

NEW CONTRIBUTIONS TO THE KNOWLEDGE OF CARABIDAE SPECIES  
(COLEOPTERANS – CARABIDAE) FROM THE APPLE TREE  
PLANTATIONS

NOI CONTRIBUTII LA CUNOASTEREA SPECIILOR DE CARABIDE  
(COLEOPTERA-CARABIDAE) DIN PLANTATIILE POMICOLE DE MAR

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**Rezumat** În lucrarea de fata prezentam rezultatele observatiilor privind structura si dinamica populatiilor de carabide dintr-o plantatie de mar apartinand S.C.D.P. Falticeni, in anii 2006 si 2007. Speciile cu cel mai mare numar de exemplare colectate in 2006 sunt: *Harpalus aeneus*, *Carabus violaceus*, *Abax ater*, *Pseudophonus rufipes*, *Pterostichus niger*, *Cicindela germanica* si *Amara aenea*. Speciile cu cel mai mare numar de exemplare colectate in 2007 sunt: *Pseudophonus rufipes*, *Harpalus aeneus*, *Cicindela germanica*, *Carabus violaceus*, *Pterostichus vulgaris*, *Ophonus puncticollis* si *Amara apricaria*

**Abstract:** This paper presents the analysis of study results regarding the structure and population dynamics of the carabidae species from apple plantation belonging to S.C.D.P. Falticeni in year 2006 and 2007. The species with largest number of sample collected in 2006 were: *Harpalus aeneus*, *Carabus violaceus*, *Abax ater*, *Pseudophonus rufipes*, *Pterostichus niger*, *Cicindela germanica* and *Amara aenea*. The species with largest number of sample collected in 2007 were: *Pseudophonus rufipes*, *Harpalus aeneus*, *Cicindela germanica*, *Carabus violaceus*, *Pterostichus vulgaris*, *Ophonus puncticollis* and *Amara apricaria*.

**Cuvinte cheie:** carabidae, plantatii pomicole  
**Keywords:** carabidae, apple orchards

### INTRODUCTION

The *Carabidae* species are mostly predators and they can be useful for human enterprises because they prey on worm, crustaceanus, harmful insects molluses.

This paper presents the analysis of study results regarding the structure and population dynamics of the carabidae species in the apple plantation.

### MATERIALS AND METHODES

The material was collected during 2006 and 2007, with the help of soil trap type Barber. In the stationary Falticeni, there were effectuated a number of 4 collections in 2006 and 11 collections in 2007, at the followings dates:

In 2006

- the first harvest on 26 Mai;
- the second harvest, on 10 June;
- the third harvest, on 5 July;
- the forth harvest on 19 August;

In 2007

- the first harvest on 5 June
- the second harvest, on 16 June;
- the third harvest, on 29 June;
- the forth harvest on 16 July ;

- the first harvest on 5 June;
- the second harvest on 16 June;
- the third harvest on 29 June;
- the fourth harvest on 16 July;
- the fifth harvest on 28 July;
- the sixth harvest on 13 August;
- the seventh harvest on 27 August;
- the eighth harvest on 4 September;
- the ninth harvest on 19 September;
- the tenth harvest on 10 October;
- the eleventh harvest on 27 October

The carabids were collected with the help of the soil traps Barber of watery type, using the 3-4 % Formalin solution. The materials from the trap were collected every 10-15 days. At each harvest, the Formalin solution was completed or replaced, if necessary. The collected material was brought in the laboratory where we separated the species of carabid and determined them.

## RESULTS AND DISCUSSIONS

In 2006, from apple plantation belonging to S.C.D.P. Fălticeni, there were effectuated a number of 4 collections, there were collected 216 specimens of carabids, belonging to 22 species (table 1).

In 2007 there were effectuated a number of 11 collections, belonging to 33 species of Carabidae, with a total of 410 exemplars (table 1).

In 2006, in the period of observation, were collected 216 samples, belonging to a number of 22 species: *Harpalus aeneus* F., *Carabus violaceus* L., *Abax ater* Duft., *Pseudophonus rufipes* Mull., *Pterostichus niger* Schall., *Cicindela germanica* L., *Amara aenea* Dejean, *Pterostichus nigrita* F., *Harpalus distinguendus* Duft., *Amara familiaris* Duft., *Pterostichus cupreus* L., *Idiochroma dorsalis* Pontopp., *Harpalus tardus* Panz., *Amara crenata* Dejean., *Agonum livens* Gyll., *Leistus ferrugineus* F. *Anisodactylus binotatus* F., *Brachynus explodens* L., *Harpalus calceatus* Duft. and *Pseudophonus griseus* Panz., *Carabus scabriusculus* Oliv. and *Dichirotrichus cognatus* Dej.

In 2007, in the period of observation, were collected 410 samples, belonging to a number of 33 species: *Carabus violaceus* L., *Calosoma inquisitor* L., *Abax ater* Duft., *Pterostichus vulgaris* L., *Pseudophonus rufipes* Mull., *Calathus fuscipes* Goeze., *Anisodactylus signatus* F., *Anisodactylus binotatus* F., *Nebria jackischi* N., *Leistus rufescens* F., *Cicindela germanica* L., *Harpalus aeneus* F., *Brachynus explodens* L., *Poecilus cupreus* L., *Harpalus tardus* Panz., *Amara similata* Gyll., *Pterostichus nigrita* F., *Notiophilus palustris* Duft., *Bembidion lampros* Hrbst, *Harpalus calceatus* Duft., *Amara familiaris* Duft., *Amara aenea* Dejean, *Ophonus puncticollis* Payk., *Harpalus distinguendus* Duft., *Calathus fuscipes* Goeze., *Pterostichus niger* Schall., *Amara crenata* Dejean., *Amara eurynota* Gyll., *Pterostichus oblongopunctatus* Schall., *Abax carinatus* Duft., *Pseudophonus griseus* Panz., *Amara apricaria* Payk. and *Leistus ferrugineus* F.

The species with largest number of sample collected in 2006 were: *Harpalus aeneus* F. (37 samples), *Carabus violaceus* L. (26 samples), *Abax ater* Duft. (24 samples), *Pseudophonus rufipes* Mull. (24 samples), *Pterostichus niger* Schall. (20 samples), *Cicindela germanica* L. (19 samples), *Amara aenea* Dejean (19 samples) (table 2, diagram 1).

Table 1

Structure, and dynamics species of carbides collecting from the apple plantation belonging to  
SCDP Fälticeni in 2006 and 2007

No.	The name of specie	No. of exemplars	
		2006	2007
1	<i>Harpalus aeneus</i> F.	37	66
2	<i>Carabus violaceus</i> L.	26	42
3	<i>Abax ater</i> Duft.	24	18
4	<i>Pseudophonus rufipes</i> Mull.	24	69
5	<i>Pterostichus niger</i> Schall.	20	6
6	<i>Cicindela germanica</i> L.	19	47
7	<i>Amara aenea</i> Dejean	15	5
8	<i>Pterostichus nigrata</i> F.	10	12
9	<i>Harpalus distinguendus</i> Duft.	9	1
10	<i>Amara familiaris</i> Duft.	8	6
11	<i>Pterostichus cupreus</i> L.	8	-
12	<i>Idiochroma dorsalis</i> Pontopp.	5	-
13	<i>Harpalus tardus</i> Panz.	5	6
14	<i>Amara crenata</i> Dejean.	3	6
15	<i>Agonum livens</i> Gyll.	3	-
16	<i>Leistus ferrugineus</i> F.	2	1
17	<i>Anisodactylus binotatus</i> F.	1	3
18	<i>Brachynus explodens</i> L.	1	2
19	<i>Harpalus calceatus</i> Duft.	1	1
20	<i>Pseudophonus griseus</i> Panz.	1	17
21	<i>Carabus scabriusculus</i> Oliv.	1	-
22	<i>Dichirotrichus cognatus</i> Dej.	1	-
23	<i>Calathus fuscipes</i> Goeze.	-	3
24	<i>Anisodactylus signatus</i> F.	-	5
25	<i>Nebria jackischi</i> N.	-	2
26	<i>Leistus rufescens</i> F.	-	3
27	<i>Poecilus cupreus</i> L.	-	4
28	<i>Amara similata</i> Gyll.	-	6
29	<i>Notiophilus palustris</i> Duft	-	1
30	<i>Bembidion lampros</i> Hrbst	-	3
31	<i>Ophonus puncticollis</i> Payk.	-	15
32	<i>Pterostichus vulgaris</i> L.	-	23
33	<i>Calathus fuscipes</i> Goeze.	-	7
34	<i>Amara eurynota</i> Gyll.	-	6
35	<i>Pterostichus oblongopunctatus</i> Schall.	-	1
36	<i>Abax carinatus</i> Duft.	-	10
37	<i>Amara apricaria</i> Payk.	-	12
38	<i>Calosoma inquisitor</i> L.	-	1
		216	410

The species with largest number of sample collected in 2007 were: *Pseudophonus rufipes* (69 samples), *Harpalus aeneus* (66 samples), *Cicindela germanica* (47 samples), *Carabus violaceus* (42 samples), *Pterostichus vulgaris* (23 samples), *Ophonus puncticollis* (15 samples), *Amara apricaria* (12 samples) (table 3, diagram 2).

Table 2

The carabide species with eldest number of sample collected from ecosystem Falticeni in 2006

Crt. nr.	Name of the species	Nr. samples collecting	% from total
1	<i>Harpalus aeneus</i> F.	37	17,12
2	<i>Carabus violaceus</i> L.	26	12,03
3	<i>Abax carinatus</i> Duft.	24	11,11
4	<i>Pseudophonus rufipes</i> Mull.	24	11,11
5	<i>Pterostichus niger</i> Schall.	20	9,25
6	<i>Cicindela germanica</i> L.	19	8,79
7	<i>Amara aenea</i> Dejean.	15	6,94

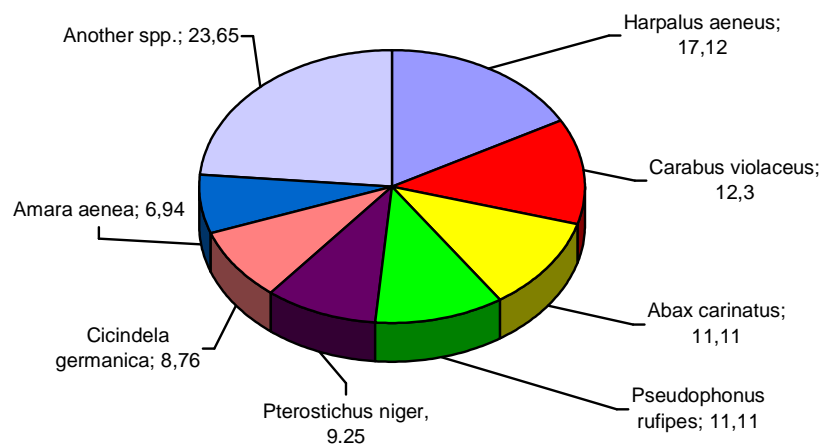


Diagram 1. The carabide species with eldest number of sample collected from ecosystem Falticeni in 2006

Table 3

The carabide species with eldest number of sample collected from ecosystem Falticeni in 2007

Crt. nr.	The name of specie	Nr. samples collecting	% from total
1	<i>Pseudophonus rufipes</i> Mull.	69	16,3
2	<i>Harpalus aeneus</i> F.	66	16,1
3	<i>Cicindela germanica</i> L.	47	11,5
4	<i>Carabus violaceus</i> L.	42	10,2
5	<i>Pterostichus vulgaris</i> L.	23	5,6
6	<i>Ophonus puncticollis</i> Payk.	15	3,7
7	<i>Amara apricaria</i> Payk.	12	2,9

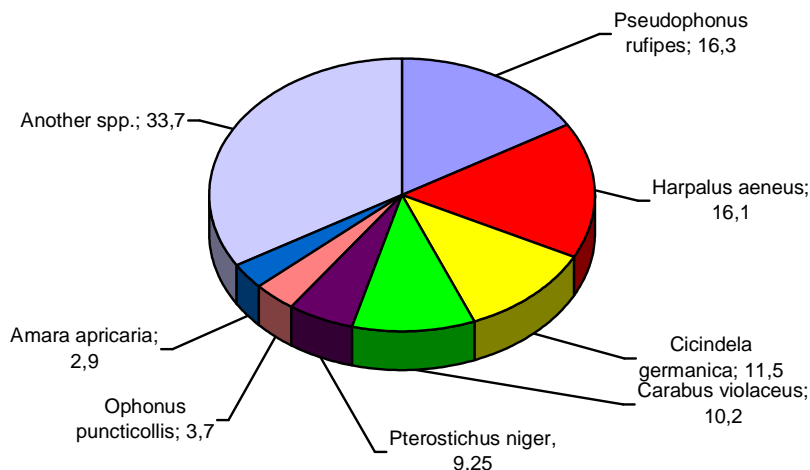


Diagram 2. The carabid species with eldest number of sample collected from ecosystem Falticeni in 2007

### CONCLUSIONS

During the period 2006 - 2007, there were collected 626 specimens of carabidae belonging to a number of 38 specimens.

In 2006, in the period of observation, were collected 216 samples, belonging to a number of 22 species and in 2007, were collected 410 samples, belonging to a number of 33 species.

During the observations period, we collected the same 17 species in 2006 as well as in 2007 were: *Harpalus aeneus* F., *Carabus violaceus* L., *Abax ater* Duft., *Pseudophonus rufipes* Mull., *Pterostichus niger* Schall., *Cicindela germanica* L., *Amara aenea* Dejean, *Pterostichus nigrita* F., *Harpalus distinguendus* Duft., *Amara familiaris* Duft., *Harpalus tardus* Panz., *Amara crenata* Dejean., *Leistus ferrugineus* F., *Anisodactylus binotatus* F., *Brachynus explodens* L., *Harpalus calceatus* Duft. and *Pseudophonus griseus* Panz.

### BIBLIOGRAPHY

1. CHATENED DU GAETAN, 1990 - Guide des *Coleopteres* d'Europe. Délaacrois et Niestlé, Paris.
2. PANIN I., 1951 - Determinatorul *Coleoptelilor* dăunătoare și folositoare din R.P.R. Editura de Stat, București.
3. ROGOJANU V., PERJU T., 1979 - Determinator pentru recunoașterea dăunătorilor plantelor cultivate. Editura Ceres, București.
4. REITTER E., 1908 - Fauna Germanica. Die Käfer des Deutschen Reiches Band I, Stuttgart.
5. TĂLMACIU M., GEORGESCU T., FILIPESCU C., BĂDEANU MARINELA, 1996 - Studii asupra structurii și abundenței speciilor de carabide din cultura viței de vie. Rev. Cercetări Agronomice în Moldova, vol.I, II, Iași.
6. TĂLMACIU M., GEORGESCU T., MITREA I., FILIPESCU C., BĂDEANU MARINELA, RADU C., 1997 - Comparative researches in structure, dynamycs and certain ecological parameters of carabide species collected in Huși and Iași vineyard during 1992 - 1994. Lucrări

Științifice vol. 40, Seria Horticultură. U.A.M.V.Iași.

7. TALMACIU M., TALMACIU NELA, DIACONU A, 2007 - The efficacious fauna of carabids (*Coleoptera: Carabidae*) from apple plantations in north-eastern Romania. Symposium Intern. „Plant Protection and plant Health in Europe” Germania-Berlin, vol.no. 82, p.114-115. ISSN 0306-3941, ISBN 13:978-1-901396-82-9
8. VARVARA M., TALMACIU M., GEORGESCU T., 1995 - Structura speciilor de carabide (*Coleoptera - Carabidae*) în câteva plantații viticole din Moldova. Rev. Cercetări Agronomice în Moldova.