RESEARCH REGARDING THE EPIGEOUS COLEOPTERANS FAUNA FROM THE APPLE TREE PLANTATIONS

CERCETARI PRIVIND FAUNA DE COLEOPTERE EPIGEE DIN PLANTATIILE POMICOLE DE MAR

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Rezumat : *Studiul coleopterelor (gândacii) apare ca o necesitate ştiinţifică şi practică având în vedere mai ales frecvenţa lor pe meridianele Terrei, a numărului mare de specii ce le cuprinde(peste 250.000), cel mai mare din clasa Insecta, care grupează peste un million de specii şi a numeroaselor specii care produc pagube agriculturii mondiale. Colectarea materialului s-a făcut cu ajutorul capcanelor de sol tip Barber, dintr-o plantaţie de măr exploatată ecologic, din bazinul pomicol Fălticeni, judeţul Suceava. Observaţiile au fost efectuate în anul 2007, colectarea materialului s-a făcut din luna iunie până în luna octombrie. Recoltarea materialului s-a făcut la intervale cuprinse între 8 şi 17 zile, în total efectuându-se un număr de 11 recoltări. Speciile cel mai frecvent colectate, au fost: Opatrum sabulosum L.,Otiorrhynchus raucus F., Carabus violaceus L., Pseudophonus rufipes, Ophonus puncticollis Payk., Harpalus aeneus F. şi Amara apricaria Payk.*

Abstract*: The study of Coleopterans (the beetles) seems a scientific and practice necessity, taking in consideration their frequency on Terra meridians, the big number of species contained (across 250. 000), the biggest from class Insecta, which group more than one million species, and the numerous species that damage the world agriculture. Collected of the material was made with the Barber soil traps, from an apple tree plantation, ecologically sustained, from the orchard region of Falticeni, Suceava district. The observations were made in 2007; the biological material have been gathered from June to October. Collected of the biological material have been done from 8 to 17 days period of time, totally being effectuated a number of 11 collecteds. The most frequent collected species were: Opatrum sabulosum L., Otiorrhynchus raucus F., Carabus violaceus L., Pseudophonus rufipes, Ophonus puncticollis Payk., Harpalus aeneus F. şi Amara apricaria Payk.*

Cuvinte cheie**:** *coleoptere, plantatii pomicole*
Keywords: *coleopterans, apple orchards*

INTRODUCTION

The first scientific papers, concerning the study of insects generally and Coleopterans in chief, appeared in XVII th century (Redi); in XVIII th century, were described numerous species of beetles by FABRICIUS, LATREILLE and in the XIX century, by REITTER. In our country, the first works concerning the study of Coleopterans refers to Banat and Transilvania regions (BIELZ 1865), and the most representative one belongs to SEIDLITZ (Fauna Transylvanica -1891).

By scientifically value is the work of FLECK (1906), in which are described more than 2400 of species, chiefly in Muntenia and Dobrogea regions. The researches on the Coleopterans fauna developed continuously after 1920 in Romania, and after 1950 in Oltenia too, being published numerous works: MARCU (1927-1967) and BOBÂRNAC (1955-1985) for Oltenia; IENISTEA (1956-1976) for Dobrogea and Muntenia; PANIN (1941-1965) for Romania (after BOBÂRNAC B., 1994).

In this paper are presented some Coleopterans species that were identified in apple tree plantations.

MATERIALS AND METHODES

Collected of the material was made with the Barber soil traps, from an apple tree plantation, ecologically sustained, from the orchard region of Falticeni, Suceava district. The observations were made in 2007; the biological material have been gathered from June to October. Collected of the biological material have been done from 8 to 17 days period of time, totally being effectuated a number of 11 collecteds, at the next data: the first collected on 5 June; the second collected, on 16 June; the third collected, on 29 June; the forth collected on 16 July; the fifth collected on 28 July; the sixth collected on 13 August; the seventh collected on 27 August; the eight collected on 4 September; the ninth collected on 19 September; the tenth collected on 10 October; the eleventh collected on 27 October.

From the collected material were retained the Coleopterans species that were later determined and stocked.

RESULTS AND DISCUTIONS

Totally, in 11 collected were collected 72 species of Coleopterans, with a total of 861 exemplars (table 1). The most frequent collected species, 9 species, were (table 2): *Opatrum sabulosum* L., in all of 11 collected from 2007: 16 June; 29 June; 16 July; 28 July; 13 August; 27 August; 4 September; 19 September; 10 October and 27 October; *Otiorrhynchus raucus* F., at a number of 10 collected (5 June; 16 June 7; 29 June; 16 July; 28 July 7; 13 August; 27 August; 4 September; 19 September ; *Carabus violaceus* L., at a number of 9 collected (5 June; 16 June; 29 June; 16 July; 28 July; 13 August; 27 August; 4 September; 19 September); *Pseudophonus rufipes*, at a number of 9 collected (5 June; 16 July; 29 June; 16 July; 28 July; 13 August; 27 August; 4 September; 19 September; 10 October); *Ophonus puncticollis* Payk., at a number of 8 collected (16 July; 29 June; 16 July; 28 July; 13 August; 27 August; 4 September; 19 September); *Harpalus aeneus* F., at a number of 7 collected (5 June; 16 June; 29 June; 16 July; 28 July; 13 August and 10 October) and *Amara apricaria* Payk., at a number of 5 collected (13 August; 27 August; 4 September; 10 Octomber and 27 October).

The species that were less frequent, in number of 46, they being found at one collected, were: (table 3): *Calosoma inquisitor* (5 June), *Dorcadion fulvum* Scop.(5 June), *Dima elateroides* L.(5 June), *Silpha obscura* L.(5 June), *Calathus fuscipes* Goeze(5 June), *Anisodactylus signatus* F. (5 June), *Anisodactylus binotatus* F. (5 June), *Nebria jackischi* N. (5 June), *Leistus rufescens* F (5 June), *Poecilus cupreus* L., (5 June), *Brachynus explodens* Duft., (5 June), *Amara similata* Gyll., (5 June), *Notiophilus palustris* Duft., (5 June), *Bembidion lampros* Hrbst., (5 June), *Phyllobius urticae* Degeer., (5 June), *Tanymecus dilaticollis* Gyll., (5 June), *Erenotes ater* Lin. (5 June), *Alophus nicticans* L. (5 June), *Ceuthorrhynchus pollinarius* Forst. (5 June), *Megarthus depressus* Payk. (5 June), *Corymbites affinis* L.(5 June), *Agriotes lineatus* L. (5 June), *Harpalus calceatus* Duft. (16 June), *Ceuthorrhynchus ovatus* F. (16 June), *Sitona lineatus* L. (16 June), *Elater praestus* Payk. (16 June), *Cassida nobilis* L. (16 June), *Notiophilus palustris* Duft. (16 June), *Pterostichus niger* Schall.(29 June), *Coccinella bipunctata* L. (29 June), *Pterostichus oblongopunctatus* Schall. (29 June), *Agriotes ustulatus* L. (29 June), *Aphodius fimetarius* L. (29 June), *Elater nigerimus* Payk.(29 June), *Ceuthorrhynchus rapae* Gyll.(29 June), *Polydrosus flavipes* Deg.(28 July), *Abax carinatus* Duft. (28 July), *Staphylinus caesareus* Cederh. (28 July), *Typhaea stercoraria* L. (27 August), *Leistus ferrugineus* F. (10 October), *Otiorrhynchus morio* (27 October), *Otiorrhynchus sulcatus* Fabr. (27 October) and *Apion apricans* Hrbst. (27 October).

Table 1

The Coleopterans species gathered, collected data and the number of exemplars gathered

No.	The name of specie	Collected data	No. of exemplars
1	Carabus violaceus L.	5.06.2007;16.06; 29.06; 16.07; 28.07; 13.08; 27.08; 4.09; 19.09; (**9**)	42
2	*Calosoma inquisitor* L.	5.06.2007(**1**)	1
3	*Dorcadion fulvum* Scop.	5.06.2007(**1**)	1
4	*Abax ater* Duft.	5.06.2007;29.06;16.07;19.09;(**4**)	18
5	P*terostichus vulgaris* L.	5.06.2007;16.06;28.07; 13.08; 27.08; 4.09, (**6**)	23
6	*Pseudophonus rufipes* Mull.	5.06.2007;16.06;29.06;16.07;28.07; 13.08;27.08;4.09;10.10;(**9**)	69
7	*Dima elateroides* L.	5.06.2007;(**1**)	3
8	*Otiorrhynchus raucus* F.	5.06.2007;16.06;29.06;16.07;28.07; 13.08;27.08;4.09;19.09;(**10**)	72
9	*Opatrum sabulosum* L.	5.06.2007;16.06;29.06;16.07;28.07; 13.08; 27.08;4.09;19.09;27.10;(**11**)	180
10	*Pedinus femoralis* L.	5.06.2007;13.08;27.08;(**3**)	48
11	*Silpha obscura* L.	5.06.2007;(**1**)	2
12	*Calathus fuscipes* Goeze.	5.06.2007;(**1**)	3
13	*Anisodactylus signatus* F.	5.06.2007;(**1**)	5
14	*Anisodactylus binotatus* F.	5.06.2007;(**1**)	3
15	*Nebria jackischi* N.	5.06.2007;(**1**)	2
16	*Coccinella 7 punctata* L.	5.06.2007;16.06;29.06;(**3**)	24
17	*Leistus rufescens* F.	5.06.2007;(**1**)	3
18	*Cicindela germanica* L.	5.06.2007;16.06;29.06;16.07;28.07;13.08;27.08;(**7**)	47
19	*Cantharis livida ab.rufipes* Hrbst.	5.06.2007;(**1**)	5
20	*Ontophagus amyntos* Ol.	5.06.2007;19.09;(**2**)	4
21	*Harpalus aeneus* F.	5.06.2007;16.06;29.06;16.07;28.07; 13.08;10.10;(**7**)	66
22	*Brachynus explodens* L.	5.06.2007(**1**)	2
23	*Poecilus cupreus* L.	5.06.2007(**1**)	4
24	*Harpalus tardus* Panz.	5.06.2007;16.06;(**2**)	6
25	*Amara similata* Gyll.	5.06.2007(**1**)	6
26	*Dermestes laniarius* Illig.	5.06.2007;16.06;13.08;10.10;(**3**)	13
27	*Pterostichus nigrita* F.	5.06.2007;16.06;29.06;16.07;(**4**)	12
28	*Notiophilus palustris* Duft	5.06.2007;(**1**)	1
29	*Bembidion lampros* Hrbst	5.06.2007;(**1**)	3
30	*Phyllobius urticae* Degeer	5.06.2007;(**1**)	2
31	*Tanymecus dilaticollis* Gyll.	5.06.2007;(**1**)	3
32	*Tanymecus palliatus* F.	5.06.2007;29.06;10.10(**3**)	9
33	*Sphenophorus striatopunctatus* Gze.	5.06.2007;(**1**)	2
34	*Erenotes ater* Lin.	5.06.2007;(**1**)	2
35	*Alophus nicticans* L.	5.06.2007;(**1**)	5
36	*Ceuthorrhynchus pollinarius* Forst.	5.06.2007;(**1**)	5
37	*Megarthus depressus* Payk	5.06.2007;(**1**)	3
38	*Corymbites affinis* L.	5.06.2007;(**1**)	2
39	*Agriotes lineatus* L.	5.06.2007;(**1**)	8
40	*Harpalus calceatus* Duft.	16.06.2007;(**1**)	1
41	*Amara familiaris* Duft.	16.06.2007;4.09;19.09;(**3**)	6
42	*Amara aenea* Dejean	16.06.2007;13.08;19.09;(**3**)	5
43	*Ophonus puncticollis* Payk.	16.06;29.06;16.07;28.07;13.08;27.08;4.09; 19.09;(**8**)	15
44	*Ceuthorrhynchus ovatus* L	16.06.2007; (**1**)	1
45	*Amphymallon solstitialis* Lin.	16.06;29.06;16.07;(**3**)	3
46	*Harpalus distinguendus* Duft.	16.06.2007;(**1**)	1
47	*Calathus fuscipes* Goeze.	16.06.2007;28.07;19.09(**3**)	7

48	*Sitona lineatus* L.	16.06.2007;(**1**)	1
49	*Pterostichus niger* Schall.	29.06.2007; (**1**)	6
50	*Amara crenata* Dejean.	29.06.2007;16.07;(**2**)	6
51	*Amara eurynota* Gyll.	29.06.2007;16.07; (**2**)	6
52	*Coccinella bipunctata* L.	29.06.2007; (**1**)	2
53	*Pterostichus oblongopunctatus* Schall.	29.06.2007; (**1**)	1
54	*Agriotes ustulatus* Schall.	29.06.2007; (**1**)	6
55	*Aphodius fimetarius* L.	29.06.2007; (**1**)	2
56	*Elater nigrinus* Payk.	29.06.2007; (**1**)	3
57	*Ceuthorrhynchus rapae* Gyll.	29.06.2007; (**1**)	2
58	*Elater praeustus* Fabr.	16.06.2007; (**1**)	2
59	*Cassida nobilis* L.	16.06.2007; (**1**)	2
60	*Notiophilus palustris* Duft.	16.06.2007; (**1**)	2
61	*Polydrosus flavipes* Deg.	28.07.2007; (**1**)	3
62	*Abax carinatus* Duft.	28.07.2007(1)	10
63	*Onthophagus vacca* Lin.	28.07.2007;13.08;27.08(**3**)	9
64	*Pseudophonus griseus* Panz.	28.07.2007;13.08;27.08; (**3**)	17
65	*Leptinotarsa decemlineata* Say.	13.08.2007;4.09;19.09;10.10; (**4**)	12
66	*Amara apricaria* Payk.	13.08.2007;27.08;4.09;10.10;27.10; (**5**)	12
67	*Typhaea stercoraria* L.	27.08.2007; (**1**)	1
68	*Otiorrhynchus morio*	27.10.2007; (**1**)	2
69	*Otiorrhynchus sulcatus* Fabr.	27.10.2007; (**1**)	1
70	*Apion apricans* Hrbst.	27.10.2007; (**1**)	1
71	*Staphylinus caesareus* Cederh.	28.07.2007; (**1**)	3
72	*Leistus ferrugineus* F.	10.10.2007; (**1**)	1
Total			861

Table 2

The most frequent collected species of Coleopterans

No.	The name of specie	Collected data	No. of exemplars
1	*Opatrum sabulosum* L.	5.06.2007;16.06;29.06;16.07;28.07; 13.08;27.08;4.09;19.09;27.10;(**11)**	180
2	*Otiorrhynchus raucus* F.	5.06.2007;16.06;29.06;16.07;28.07; 13.08;27.08;4.09;19.09;(**10)**	72
3	*Carabus violaceus* L.	5.06.2007;16.06;29.06;16.07;28.07; 13.08;27.08;4.09;19.09;(**9)**	42
4	*Pseudophonus rufipes* Mull.	5.06.2007;16.06;29.06;16.07;28.07; 13.08;27.08;4.09;10.10;(**9)**	69
5	*Ophonus puncticollis* Payk.	16.06;29.06;16.07;28.07;13.08;27.08;4.09; 19.09;(**8)**	15
6	*Cicindela germanica* L.	5.06.2007;16.06;29.06;16.07;28.07;13.08;27.08;(**7)**	47
7	*Harpalus aeneus* F.	5.06.2007;16.06;29.06;16.07;28.07; 13.08;10.10;(**7)**	66
8	*Pterostichus vulgaris* L.	5.06.2007;16.06;28.07; 13.08;27.08;4.09,(**6)**	23
9	*Amara apricaria* Payk.	13.08.2007;27.08;4.09;10.10;27.10; (**5**)	12

Table 3

Less frequent Coleopterans species

No.	The name of specie	Collected data	No. of exemplars
1	*Calosoma inquisitor* L.	5.06.2007(**1**)	1
2	*Dorcadion fulvum* Scop.	5.06.2007(**1**)	1
3	*Dima elateroides* L.	5.06.2007;(**1**)	3
4	*Silpha obscura* L.	5.06.2007;(**1**)	2
5	*Calathus fuscipes* Goeze.	5.06.2007;(**1**)	3
6	*Anisodactylus signatus* F.	5.06.2007;(**1**)	5
7	*Anisodactylus binotatus* F.	5.06.2007;(**1**)	3
8	*Nebria jackischi* N.	5.06.2007;(**1**)	2
9	*Leistus rufescens* F.	5.06.2007;(**1**)	3
10	*Cantharis livida ab.rufipes* Hrbst.	5.06.2007;(**1**)	5
11	*Brachynus explodens* L.	5.06.2007(**1**)	2
12	*Poecilus cupreus* L.	5.06.2007(**1**)	4
13	*Amara similata* Gyll.	5.06.2007(**1**)	6
14	*Notiophilus palustris* Duft	5.06.2007;(**1**)	1
15	*Bembidion lampros* Hrbst	5.06.2007;(**1**)	3
16	*Phyllobius urticae* Degeer	5.06.2007;(**1**)	2
17	*Tanymecus dilaticollis* Gyll.	5.06.2007;(**1**)	3
18	*Sphenophorus striatopunctatus* Gze.	5.06.2007;(**1**)	2
19	*Erenotes ater* Lin.	5.06.2007;(**1**)	2
20	*Alophus nicticans* L.	5.06.2007;(**1**)	5
21	*Ceuthorrhynchus pollinarius* Forst.	5.06.2007;(**1**)	5
22	*Megarthus depressus* Payk	5.06.2007;(**1**)	3
23	*Corymbites affinis* L.	5.06.2007;(**1**)	2
24	*Agriotes lineatus* L.	5.06.2007;(**1**)	8
25	*Harpalus calceatus* Duft.	16.06.2007;(**1**)	1
26	*Ceuthorrhynchus ovatus* L	16.06.2007; (**1**)	1
27	*Harpalus distinguendus* Duft.	16.06.2007;(**1**)	1
28	*Sitona lineatus* L.	16.06.2007;(**1**)	1
29	*Pterostichus niger* Schall.	29.06.2007; (**1**)	6
30	*Coccinella bipunctata* L.	29.06.2007; (**1**)	2
31	*Pterostichus oblongopunctatus* Schall.	29.06.2007; (**1**)	1
32	*Agriotes ustulatus* Schall.	29.06.2007; (**1**)	6
33	*Aphodius fimetarius* L.	29.06.2007; (**1**)	2
34	*Elater nigrinus* Payk.	29.06.2007; (**1**)	3
35	*Ceuthorrhynchus rapae* Gyll.	29.06.2007; (**1**)	2
36	*Elater praeustus* Fabr.	16.06.2007; (**1**)	2
37	*Cassida nobilis* L.	16.06.2007; (**1**)	2
38	*Notiophilus palustris* Duft.	16.06.2007; (**1**)	2
39	*Polydrosus flavipes* Deg.	28.07.2007; (**1**)	3
40	*Abax carinatus* Duft.	28.07.2007(1)	10
41	*Typhaea stercoraria* L.	27.08.2007; (**1**)	1
42	*Otiorrhynchus morio*	27.10.2007; (**1**)	2
43	*Otiorrhynchus sulcatus* Fabr.	27.10.2007; (**1**)	1
44	*Apion apricans* Hrbst.	27.10.2007; (**1**)	1
45	*Staphylinus caesareus* Cederh.	28.07.2007; (**1**)	3
46	*Leistus ferrugineus* F.	10.10.2007; (**1**)	1

CONCLUSIONS

Collected of the material was made from May to October, at periods of 8 to 17 days;

Were gathered a number of 861 exemplars of coleopterans, belonging to 72 species.

The most frequent collected species were: *Opatrum sabulosum* L., at all 11 collected; *Otiorrhynchus raucus* F., at a number by 10 collected; *Carabus violaceus* L., at a number by 9 collected; *Pseudophonus rufipes* Mull.; at a number of 9 collected; *Ophonus puncticollis* Payk.,

at a number by 8 collected; *Harpalus aeneus* F. at a number of 7 collected and *Amara apricaria* Payk., at a number of 5 collected.

A number of 43 species were collected at one collected. These were: *Calosoma inquisitor* L., *Dorcadion fulvum* Scop., *Dima elateroides* L., *Silpha obscura* L., *Calathus fuscipes* Goeze, *Anisodactylus signatus* F., *Anisodactylus binotatus* F., *Nebria jackischi* N., *Leistus rufescens* F , *Poecilus cupreus* L., *Brachynus explodens* Duft., *Amara similata* Gyll., *Notiophilus palustris* Duft., *Bembidion lampros* Hrbst., *Phyllobius urticae* Degeer., *Tanymecus dilaticollis* Gyll.,, *Erenotes ater* Lin., *Alophus nicticans* L., *Ceuthorrhynchus pollinarius* Forst., *Megarthus depressus* Payk., *Corymbites affinis* L., *Agriotes lineatus* L., *Harpalus calceatus* Duft., *Ceuthorrhynchus ovatus* F., *Sitona lineatus* L., *Elater praestus* Payk., *Cassida nobilis* L., *Notiophilus palustris* Duft., *Pterostichus niger* Schall., *Coccinella bipunctata* L., *Pterostichus oblongopunctatus* Schall., *Agriotes ustulatus* L., *Aphodius fimetarius* L., *Elater nigerimus* Payk., *Ceuthorrhynchus rapae* Gyll., *Polydrosus flavipes* Deg, *Abax carinatus* Duft., *Staphylinus caesareus* Cederh., *Typhaea stercoraria* L., *Leistus ferrugineus* F., *Otiorrhynchus morio* , *Otiorrhynchus sulcatus* Fabr. and *Apion apricans* Hrbst.

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