Coleoptera diversity in anthropogenic habitats in south-western Dobrogea

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Introduction

Large areas of land are currently occupied by agricultural ecosystems, replacing natural habitats with less complex structures in terms of biodiversity. Beetles and especially ground beetles are one of the insect groups that manage to adapt to most of the special environmental conditions of anthropogenic habitats. During 2016 and 2017, a study conducted in several vineyards from southwestern Dobrogea (Ostrov and Lipniţa - Galiţa areas) revealed similarities in the fauna of beetles and especially for Carabids associated with this type of habitat. The vegetation cover of the inter-rows and type of soil management are important factors to be considered in beetles associations.

Types of soil management

BG.Vegetation removal

Chemical/mechanical removal of vegetation

CC. Complete cover with vegetation

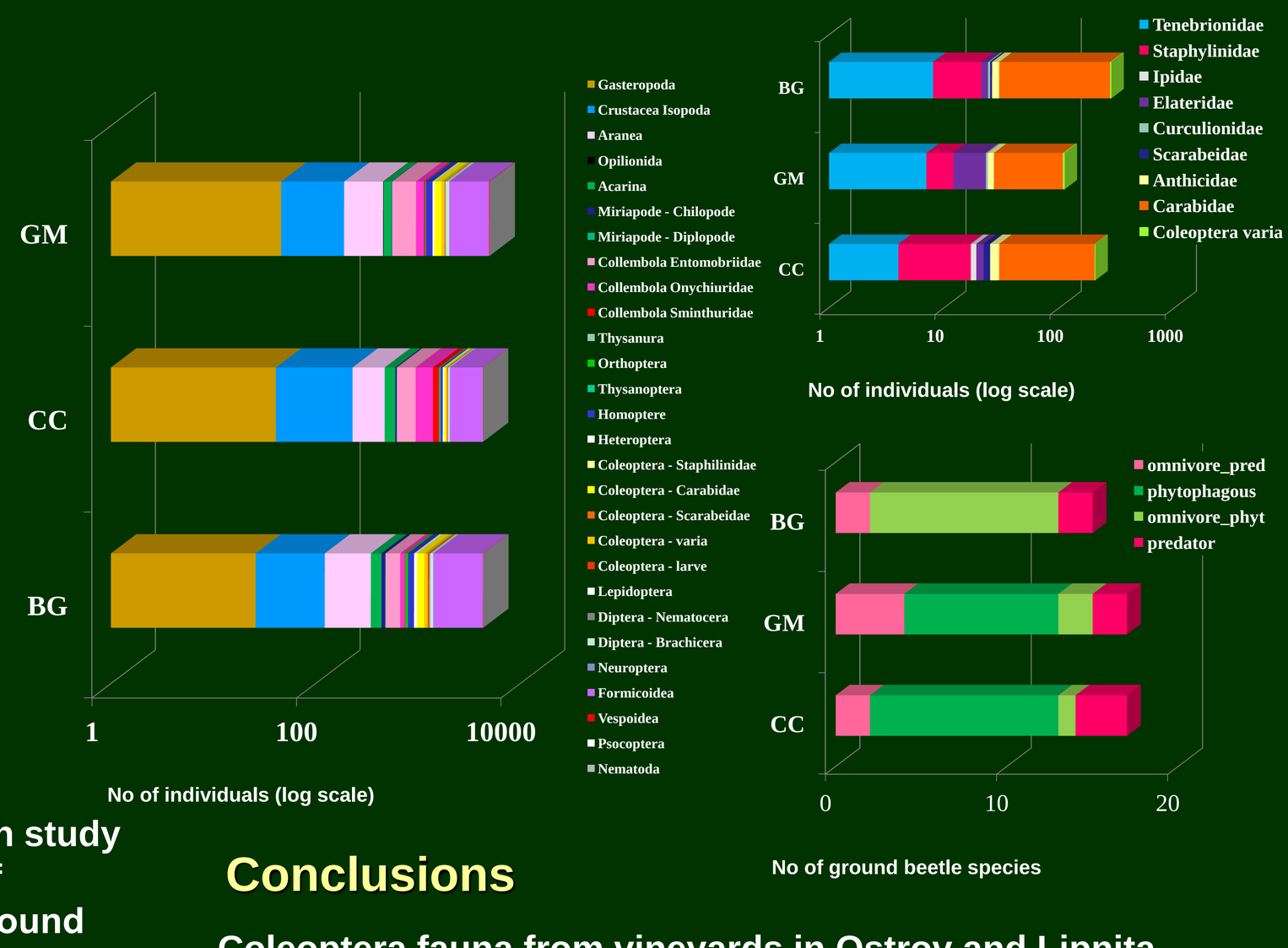
No removal of vegetation, irregularly mown

GM. Green manure

Sown crops *(Medicago sp.)* incorporated in the soil

Results

Epigeic fauna was dominated by ants (58.7%) in all three types of soil management. Coleoptera was one of the dominant groups (5.82%), after Collembola (13.6%). In all three types of soil management, the dominant Coleoptera group was the ground beetles family – Carabidae.
The number of ground beetle species identified in pitfall traps was relatively low, namely 25 species. The most abundant species of Carabids proved to be predatory (e.g. *Carabus coriaceus, Calathus fuscipes*) and phytophaguous (e.g. *Amara lunicollis, Harpalus griseus, Harpalus rufipes, Zabrus tenebrioides).* Other species were represented by fewer individuals (e.g. *Licinus cassideus, Carabus ulrichi, Calosoma aureopunctatum*, *Pterosticus hungaricus*).



Methods and Materials

During 2016 and 2017, we carried out a research study in several vineyards from south-western part of Dobrogea (Ostrov and Lipniţa – Galiţa area). Ground beetles were collected using the pitfall traps method, in summer and autumn. In terms of feeding habits, ground beetles were classified into four main categories: predators, phytophagous species, species with mixed trophic regime predominantly with predator habits (omnivore-pred) and species with mixed trophic regime but predominantly phytophagous (omnivore_phyt).

Conclusions

Coleoptera fauna from vineyards in Ostrov and Lipnita Galita area was dominated by ground beetles – *Carabidae* – in all three types of soil management. Regarding the ecological preferences, phytophagous species like *Harpalus* spp. beetles in all three soil management types, and omnivorous species – with predatory or phytophagous preferences – were similar as percent. The diversity of ground beetles is related to soil management but the data suggests further analyses are required to unravel the influence of other factors.

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