Comparing the effectiveness of different monitoring methods on butterfly richness and abundance (Lepidoptera: Rhopalocera) in Serbia

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INTRODUCTION

Butterflies play an important role in ecosystems, acting as pollinators, a food source, and indicators of the ecosystem's well being (Ghazanfar et al., 2016; Hailay, 2024). Insect populations, including butterflies, are declining worldwide, and they are becoming an urgent conservation priority in many regions (Chowdhury et al., 2021). The first step towards their protection is understanding their richness. On a European scale, the European Pollinator Monitoring Scheme (EUPoMS), created as part of the Science and Technology for Pollinating Insects (STING), is tackling this issue. Based on the EUPoMS, the SPAS project (Serbian Pollinator Advice Strategy – for the next normal) was initiated in Serbia, focusing on the monitoring of wild bees, butterflies, hoverflies, and the plants they visit.

MATERIAL & METHODS

Data were collected from 30 sites across the territory of the Republic of Serbia during three seasons (spring, summer, and autumn) over a three- year period (2022-2024). Butterflies were sampled using 600m x 5m line transects and tricolored pan traps (yellow, blue, and white), which were placed along the transects in ten sets of three traps (one of each colour).

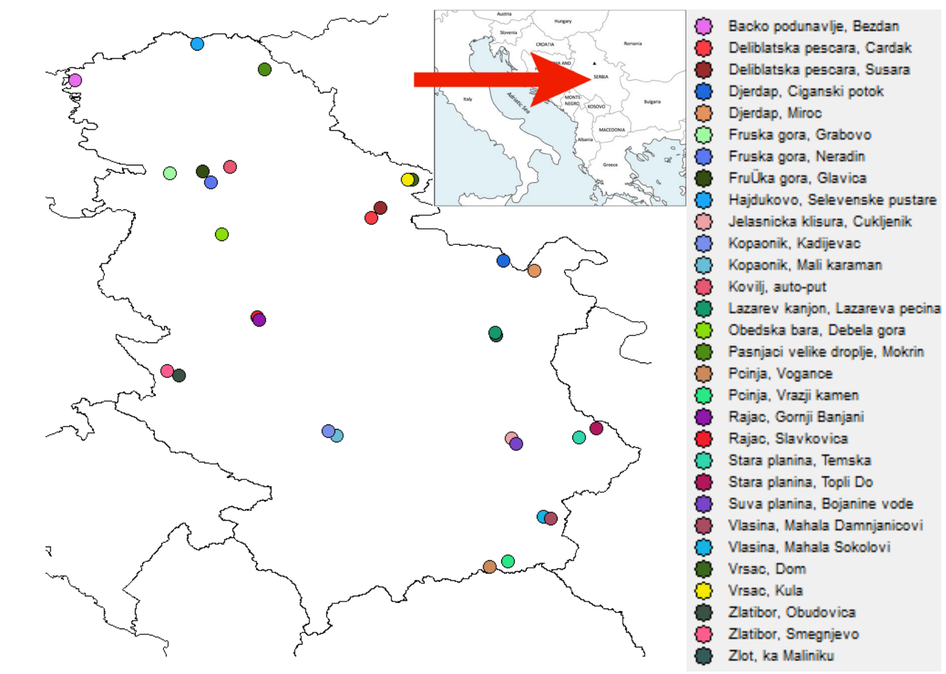
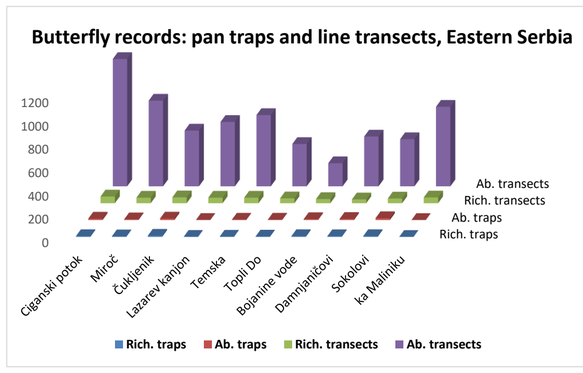
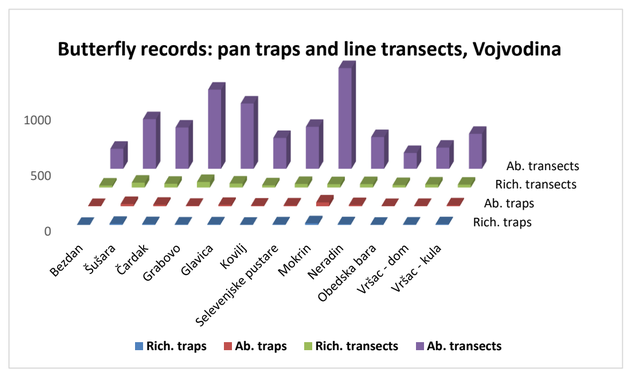
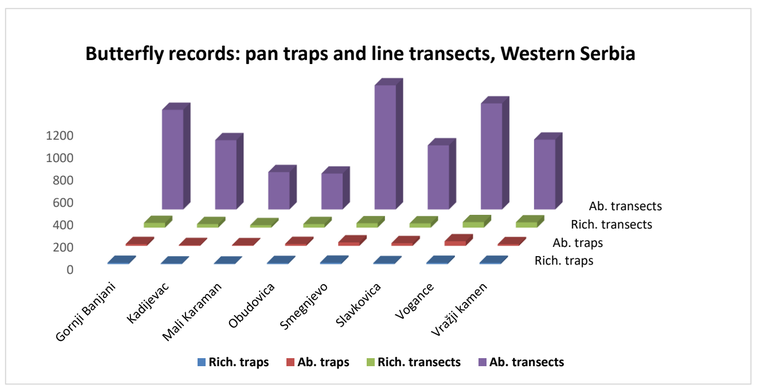


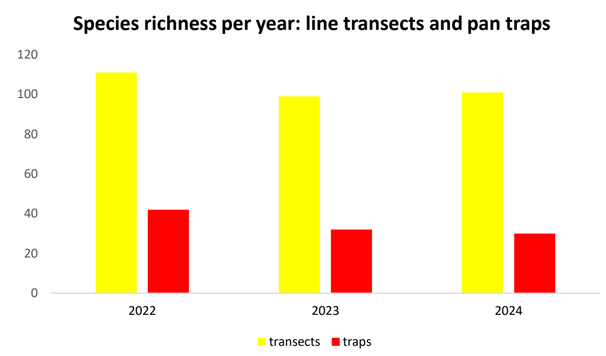
Figure 1: Locations where data were collected

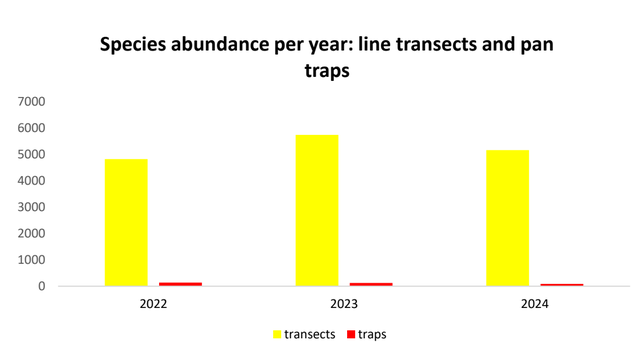
RESULTS & DISCUSSION

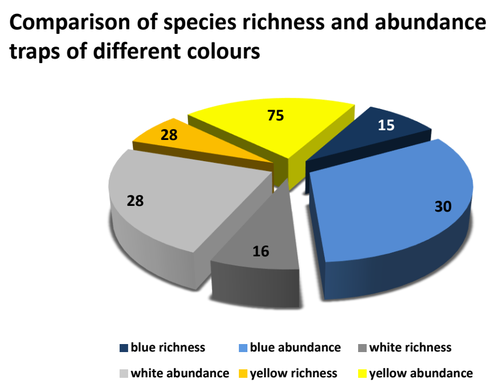


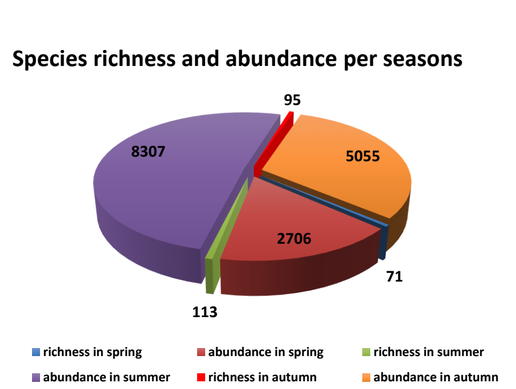












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CONCLUSION

Our findings revealed that line transects recorded higher species richness and abundance compared to pan traps. However, pan traps detected certain species not observed during transect sampling, suggesting their complementary role in monitoring. Among the trap colors, blue pan traps captured the highest richness and abundance of butterflies, reflecting a possible preference for blue-colored flowers. These results highlight the importance of employing diverse sampling techniques to achieve a comprehensive understanding of butterfly diversity. They also emphasize the significance of understanding pollinator preferences to enable better decision-making and improve conservation strategies.