



# BOOK *of* ABSTRACTS



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# Book of Abstracts

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## Managing Invasive Species with a Zero-Waste Approach: The Case of Spiny-Cheek Crayfish in Serbia

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### Abstract

Invasive Alien Species (IAS) are among the top five direct drivers of biodiversity loss, posing a significant threat to humanity over the next decade. The spiny-cheek crayfish, *Faxonius limosus*, originally from Eastern North America, is now found in over 20 European countries and is listed as an IAS of Union concern. In Serbia, this species was first recorded in the Danube near Apatin in 2002 and has spread throughout the Serbian section of the Danube and its tributaries. Given its high dispersal rate, its actual invasive range in Serbia is likely broader than documented, with potential for further expansion. Spiny-cheek crayfish is a major aquatic invader in European inland waters, making its prevention, control, and eradication a significant challenge for biodiversity conservation. Effective management of invasive species involves innovative strategies that turn these challenges into a variety of eco-products, aligning with the ZERO WASTE concept. This research focuses on monitoring and trapping and reducing the crayfish population by transforming it into various industrially relevant eco-products, such as food and feed products, biosorbents, rubber bio-fillers, and bio-based packaging materials. Crayfish meat will be utilized to create innovative food, pet food, and feed products. The remaining shells, rich in chitin, the second most abundant polymer after cellulose, will be used to tackle two major environmental issues: aquatic ecosystem pollution by heavy metals and plastic pollution. Crayfish shells have excellent adsorption properties, making them effective for removing heavy metals from industrial effluents. However, managing saturated biosorbents remains a challenge. To address this, saturated biosorbents will be incinerated, and the resulting ash will be repurposed as a rubber bio-filler. Extracted chitin and proteins from shells will be used to produce bio-based packaging materials, providing an eco-friendly alternative to single-use plastics.

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**Keywords:** Invasive species, spiny-cheek crayfish, zero waste, eco-products