

Impact of grazing and natural landscape features on butterfly assemblages in coastal grasslands

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Introduction

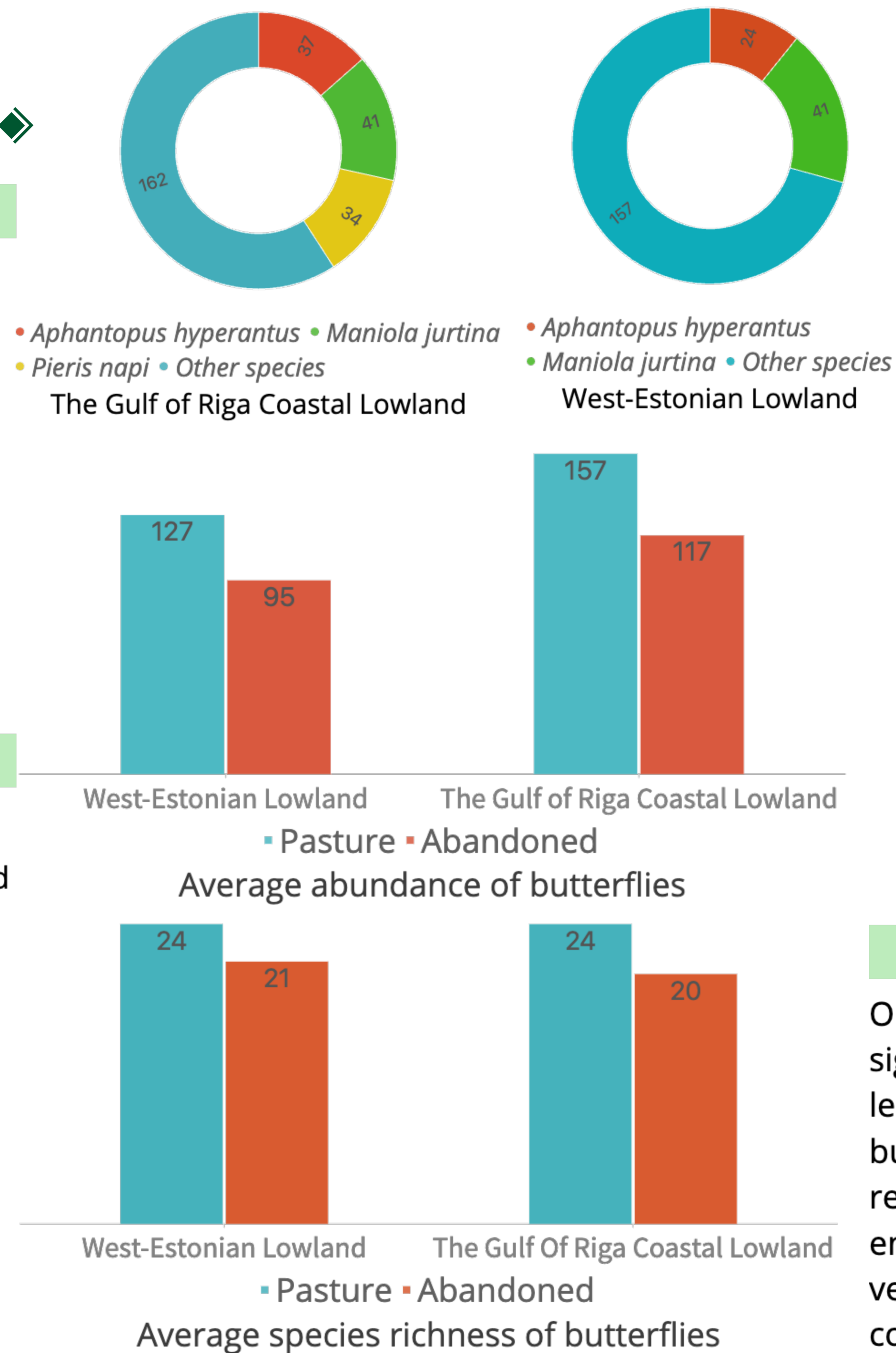
Coastal grassland butterflies are part of the fauna whose assemblages can be influenced by various factors, such as grazing and surrounding landscape. The aim of this study was to assess the abundance and dominant species of butterflies, as well as the effects of landscape region, land use and transect (edge effect) on butterfly abundance and species richness in the mainland coastal grasslands of Western Estonia.

Material and methods

Butterflies were surveyed four times during the summer of 2023 in coastal grasslands from two landscape regions and land use types. Four transects per site were walked at a uniform pace, recording all adult butterflies within a 50 meters in length and 1,5 meters in width imaginary box. Individuals were identified to species or genus level, and their abundance and species richness were analyzed across different grasslands using RStudio, while the impact of different factors was also assessed.

Results

A total of 496 butterflies from 37 species were observed. The Gulf of Riga Coastal Lowland had 31 species on sandstone, and the West-Estonian Lowlands had 29 on limestone. The most common species were *Maniola jurtina* and *Aphantopus hyperantus*, with *Pieris napi* more abundant in the Gulf of Riga Coastal Lowland. The highest species richness was on sandstone in grazed coastal grasslands. Edge effects were significant, with more butterflies on the mainland side.



Conclusion

Our study shows that landscape region and land use significantly influence butterfly assemblages. The leeward side of coastal grasslands is crucial for butterflies due to better wind protection. This complex relationship between butterflies and their environment emphasizes the importance of future research in vegetation, species richness, and climate for better conservation strategies.

