OBSERVATIONS ON THE STRUCTURE, DYNAMICS AND ABUNDANCE OF EXISTING ARTHROPOD FAUNA IN THE APPLE ORCHARDS FROM SC LOTURI SERVICE SRL IN 2018

OBSERVAȚII PRIVIND STRUCTURA, DINAMICA ŞI ABUNDENȚA FAUNEI DE ARTROPODE EXISTENTE ÎN PLANTAȚIILE POMICOLE DE MĂR DE LA SC LOTURI SERVICE SRL ÎN ANUL 2018

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Abstract. *Observations were made on the apple fruit tree orchards belonging to S.A. Loturi Service S.R.L. Delesti, Vaslui County, during the year 2018 from May to August. For this, observations were made periodically on the field, and samples were also collected using soil traps type Barber, which were then analyzed in the laboratory. Barber traps were represented by 6 pots with a total volume of 600 mL, in which we used as a preservative liquid a salt solution with 25% concentration and these traps were placed at ground level to collect efficiently specimens belonging to the Coleoptera order. After collection, each sample was labeled and then brought to the laboratory where the impurities were removed in the first phase and only coleopteran species were selected. The species of coleopters in the observation period were: Anisodactilus binotatus, Pseudophonus rufipes, Pterostichus cupreus, Ophonus obscurus, Dermestes laniarius, Coccinella 7 punctate, Epicometis hirta, Opatrum sabulosum, Amara crenata, Dorcadion pedestre, Tachyusa coarctata, Monotoma picipes, Metabletus truncatelus , Brachynus crepitans, Meloe proscarabeus etc.*
Key words: Coleopters, apple orchards, Barber traps

Rezumat. *Observațiile s-au făcut într-o livadă de măr aparținând S.A. Loturi Service S.R.L. Delesti, judetul Vaslui, pe parcursul anului 2018 din luna mai până în luna august. Pentru aceasta, s-au făcut periodic observații pe teren, iar probele ce au fost colectate folosind capcane de sol de tip Barber, au fost prelevate apoi au fost analizate în laborator. Capcanele Barber au fost reprezentate de 6 boluri din material plastic cu un volum total de 600 mL, în care am folosit ca lichid conservant o soluție de sare cu concentrație de 25% și aceste capcane au fost amplasate la nivelul solului pentru a colecta eficient exemplare aparținând ordinului Coleoptera. După colectare, fiecare probă a fost etichetată şi apoi adusă la laborator unde impuritățile au fost îndepărtate în prima fază şi au fost selectate doar speciile de coleoptere. Speciile de artropode colectate în perioada de observație au fost: Anisodactilus binotatus, Pseudophonus rufipes, Pterostichus cupreus, Ophonus obscurus, Dermestes laniarius, Coccinella 7 punctate, Epicometis hirta, Opatrum sabulosum, Amara*

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crenata, Dorcadion pedestre, Tachyusa coarctata, Monotoma picipes, Metabletus truncatelus , Brachynus crepitans, Meloe proscarabeus etc.
Cuvinte cheie: Coleoptera, plantaţie pomicolă de măr, capcane de tip Barber.

INTRODUCTION

From an ecological point of view, the main goal in recovery is to create sustainable biogeocenosis on the territory of disadvantaged agricultural ecosystems that have a strong environmental transformation effect. The main biogeocentic component in the circulation of substances is played by a complex of invertebrates in soil that includes different functional groups that differ according to their type of nutrition (phytophagus, zoophagus, saprophage) and in the form of their activity (Luzyanin *et al* 2018). Ground beetles are a major component of zooscenotic soil ecosystems. They play an important role in the functioning of terrestrial biocenoses, they serve as model objects for eco-faunistic studies aimed at studying the processes of formation of disturbed anthropogenic communities.

Information on species composition and diversity of beetles belonging to the Coleoptera order is reflected in the more works (Panin, 1951)

The aim of these researches is to study the ecological and faunistic structure of the soil coleoptera population from fruit tree apple belonging to SC Loturi Service SRL Delesti, Vaslui country.

MATERIAL AND METHOD

The following summer (2018), we installed the pitfall traps in this place we had installed 42 traps in total. In the stationary, were placed 6 traps per row of trees from the edge to the inside in a straight line at a distance of 20 m from the edge and 6 to 8 m between traps per row (Cozma *et al* 2006; Luzyanin *et al* 2018) at each of the 7 variants V-1, existing vegetal carpet, V-2 , Vegetable carpet thickened with Lotus corniculatus, V-3, Vegetable carpet thickened with *Tifolium repens*, V-4, Vegetable carpet thickened with *Trifolium pratense*, V- Vegetable carpet thickened with *Medicago sativa*, V-6, Vegetable carpet thickened with mixture of the 4 leguminous species and V-7 black field. Pitfall traps were a plastic cup (8 cm diameter), containing a plastic inner collecting cup and covered by a plywood supported over the trap by two nails. Traps were operated during the frost-free season (from early May until the end of August), providing a potential total of 100 trapping days.

Fig. 1 Soil traps type Barber

Hence, we collected beetle data during the two years of research. All beetles from the order Coleotera were identified to the species level using the book of determination (Gaëtan du Chatenet, 1990; Panin, 1951; Reitter, 1916).

RESULTS AND DISCUSSIONS

The research from SC Loturi Service SRL Delesti Vaslui, in 2018 (tab. 1), in the apple orchards the largest number of samples were collected was belonging at: *Anysodactilus binotatus* (640samples), *Harpalus distinguendus* (477 samples), *Dermestes laniarius* (323 samples), Otiorrhynchus pinastri (179 samples), Harpalus calceatus (115 samples), *Harpalus tenebrosus* (93 samples), *Metabletus truncatelus* (62 samples), *Tachyusa coarctata* (60 samples), *Oxypora vittata* (58 samples), *Epicometis hirta* (36 samples), *Amara crenata* (35 samples), *Paramalus paralelipipedus* (35 samples), *Colodera aethiops* (34 samples).

Table 1

The structure and abundance species of epigeous entomofauna collecting from the apple orchard belonging to SC Loturi Service SRL Delesti, Vaslui district in 2018

No	Species	25.04.	No	Species	04.05.
1	Anysodactilus binotatus	**89**	1	Anysodactilus binotatus	**187**
2	Harpalus distinguendus	**74**	2	Harpalus distinguendus	**172**
3	Dermestes laniarius	**33**	3	Dermestes laniarius	**76**
4	Otiorrhynchus pinastri	**51**	4	Harpalus calceatus	**11**
5	Harpalus calceatus	**1**	5	Tachyusa coarctata	**16**
6	Harpalus tenebrosus	**48**	6	Oxypora vittata	**8**
7	Metabletus truncatelus	**7**	7	Amara crenata	**5**
8	Epicometis hirta	**17**	8	Paramalus paralelipipedus	**10**
9	Amara crenata	**8**	9	Colodera aethiop	**11**
10	Aphtona euphorbiae	**4**	10	Aphtona euphorbiae	**10**
11	Monotoma picipes	**9**	11	Harpalus aeneus	**5**
12	Harpalus aeneus	**2**	**Total**		**511**
13	Epurea obsoleta	**12**			
Total		**355**			
No	**Species**	**15.05.**	**No**	**Species**	**25.05.**
1	Anysodactilus binotat.	**229**	1	Anysodactilus binotat	**49**
2	Harpalus distinguend	**115**	2	Harpalus distinguendus	**54**
3	Dermestes laniarius	**111**	3	Dermestes laniarius	**22**

4	Otiorrhynchus pinastri	**5**	4	Otiorrhynchus pinastri	**11**
5	Harpalus calceatus	**39**	5	Harpalus calceatus	**6**
6	Harpalus tenebrosus	**4**	6	Harpalus tenebrosus	**20**
7	Metabletus truncatelus	**7**	7	Metabletus truncatelus	**11**
8	Tachyusa coarctata	**8**	8	Oxypora vittata	**7**
9	Epicometis hirta	**14**	9	Amara crenata	**4**
10	Harpalus griseus	**9**	10	Paramalus paralelipip	**18**
11	Harpalus pubescens	**5**	11	Harpalus griseus	**6**
12	Aphtona euphorbiae	**5**	12	Harpalus pubescens	**5**
Total		**551**	13	Monotoma picipes	**6**
			Total		**219**
No	**Species**	**08.06.**	**No**	**Species**	**15.06.**
1	Anysodactilus binotatus	**2**	1	Anysodactilus binotatus	**27**
2	Harpalus distinguendus	**2**	2	Harpalus distinguendus	**19**
3	Dermestes laniarius	**52**	3	Dermestes laniarius	**14**
4	Otiorrhynchus pinastri	**42**	4	Otiorrhynchus pinastri	**46**
5	Harpalus calceatus	**2**	5	Harpalus calceatus	**25**
6	Metabletus truncatelus	**6**	6	Metabletus truncatelus	**16**
7	Tachyusa coarctata	**14**	7	Oxypora vittata	**6**
8	Oxypora vittata	**14**	8	Epicometis hirta	**5**
9	Amara crenata	**18**	9	Harpalus tardus	**3**
10	Paramalus paralelipipedus	**7**	**Total**		**161**
11	Harpalus tardus	**14**			
Total		**173**			
No	**Species**	**04.07.**	**No**	**Species**	**28. 07.**
1	Anysodactilus binotatus	**13**	1	Anysodactilus binotatus	**44**
2	Harpalus distinguendus	**41**	2	Dermestes laniarius	**15**
3	Otiorrhynchus pinastri	**13**	3	Otiorrhynchus pinastri	**11**
4	Harpalus calceatus	**5**	4	Harpalus calceatus	**26**
5	Harpalus tenebrosus	**21**	5	Colodera aethiops	**23**
6	Metabletus truncatelus	**4**	6	Harpalus griseus	**10**
7	Tachyusa coarctata	**22**	7	Harpalus aeneus	**4**
8	Oxypora vittata	**23**	**Total**		**133**

9	Harpalus pubescens	**10**		
10	Harpalus aeneus	**2**		
11	Sipalia circelaris	**13**		
12	Phylotreta atra	**11**		
Total		**178**		

Table 2

Structure and abundance of common species of coleopter collected by Barber traps during the two years of research

No	Name of species	Total 2018
1	Harpalus calceatus	115
2	Anysodactilus binotatus	640
3	Harpalus tenebrosus	93
4	Harpalus distinguendus	477
5	Harpalus pubescens	20
6	Harpalus griseus	25
7	Otiorrhynchus pinastri	179
8	Harpalus tardus	17
9	Oxypora vittata	58
10	Metabletus truncatelus	51
11	Harpalus aeneus	13
Total		**1688 = 74%**

In the fruit-growing plantation as a stationary experience during one years of study using the soil traps type Barber were collected in total 2281 samples (tab. 2), a total of 11 beetle species recorded the highest number of specimens, as follows: *Anysodactilus binotatus, Harpalus distinguendus, Otiorrhynchus pinastri, Harpalus calceatus, Harpalus tenebrosus, Oxypora vittata, Metabletus truncatelus, Harpalus griseus, Harpalus pubescens, Harpalus tardus* and *Harpalus aeneus.*

CONCLUSIONS

The research carried out within the fruit tree statue of SC Loruri Service SRL Delesti, Vaslui county, focused mainly on the identification of the useful and harmful coleopter species that are part of the integrated ecosystem.

In 2018, applying the Barber method were collect in total 2281 samples that were captured in the 8 collections during the observation period. Of the most common species we recall: *Paramalus paralelipipedus, Tachyusa coarctata, Sipalia circelaris, Harpalus calceatus, Anysodactilus binotatus, Harpalus tenebrosus, Harpalus distinguendus, Otiorrhynchus pinastri, Harpalus tardus, Oxypora vittata and Metabletus truncatelus.*

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