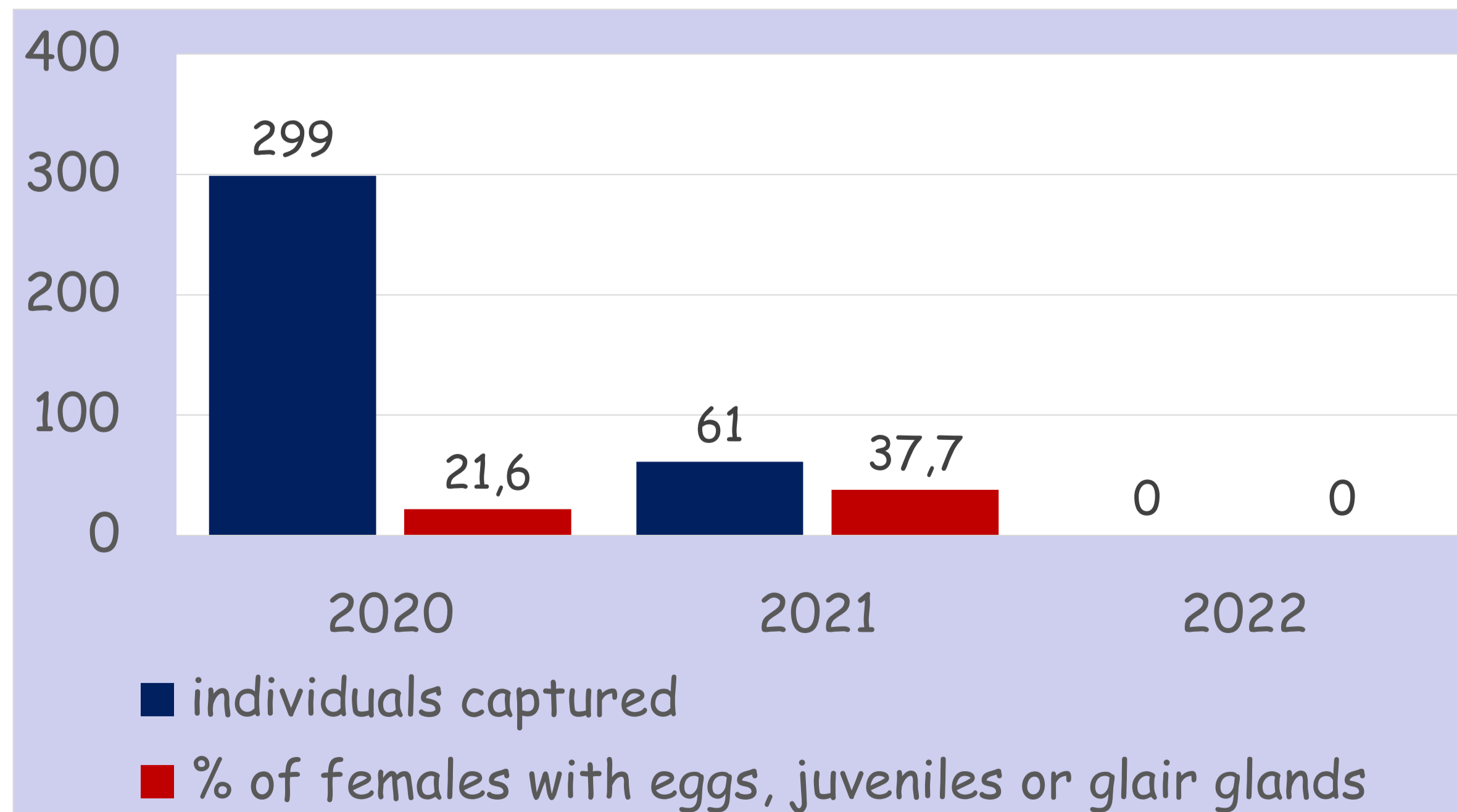
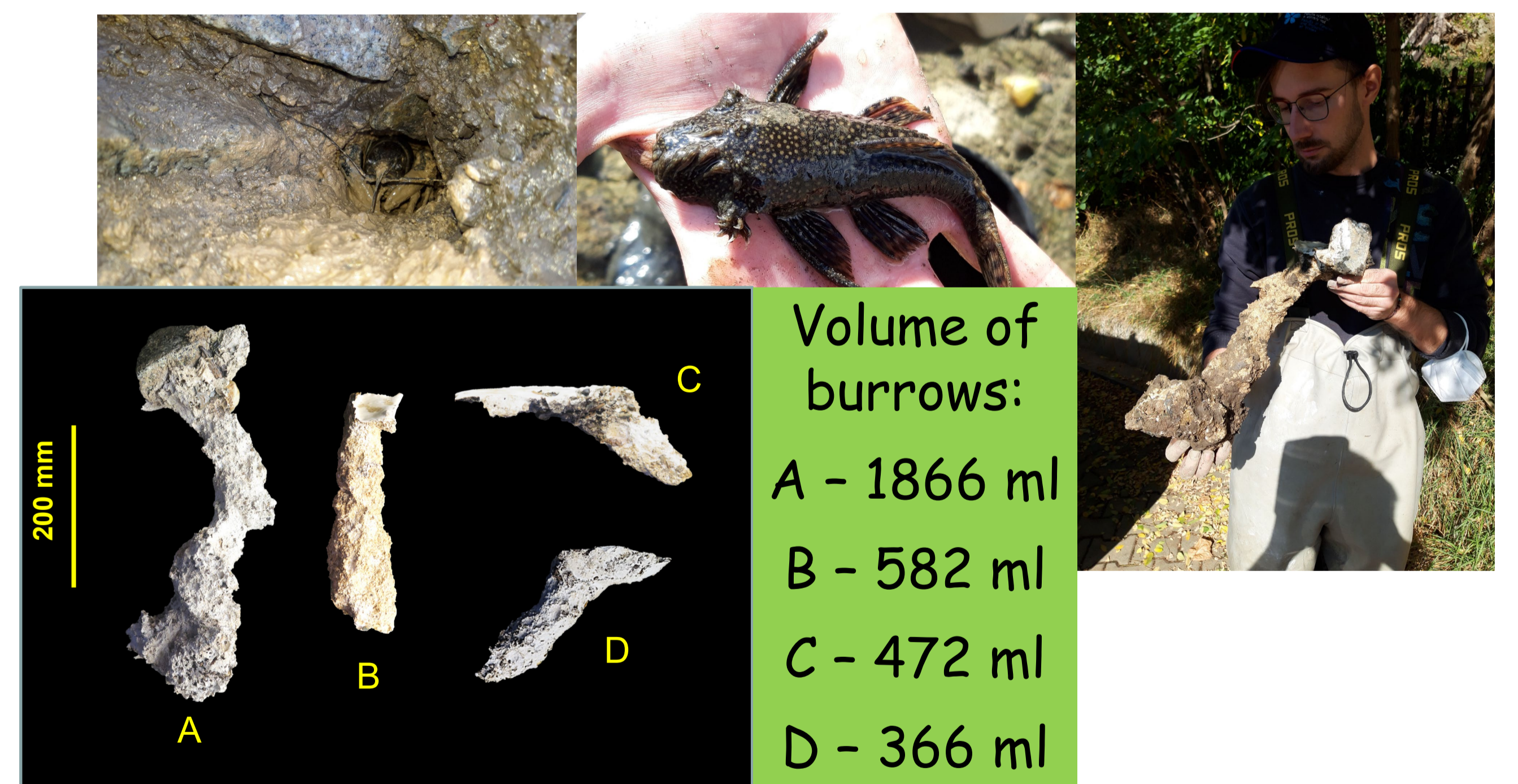


2021

March, April - pond slowly filled again and **predatory fish** (*Perca fluviatilis*) were **released**.
October - **pond harvesting**, all crayfish removed, inspection of cavities under large boulders, several **burrows** found, **gypsum casts** of accessible burrows were made
November - **lime solution** (35 kg of hydrated lime + 180 l of water) **applied** at the pond bottom and to all expected cavities between and under stones

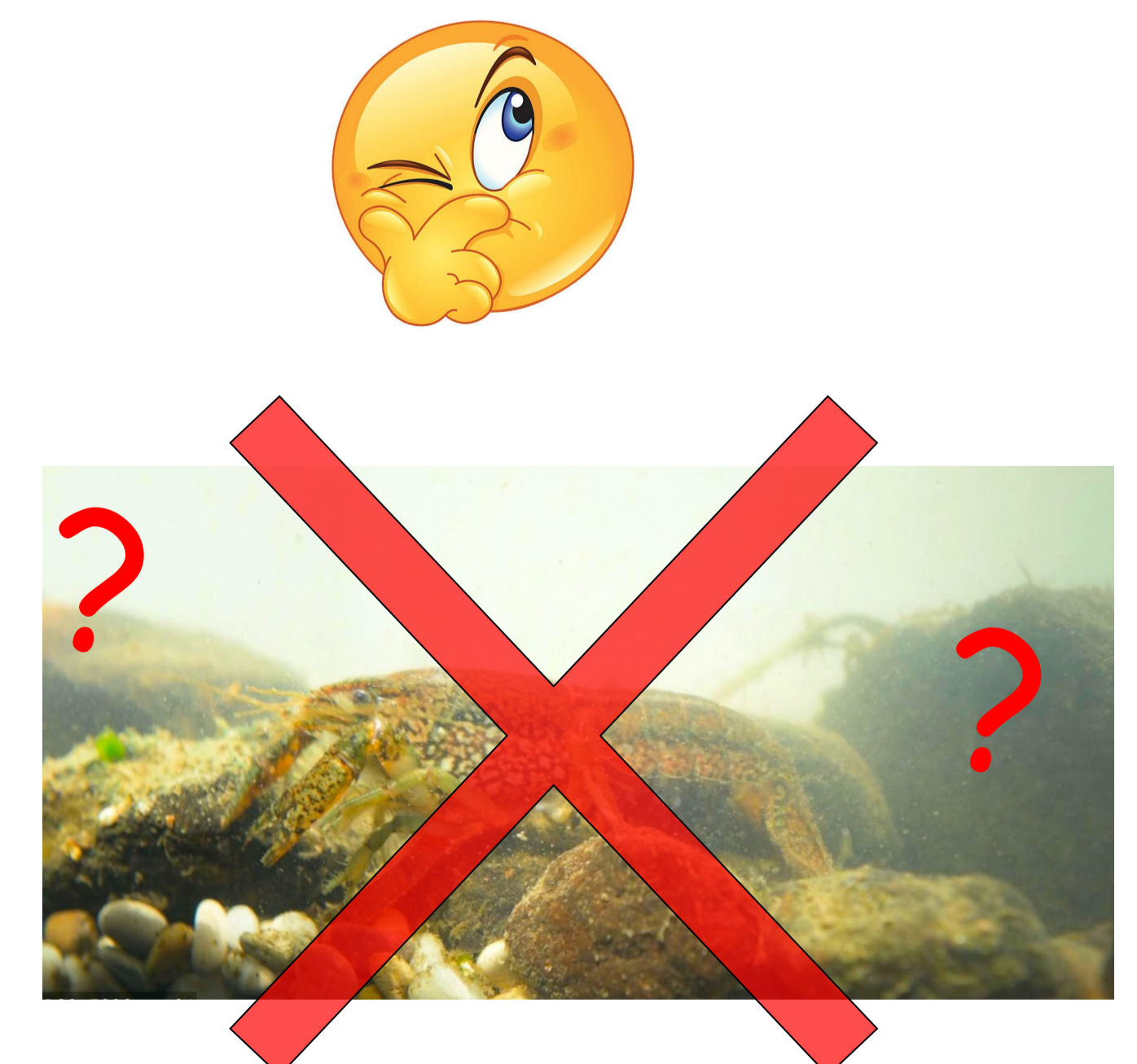
Results

- 2020 - abundant population, no crayfish in the neighbouring brook
 - crayfish were crayfish plague negative
- 2021 - decreased population, proportionally more reproducing crayfish, no crayfish in the neighbouring brook
 - burrows even deeper than 0.4 m
 - *Ancistrus* sp. caught in the pond
- 2022 - no crayfish trapped nor observed in both, pond and brook



Conclusions

- High propagule pressure in urban areas confirmed
- Municipality help necessary in management
- Fast action needed
- People interested in → public awareness increased
- Population eradicated? We will see



Acknowledgements: The presented work was supported by the project No. 3211100013 „Use of innovative methods in the eradication of invasive crayfish in the Czech Republic“ Norway Grants 2014-2021 Programme name: Environment, Ecosystems and Climate Change Programme area: Improved environmental status in ecosystems, Call-1 “Rago”. We also deeply appreciate the help of the Municipality of the City of Prague which accepted and cooperated in all treatments needed to avoid further spreading of the marbled crayfish.