

FAUNA OF GROUND-BEETLES (COLEOPTERA: CARABIDAE) IN THE SANDY AGROCENOZIS OF STROPI (DAUGAVPILS, LATVIA)

Andris Bukejs

Bukejs A. 2005. Fauna of ground-beetles (Coleoptera: Carabidae) in the sandy agrocenosis of Stropi (Daugavpils, Latvia). *Acta Biol. Univ. Daugavp.*, 5 (1): 23 - 26.

The fauna of ground-beetles in the sandy agrocenosis of Stropi (Daugavpils district) was studied with the help of pit-fall traps. During 5 years of research 2144 samples of ground-beetles were collected and 64 species belonging to 24 genera were stated. A greater number of species represent genera *Amara* (13) and *Harpalus* (12). Dominant species of ground-beetles in the sandy agrocenosis are *Harpalus rufipes* Deg., *H. tardus* Pz., *H. affinis* Schrnk., *Amara fulva* Deg. and *A. familiaris* Duft.

Key words: Carabidae, fauna, sandy agrocenosis, Stropi, Daugavpils, Latvia.

Andris Bukejs. University of Daugavpils, Vienibas Str. 13 – 229, Daugavpils, LV-5401, Latvia; e-mail: carabidae@inbox.lv

Introduction

Though faunistic research of beetles in Latvia is intensive, there is not enough information about the fauna of ground-beetles in agrocenosis and publications mainly concern central and western parts of Latvia (Cinītis 1962, 1975; Skaldere 1981; Petrova, Barševskis, Čudare 2005). Only in A. Barčevskis' (1987, 1993) publications one can find information about the agrocenosis fauna of ground-beetles in eastern Latvia. Our research is thorough, profound and it's an essential addition to the already made study of the problem.

Material and methods

The research of the ground-beetle fauna took place in the sandy agrocenosis of Daugavpils district, Stropi. It lasted for 5 years, since 2000 till

2004 (June – September). The area of the agrocenosis being studied is approximately 2,0 hectares. The fields of different such as potatoes, cabbages, cereals (rye, oats) and strawberries can be found in the agrocenosis and it borders on xerophyte meadows and leaf-bearing forest *Alnus incana* L. and *Betula pendula* Roth. are typical.

The main method of research were pit-fall traps containing 3-4% acetic acid solution. The traps were examined once a week. The material was collected as well while examining biotope (under different objects, on soil, on plants. etc.).

The characteristic types of biotopes for ground-beetles were defined according to A. Barčevskis' (2003) system.

Results

While studying the sandy agrocenosis of Stropi (Daugavpils district) 2144 samples of ground-beetles were collected. 64 species of beetles (which makes 19,63% of total member known in Latvia) belonging to 24 genera (Table) were stated. Typical species for the given sandy agrocenosis are the following: *Harpalus rufipes* Deg. – 442 samples (20,62%), *H. tardus* Pz. – 369 samples (17,21%), *H. affinis* Schrnk. – 223 samples (10,40%), *Amara fulva* Deg. – 163 samples (7,60%) and *A. familiaris* Duft. – 125 samples (5,83%).

The results of other research were similar. E. Ozols (Īēēēē 1956) found 48 species of ground-beetles in cereal fields with sandy soil. R. Cinītis (1975) writes about *Harpalus rufipes* Deg. as a dominating type among cross-flowered in Salaspils, Babīte, Carnikava and Ādaži. Such species as *Harpalus affinis* Schrnk., *Amara fulva* Deg., *Bembidion quadrimaculatum* L. and others were often found too. S. Skaldere (Ņžāēāāšā 1981) in barley agrocenosis mentions *Harpalus rufipes* Deg. as one of the prevailing species.

Species characteristic for other types of biotops were noted as well: *Carabus granulatus* L. and other typical for bushes; *Synuchus vivalis* Ill. and others typical for be seen in forest and open biotops; *Carabus hortensis* L., *Harpalus latus* L. and others are typical forest biotops (Tabel 1). The presence of species characteristic for other biotops in the different near-by biotops: xerophit meadows, bushes and leaf-bearing forest.

Higrophil species of *Cychnus caraboides* L. (2 samples), *Acupalpus meridianus* L. (1), *Asaphidion flavipes* L. (3) and *Bembidion bruxellense* Wesm. (1), which usually appear in damp biotops, were also discovered. The existence of these species in a non-typical habitat can be probably explained by cool and rainy weather when the soil of the agrocenosis was relatively damp.

Representatives of 24 genera of ground-beetles were caught in the sandy agrocenosis of Stropi: 13 of *Amara* genus and 12 of *Harpalus* genus. It's because the species of these genera mainly live in sandy soil and open biotops. Representa-

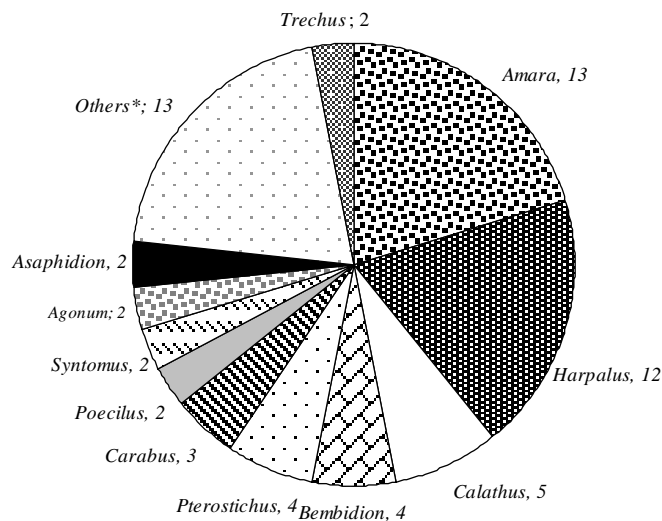


Figure 1. Genus and numer of species found on the sandy agrocenosis of Stropi (Daugavpils district).
*Others: *Cicindela*, *Leistus*, *Clivina*, *Ophonus*, *Lebia*, *Masoreus*, *Microlestes*, *Anchromenus*, *Broscus*, *Synuchus*, *Cychnus*, *Acupalpus* and *Anisodactylus*.

Species	Specimens	Habitats
<i>Cicindela hybrida</i> L.	3	OaF, Rp
<i>Leistus terminatus</i> Hell.	1	OaF
<i>Carabus granulatus</i> L.	4	OaF
<i>C. cancellatus</i> Ill.	1	OaF
<i>C. hortensis</i> L.	2	F
<i>Cychrus caraboides</i> L.	2	F
<i>Clivina fossor</i> L.	13	Oa
<i>Brosicus cephalotes</i> L.	56	Oa
<i>Trechus quadristriatus</i> Schrnk.	10	OaF
<i>T. secalis</i> Pk.	3	OaF
<i>Asaphidion flavipes</i> L.	3	OaF, Rp
<i>A. pallipes</i> Duft.	10	OaF, Rp
<i>Bembidion lampros</i> Hrbst.	11	OaF
<i>B. gilvipes</i> Strm.	1	OaF, Rp
<i>B. quadrimaculatum</i> L.	30	OaF
<i>B. bruxellense</i> Wesm.	1	Oa, Rp
<i>Anchromenus dorsalis</i> Pont.	5	Oa
<i>Agonum sexpunctatum</i> L.	2	OaF, Rp
<i>A. viduum</i> Pz.	1	Oa, Rp
<i>Calathus fuscipes</i> Gz.	38	Oa
<i>C. erratus</i> Sahl.	60	OaF
<i>C. ambiguus</i> Pk.	70	Oa
<i>C. micropterus</i> Duft.	17	F
<i>C. melanocephalus</i> L.	62	OaF
<i>Synuchus vivalis</i> Ill.	1	OaF
<i>Poecilus versicolor</i> Strm.	7	OaF
<i>P. cupreus</i> L.	19	OaF
<i>Pterostichus melanarius</i> Ill.	4	OaF
<i>P. oblongopunctatus</i> F.	1	F
<i>P. niger</i> Schll.	13	OaF
<i>P. strenuus</i> Pz.	1	OaF
<i>Amara aenea</i> Deg.	22	OaF
<i>A. spreata</i> Dej.	3	OaF
<i>A. similata</i> Gyll.	5	OaF
<i>A. lucida</i> Duft.	1	Oa
<i>A. familiaris</i> Duft.	125	OaF
<i>A. nitida</i> Strm.	1	OaF
<i>A. convexior</i> Stph.	1	Oa
<i>A. bifrons</i> Gyll.	66	Oa
<i>A. fulva</i> Deg.	163	Oa
<i>A. consularis</i> Duft.	66	Oa
<i>A. apricaria</i> Payk.	28	Oa
<i>A. majuscula</i> Chaud.	46	Oa
<i>A. aulica</i> Pz.	1	Oa
<i>Ophonus rufibarbis</i> F.	2	OaF
<i>Harpalus griseus</i> Pz.	43	Oa
<i>H. rufipes</i> Deg.	442	Oa
<i>H. calceatus</i> Duft.	2	Oa
<i>H. affinis</i> Schrnk.	223	Oa
<i>H. smaragdinus</i> Duft.	48	Oa
<i>H. laevipes</i> Zett.	1	F
<i>H. latus</i> L.	1	F
<i>H. anxius</i> Duft.	1	OaF
<i>H. tardus</i> Pz.	369	Oa
<i>H. picipennis</i> Duft.	1	Oa
<i>H. froelichii</i> Strm.	4	Oa
<i>H. hirtipes</i> Pz.	1	Oa
<i>Anisodactylus binotatus</i> F.	1	OaF, Rp
<i>Acupalpus meridianus</i> L.	1	OaF
<i>Masoreus wetterhalli</i> Gyll.	7	Oa
<i>Lebia cruxminor</i> L.	1	Oa
<i>Syntomus truncatellus</i> L.	9	OaF
<i>S. foveatus</i> Frer.	6	Oa
<i>Microlestes maurus</i> Strm.	1	Oa

tives of other genera were a little bit fewer (Fig. 1).

As a result of the research rare species of ground-beetles were discovered: *Amara convexior* Stph. (1 sample), *Harpalus froelichii* Strm. (4), *H. anxius* Duft. (1), *H. hirtipes* Pz. (1), *H. calceatus* Duft. (2) and *Masoreus wetterhalli* Gyll. (7). These species are connected with different sandy biotops.

Acknowledgements

I wish to thank to Prof. Arvīds Barševskis for help in identification of species. This study has been supported by VPD1/ESF/PIAA/04/NP/3.2.3.1./0003/065 project.

References

- Barševskis A. 1987. Dažas ziņas par Latvijas dienvidaustrumu daļas skrejvaboļu faunu. *Latv. Entomol.*, 30: 8-14.
- Barševskis A. 1993. Austrumlatvijas vaboles. Daugavpils, Saule: 6-90.
- Barševskis A. 2003. Latvijas skrejvaboles (Coleoptera: Carabidae, Trachypachidae & Rhysodidae). Sērija „Latvijas vaboles”, 1. Baltic Institute of Coleopterology, Daugavpils: 1-264.
- Cinītis R. 1962. Skrejvaboles kartupeļu lauka agroceozē. *Latv. Entomol.*, 5: 25-28.
- Cinītis R. 1975. Skrejvaboles krustziežu kultūru agroceozē. *Latv. Entomol.*, 17: 7-26.
- Petrova V., Barševskis A., Čudare Z. 2005. Functional biodiversity of carabid beetles (Coleoptera, Carabidae) in the strawberry agroceozis. Book of Abstracts. 3rd International Conference „Research and conserva-

tion of biological diversity in Baltic region”. Daugavpils University, Daugavpils: 91.

Barševskis A. 1956. Latvijas dienvidaustrumu daļas skrejvaboļu fauna. *Latv. Entomol.*, 19: 1-14.

Barševskis A. 1981. Latvijas dienvidaustrumu daļas skrejvaboļu fauna. *Latv. Entomol.*, 24: 38-42.

Received: 08.10.2005.

Accepted: 01.12.2005.