2 - 4 NOIEMBRIE 2017
EPE
BACĂU, ROMÂNIA

Diversity of ground beetles (Coleoptera: Carabidae) in vineyard habitats from Dobrogea

Marius SKOLKA[1], Cristina PREDA[1], Florina STANESCU[1], Elena TEMNEANU[1], Daniyar MEMEDEMIN[1]

[1] "Ovidius" University of Constantza, Department of Natural Sciences, Aleea Universităţii nr. 1, corp B, 900470 Constanţa, Romania, mskolka@gmail.com; cristina.preda@univ-ovidius.ro; florina_stanescu@ymail.com ; elena_tem@yahoo.com; daniyar_memedemin@yahoo.com

Introduction

Ground beetles (Coleoptera: Carabidae) are one of the most common insect group in all terrestrial habitats. A diversified food regime allows them to develop important populations even in types of habitats strongly affected by human intervention. Although there are some of the most affected types of agro-ecosystems, vineyard habitats had a particular ground beetle fauna. The Carabid species mentioned from such habitats had a large variety of food habits and in some cases could develop large population.

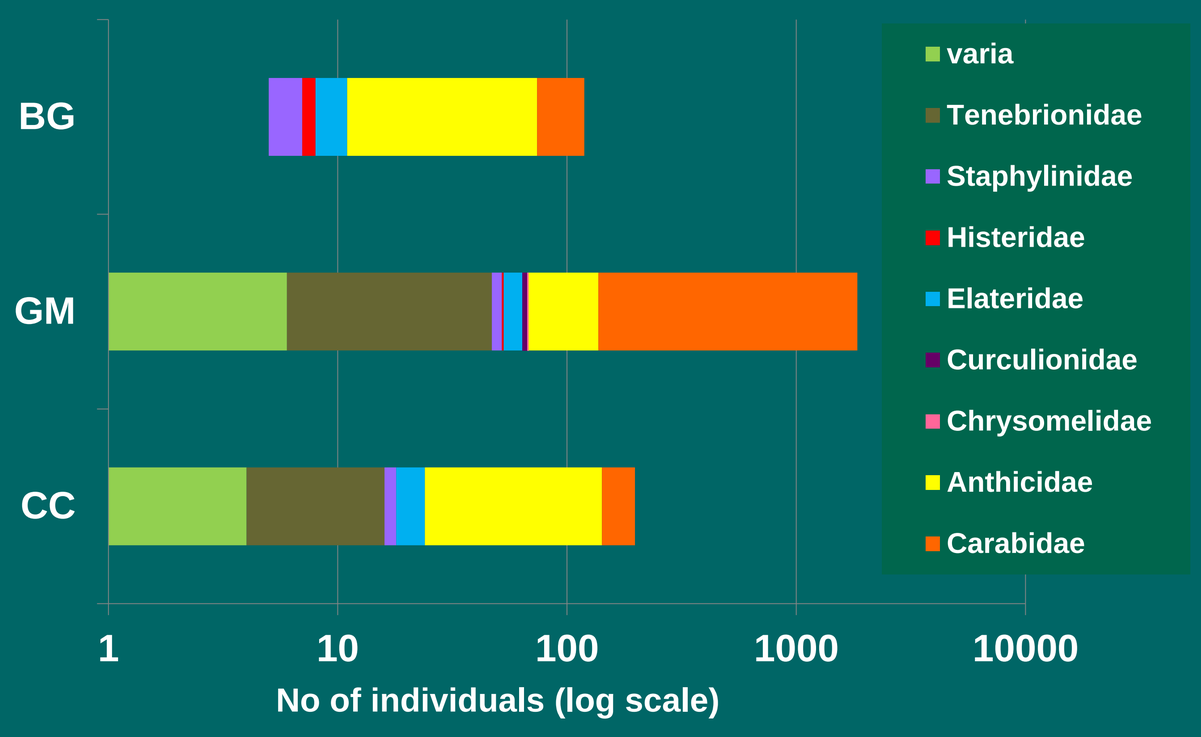
BG - mechanical removal of vegetation

GM - sown crops *Medicago sativa*

CC - no removal of vegetation, irregularly mown incorporated in the soil

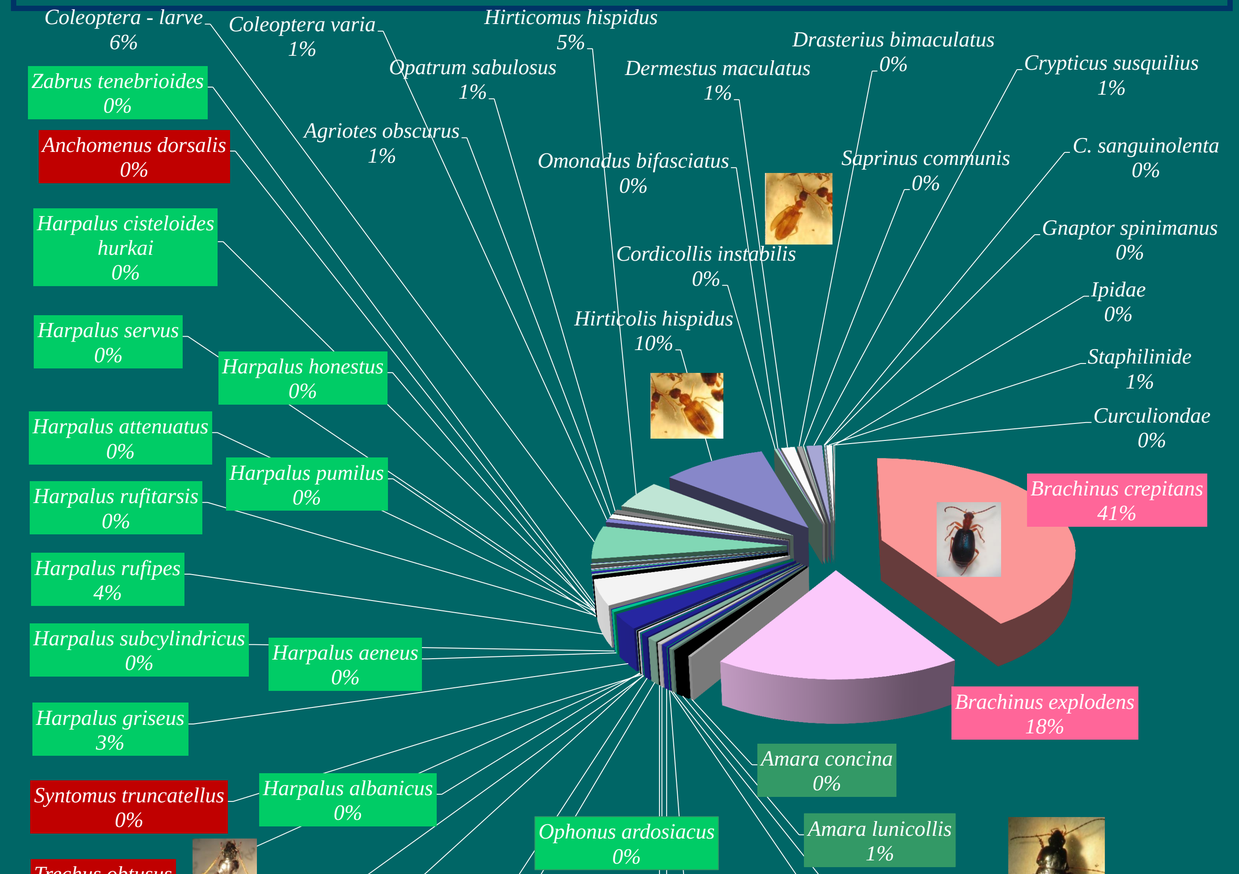
Methods and Materials

During 2016 and 2017, we carried out a research study in several vineyards from eastern part of Dobrogea (Murfatlar area). The study revealed correlations between vegetation cover, type of soil management and the Carabid fauna. Ground beetles were collected using the pitfall traps method, and the number of species identified was relatively high, exceeding 40 taxons. In terms of food habits, ground beetles were classified into four main types: predators, phytophagous species, species with mixed trophic regime predominantly with predator habits and species with mixed trophic regime predominantly with phytophagous regime.



Results

The phytophagous species (23 species from *Harpalus, Acinopus, Ophonus, Zabrus* genera) dominated the samples. The second group was the predator species (7) belonging to genera as *Anchomenus, Licinus, Microlestes, Spodrus, Syntomus, Trechus*. 11 species had mixed trophic regime: 6 of them were omnivore-phytophagous species (belonging to genera as *Amara, Paraophonus, Poecillus*) and 5 were omnivore-predators species (from *Brachinus, Calathus, Laemostenus* and *Pterostichus* genera).



Conclusions

Ground beetle fauna from vineyards in Murfatlar area was dominated by omnivorous beetles with preponderant predatory preferences like *Brachinus beetles.* Regarding the number of species, phytophagous ground beetles were dominant in all three soil management types. The highest species richness was recorded in the sown crop treatment, however Shannon diversity index had the lowest value due to few dominating species (1.24 compared to 2.11 or 2.18 in treatments where the vegetation was regularly removed i.e. CC and BG). 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.

Acknowledgement

The data was obtained within the research project "Management concept for Central European vineyard ecosystems: Promoting Ecosystem Services in Grapes - PromESSinG" and is funded through the 2013-14 BiodivERsA/FACCE-JPI joint call for research proposals, part of the ERA-NET scheme of the European Union (FP7), with the national funders BMBF (Germany), ANR (France), FWF (Austria) SNSF (Switzerland) and the Romanian National Authority for Scientific Research and Innovation, CCCDI – UEFISCDI. Project number: PN3-P3-61/17.12.2015 contract no. 21/2015, within PNCDI III (www.promessing.eu).