

**RESEARCHES REGARDING THE ENTOMOFAUNA
FROM THE OSTROVENI - DOLJ AREA**

Stan Catalin¹, Tuca Ovidiu¹

¹University of Craiova

* Correspondence author. E-mail: catalin.stan@edu.ucv.ro

Keywords: *entomofauna, harmful species, useful species*

ABSTRACT

From our observation regarding the entomofauna of Ostroveni area, during the research, 116 species of Arthropods were collected and identified (belonging to the orders: Acari, Orthoptera, Dermaptera, Thysanoptera, Homoptera, Hymenoptera, Neuroptera, Odonata, Coleoptera, Lepidoptera, Diptera) of which 93 species (80%) are harmful and 23 species (20%) are useful species.

The most numerous order was Coleoptera (35%), followed by the order Lepidoptera (19%), the order Heteroptera and Hymenoptera (9%) each.

INTRODUCTION

Ostroveni is located in the southern extremity of Dolj County, having as its southern border the Danube river. The total surface of the commune is 5683 ha, of which agricultural 1364 ha (wheat, corn, sunflower, vegetable crops, fruit trees, vines, grassy pastures) and 1144 ha forest land. (<https://comunaostroveni.ro>)

The entomofauna is represented both by harmful species specific to the crops in the area, as well as by useful antagonistic species formed by parasites and predators, as well as indifferent species present in the area of ponds or forest curtains to protect the Jiu and Danube bank.

A series of specific antagonistic relationships are established between harmful and useful species, which under human influence, in the case of agricultural ecosystems, determine the structure of the entomofauna at a certain moment. Usually in natural ecosystems the balance is established by parasites and predators but also by other abiotic factors such as: physical, chemical, mechanical and biotic ones: pathogens, also called "natural enemies", antagonists, as well food and competition (Toncea I., 2011). Classical biological control (natural enemy introductions) has long served as a paradigm for the role of predators and parasitoids in insect herbivore population dynamics, and it is widely held that there is no fundamental difference between successful biological control and the action of native natural enemies 'natural control' (Bradford A. Hawkins et al, 1999).

MATERIAL AND METHODS

Observations were conducted during 2022-2024 in the Ostroveni – Dolj area.

To determine the structure of the harmful entomofauna were made collection of material using various means and methods: directly by hand from plants or soil, frame metric, soil surveys and soil surface collected, visual inspection, collection with sticky traps for flying insects, light traps, analyzing samples with binocular magnifier glass directly in the field or laboratory.

After collecting of biological material was made the material collected was analyzed and determined with the binocular magnifier glass using the Identification Manual (Panin L. 1951, Chatened du Gaetan 1990, Chinery M. 1998, Godeanu S.P. 2002).

For as little impact on the ecosystem we have preferred to capture images with the camera than to capture live specimens were subsequently removed from their natural environment.

RESULTS AND DISCUSSIONS

During the research, 116 species of Arthropods were collected and identified (belonging to the orders: Acari, Orthoptera, Dermaptera, Thysanoptera, Homoptera, Hymenoptera, Neuroptera, Odonata, Coleoptera, Lepidoptera, Diptera) of which 93 species are harmful and 23 species are useful parasites or predators.

The most numerous order was Coleoptera with 41 species (35%), out of a total of 116 species of arthropods collected, followed by the order Lepidoptera with 22 species collected (19%), the order Heteroptera with 11 species collected (9%), the order Orthoptera with 8 species collected (7%), Hymenoptera with 10 species collected (9%), the order Acari with 4 species (3%), the order Diptera with 6 species collected (5%), the order Homoptera (6%), the orders Neuroptera, Odonata and Thysanoptera with 2 species collected (2%), the order Dermaptera with only one species collected (1%).

Table nr.1

Entomofauna from Ostroveni-Dolj area identified during 2022-2024

| | | |
|----|--|---|
| 1. | Order | Harmful species <i>Panonychus ulmi</i> Koch <i>Tetranychus urticae</i> Koch |
| 2. | | |
| 1. | ACARI (4 species) | Beneficial species <i>Typhlodromus</i> spp. <i>Amblyseius</i> spp. |
| 2. | | |
| 1. | Order | Harmful species <i>Gryllotalpa gryllotalpa</i> L. <i>Gryllus campestris</i> L. <i>Gryllus desertus</i> L. <i>Ephippiger ephippiger</i> Fieb. <i>Caliptamus italicus</i> L. <i>Locusta migratoria</i> L. <i>Doclostaurus maroccanus</i> Thunb. |
| 2. | | |
| 3. | | |
| 4. | | |
| 5. | | |
| 6. | | |
| 7. | | |
| 1. | | Beneficial species <i>Mantis religiosa</i> L. |
| 1. | Order DERMAPTERA (1 specie) | Harmful species <i>Forficula auricularia</i> |
| 1. | Order HOMOPTERA (7 species) | Harmful species <i>Aphis pomi</i> De Geer. <i>Dysaphis devectora</i> Wal. <i>Hyalopterus pruni</i> Geoff. <i>Myzus cerasi</i> Fabr. <i>Myzus persicae</i> Sulz. |
| 2. | | |
| 3. | | |
| 4. | | |
| 5. | | |

| | | |
|-----|---------------------|--|
| 6. | | <i>Macrosiphum rosae</i> L. |
| 7. | | <i>Aphis fabae</i> Scop. |
| 1. | Order | Harmful species |
| 2. | Thysanoptera | <i>Haplothrips tritici</i> Hal. <i>Thrips tabaci</i> Lind. |
| 1. | Order | Harmful species |
| 2. | | <i>Lygus pratensis</i> L. |
| 3. | | <i>Dolycoris baccarum</i> L. |
| 4. | HETEROPTERA | <i>Eurygaster maura</i> L. |
| 5. | (11 species) | <i>Eurygaster austriaca</i> schr. |
| 6. | | <i>Aelia acuminata</i> L. |
| 7. | | <i>Aelia rostrata</i> Boh. |
| 8. | | <i>Eurygaster integriceps</i> L. |
| 9. | | <i>Pirocorys apterus</i> L. |
| 10. | | <i>Eurydema oleracea</i> L. |
| 11. | | <i>Eurydema ornata</i> L. <i>Graphosoma lineatum</i> L. |
| 1. | Order | Harmful species |
| 2. | HYMENOPTERA | <i>Vespa vulgaris</i> L. |
| 3. | (10 species) | <i>Vespa germanica</i> L. <i>Vespa crabro</i> L. |
| 1. | | Beneficial species |
| 2. | | <i>Scolia flavifrons</i> F. |
| 3. | | <i>Bombus terrestris</i> L. |
| 4. | | <i>Syrpoca violacea</i> F. |
| 5. | | <i>Apis mellifera</i> L. |
| 6. | | <i>Formica rufa</i> L. |
| 7. | | <i>Formica polyctena</i> Fors. <i>Formica pratensis</i> Retz. |
| 1. | Order | Beneficial species |
| 2. | NEUROPTERA | <i>Chrysopa carnea</i> Steph. |
| | (2 species) | <i>Chrysopa perla</i> Steph. |
| 1. | Order | Beneficial species |
| 2. | ODONATA | <i>Orthetrum</i> spp. New. |
| | (2 species) | <i>Libellula</i> spp. L. |
| 1. | Order | Harmful species |
| 2. | COLEOPTERA | <i>Melolontha melolontha</i> L. |
| 3. | (41 species) | <i>Amphimalon solstitialis</i> L. |
| 4. | | <i>Rhizothrogus aequinoctialis</i> Herb. |
| 5. | | <i>Polyphila fullo</i> F. |
| 6. | | <i>Anoxia orientalis</i> L. |
| 7. | | <i>Anomala solida</i> Er. |
| 8. | | <i>Lethrus apterus</i> L. |
| 9. | | <i>Phylopertha horticola</i> L. |
| 10. | | <i>Agriotes obscurus</i> L. |
| 11. | | <i>Agriotes ustulatus</i> Schall |
| 12. | | <i>Agriotes lineatus</i> L. |
| 13. | | <i>Byctiscus betulae</i> L. |
| 14. | | <i>Otiorrhynchus ligustici</i> L. |
| 15. | | <i>Epicometis hirta</i> Poda. |
| 16. | | <i>Cetonia aurata</i> L. <i>Oxythyrea funesta</i> Poda. |

| | | |
|---|---|--|
| 17 18 19 20 21 22 23. 24. 25 26 27. 28. 29. 30. 31. 32. 33. 34. | Order COLEOPTERA (41 species) | Harmful species <i>Anisoplia segetum</i> Herb. <i>Anisoplia austriaca</i> Herb. <i>Anisoplia agricola</i> Poda. <i>Zabrus tenebricoides</i> Goeze. <i>Melasma populi</i> L. <i>Leptinotarsa decemlineata</i> Say. <i>Sitona lineatus</i> L. <i>Chrysomela cuprea</i> F. <i>Opatrum sabulosum</i> L. <i>Subcoccinella 24 punctata</i> L. <i>Phytodecta furnicata</i> L. <i>Ruguloscolytus rugulosus</i> Ratg. <i>Scolytus scolytus</i> Ratg. <i>Pentodon idiota</i> Hbst. <i>Cryptorrhynchus lapathi</i> L. <i>Saperda carcharis</i> L. <i>Saperda populnea</i> L, <i>Balaninus(curculio) glandium</i> Marsh. |
| 1. 2. 3. 4. 5. 6. 7. | Order COLEOPTERA | Beneficial species <i>Adalia decimpunctata</i> L. <i>Adalia bipunctata</i> L. <i>Coccinella 7 punctata</i> L <i>Carabus ulrichi</i> L. <i>Carabus violaceus</i> L. <i>Carabus cancelatus</i> L. <i>Calosoma sycophanta</i> L. |
| 1. 2. 3. 4 5. 6. 7. 8. 9. 10. 11 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. | Order LEPIDOPTERA (22 species) | Harmful species <i>Lobesia botrana</i> Den et Schif <i>Sparganotis pilleriana</i> Den et Schif. <i>Clysia ambiguella</i> Hb. <i>Hyphantria cunea</i> Drury <i>Agrotis segetum</i> schiff. <i>Plusia gamma</i> L. <i>Mamestra brassicae</i> L. <i>Zeuzera pyrina</i> L. <i>Pieris brassicae</i> l. <i>Pieris rapae</i> L. <i>Aporia crataegi</i> L. <i>Pieris napi</i> L. <i>Vanessa cardui</i> L. <i>Iphiclides podalirius</i> L. <i>Tortrix viridana</i> L. <i>Leucoma salicis</i> L. <i>Euproctis chrysorrhoea</i> L. <i>Malacosoma neustria</i> L. <i>Operophtera brumata</i> L. <i>Erannis defoliaria</i> Cerk. <i>Argynnis paphia</i> L. <i>Lycaena dispar</i> L |
| 1. 2. 3. 4. | Order DYPTERA (6 species) | Harmful species <i>Delia antiqua</i> Mei. <i>Delia brassicae</i> L. <i>Musca domestica</i> L. <i>Sarcophaga carnaria</i> L. |
| 1. 2. | | Beneficial species <i>Syrphus ribesii</i> L. <i>Syrphus torvus</i> L. |

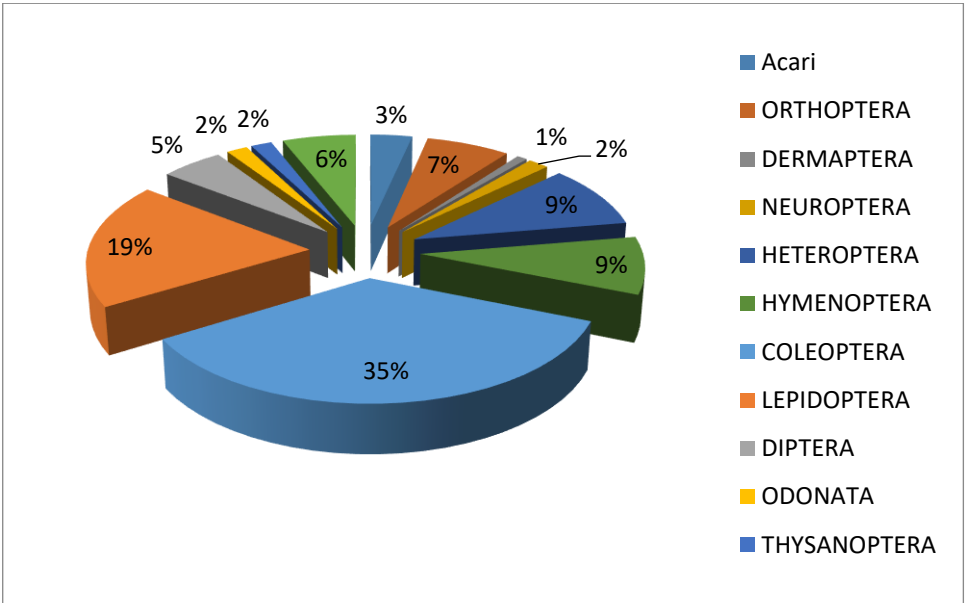


Fig.1. Systematic distribution of the identified entomofauna

Analyzing from the point of view of the damages caused to the cultivated or spontaneous plants, the structure of the entomofauna characteristic of the studied area, it can be observed that out of the 116 species identified 80% are harmful species and 20% useful species (parasites and predators).

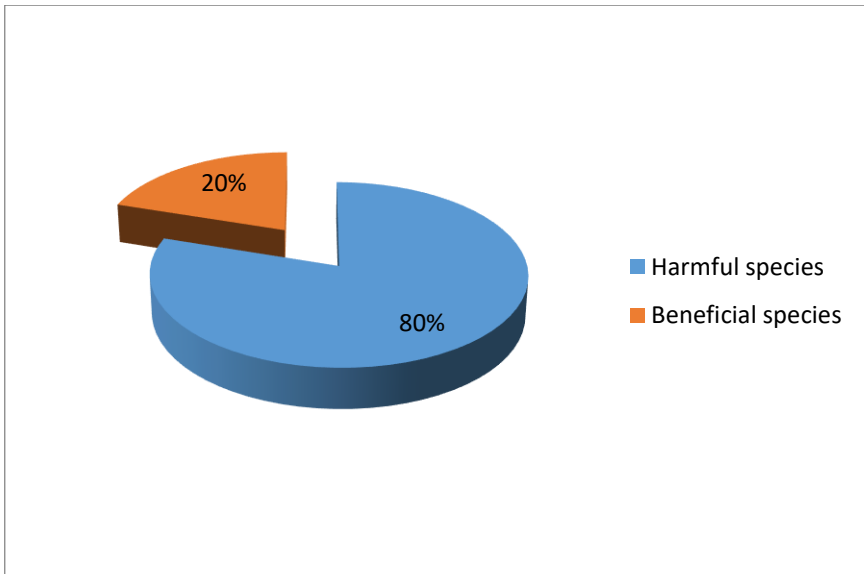


Fig.2. Identified entomofauna structure

CONCLUSIONS

The entomofauna identified in the Ostroveni area corresponds to the agricultural or natural ecosystems in the area. Some of the species identified as pests, for example *Forficula auricularia* or *Vespa* spp. They feed on other insect species, becoming useful at a certain time.

Along with the useful entomofauna in the studied area, there is a rich avifauna that also contributes to the regulation of harmful populations.

There is also a wide variety of mammal species both beneficial and harmful, which feed on insects, in the studied area.

In the area bordering the Jiu river and Danube there are also reptiles and amphibians in which they also consume insects during the period of biological activity of the respective species.

All these species considered useful fully contribute to the regulation of harmful populations, but the greatest contribution has man especially in the arable area (crops, vegetables, orchards, etc.) where it intervenes on harmful species when the economic threshold is exceeded of damage.

Obviously, this intervention also affects the useful species that are active in the respective area.

REFERENCES

Bradford A. Hawkins, Nick J. Mills, Mark A. Jervis and Peter W. Price, 1999. *Oikos* Vol. 86, No. 3 (Sep., 1999), pp. 493-506. Published by: Wiley-Blackwell, <http://www.jstor.org/stable/3546654>.

Chatened du Gaetan, 1990. Guide des Coleopteres d'Europe. Delacrois et Niestle, Paris.

Chinery M., 1998. Guida degli inseti d'Europa. Grupo editoriale Franco Muzzio editore, Padova, Italy.

Godeanu S.P., 2002: Diversitatea lumii vii. Determinatorul ilustrat al florei și faunei României, Ed. Bucura Mond, București, 2002.

Panin L, 1951. Determinatorul Coleoptereleor dăunătoare și folositoare din R.P.R. Editura de Stat, București.

Toncea I., 2011. Perspective în controlul populațiilor de insecte Revista Fermierul online: martie 2011. ISSN 1843-0821.

<https://comunaostroveni.ro>