

BIONOMICAL AND ECOLOGICAL NOTES ON ONTHOLESTES
HAROLDI (EPPELSHEIM, 1884), (COLEOPTERA, STAPHYLINIDAE)*Zbyšek Šustek,¹ László Tóth²¹Institute of Experimental Biology and Ecology, CBES, Slov. Acad. Sci.,

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The present paper deals with the seasonal dynamics, development cycle and habitat preference of *Ontholestes haroldi* (Eppelsheim, 1884). This species shows two peaks of seasonal dynamics, the first in June and the second in the first half of September. The generation comes out during the end of August and September. There a striking protandry is manifested in the new generation. Contrary to *Ontholestes tessellatus* and *Ontholestes murinus*. *Ontholestes haroldi* has a similar bionomy as a majority of the species of the genera *Staphylinus*, *Tasgius*, *Ocypus* and some species of *Philonthus* and *Quedius*. It prefers light, warm and dry forests and bushes in the oak to beech-oak vegetation tiers respectively.

Ontholestes haroldi (Eppelsheim, 1884) was described originally as a colour aberration of *Ontholestes murinus* (Linnaeus, 1758) on the basis of few specimens from Bavaria. Its infrasubspecific status was accepted by all authors during the period 1884—1956 and sporadic findings were registered from whole Central Europe (Reitter, Heyden, Weise, 1891; 1906; Reitter, 1908; Kuhnt, 1913; Winkler, 1926 — 34).

Smetana (1956) proved its specific status. Since that time, more findings of individual specimens of *Ontholestes haroldi* were registered in Central Europe (Smetana, 1958, 1960; Löbl, 1960; Horion, 1974; Peez, Kahlen, 1977; Šustek, 1983). The knowledge of its geographical distribution was synthetized by Horion (1974) and Tichomirova (1975). She characterizes *Ontholestes haroldi* as a Central European species. There exist, however, no data on the bionomy and ecology of *Ontholestes haroldi* in the literature cited.

During the last years it succeeded to obtain rich material of *Ontholestes haroldi* from Eastern Hungary (Hortobágy, coll. Museum of natural History Budapest) and from South-Western Slovakia (Bratislava-Vrakuňa, Sered,

* Dedicated to Academician Ludovít Weismann, on the occasion of his 60th anniversary.

coll. Šustek), which makes it possible to conclude more on its bionomy and autecology and, at the same time, to complete the knowledge of its distribution in the Carpathian Basin.

M e t h o d s

Besides a limited number of specimens sampled individually by senior collectors in Hungaria, the whole material was sampled by pitfall traps. The traps exposed by the first author were put in the anthropogeneously changed remnants of a lowland forest on the riverside of Malý Dunaj near Vrakuňa in the suburb of Bratislava (during 1981 and 1982) and in approximately 1 ha sized spinney of *Robinia pseudoacacia* and *Sambucus nigra* in the centre of cereal fields on the western margin of Sered (1982). The beetles dropped into the traps were sampled in one month intervals. The traps exposed by Hungarian entomologists were put in light oak forests (Óhati erdő and Vajdaloposi erdő) in the National Park Hortobágy. According to the data on the locality cedules, the material was sampled more or less in irregular intervals. A little part of the material comes from the traps baited by decaying meat (Bükk Hegység Mountains).

Material studied

Hungarian localities — pitfall traps samples: Hortobágy, óhati erdő, 1976, 50 ♂♂ and 18 ♀♀; Hortobágy, Vajdaloposi erdő, 1976, 7 ♂♂ and 13 ♀♀; Hortobágy, Margitai erdő, 1974, 1975, 1976, 3 ♂♂ and 8 ♀♀; Tapolcza, Visnyópuszta 1955, 2 ♀♀, all lgt. Hamári, Kaszab and Székessy; Bükk hegység, Garadna völgy 1958, 2 ♂♂ and 1 ♀; Bükk hegység, Nagyvisnyó, Elzalak 5. — 12. 6. 1953, 4 ♂♂ and 12 ♀♀, lgt. Kaszab és Székessy;

Hungarian localities — more ancient, usually non dated specimens: Óbudai hegység, Hármasbáthrégy 1 specimen, Gödöllő 1951, 1 specimen, Kaposvár 1 ♂, lgt. Csiki; Radnai Havasok, Bíny patak 1 ♀; Radnai hegység, Radna Barberek, 1 ♂ and 1 ♀, lgt. Csiki. Vékés Hegység, Hajdúvágás, 2 ♂, 18. 7. 1961, Mihályi lgt.; Tolna comitat, Tamási 13. 5. 1942, Gebhardt lgt.; Mecsek hegység, Kozári v. Ház, 14. 6. 1953, 1 ♂, Mozár lgt.; Pallay 1920 1 ♂; Révy lgt.; Sz. Szent Miklós, 1912, 1 ♂, Bró lgt.

Slovakian and Moravian localities: Bratislava — Vrakuňa, 1981, 8 ♂♂ and 4 ♀♀ and 1 defective specimen, Bratislava — Vrakuňa 1982, 17 ♂♂ and 12 ♀♀ and defective specimens, Sered 1982, 6 ♂♂ and 5 ♀♀; Moravia mer., Pavlovské kopce, 28. 5. 1974, 1 ♂.

R e s u l t s

As evident from fig. 1 and 2, the occurrence of *Ontholestes haroldi* in pitfall traps concentrates in all localities into two peaks. The first peak is in June and the second in the first half of September. The shift of the first peak towards the middle of July in Sered (1982) is probably due to the occasional coincidence of relatively long sampling intervals, timing of the sampling and slight shifts in the seasonal dynamics. The material sampled individually in several above localities manifests the striking concentration of the occurrence into one peak during the end of May and the begin of July. The serotinal peak in the begin of September, is indicated only by a single sample. The reason

might be the subjective preference of more effective sampling during the aestival aspects as done by the majority of coleopterists.

Sexual index of *Ontholestes haroldi* shows considerable changes during the vegetation period. In the aestival peak of occurrence the sexual index is appro-

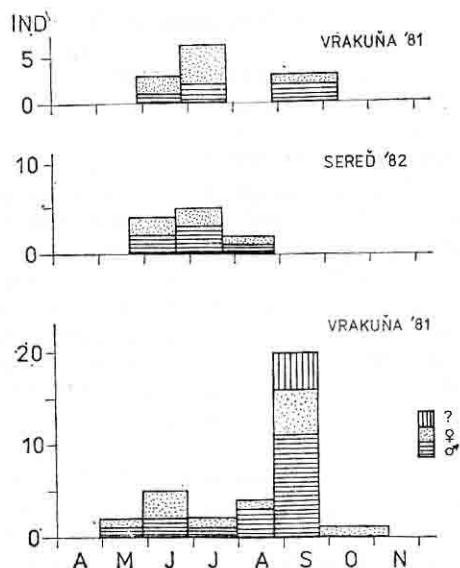


Fig. 1. Seasonal dynamics and sex ratio of *Ontholestes haroldi* in two South Slovakian localities during 1981 and 1982.

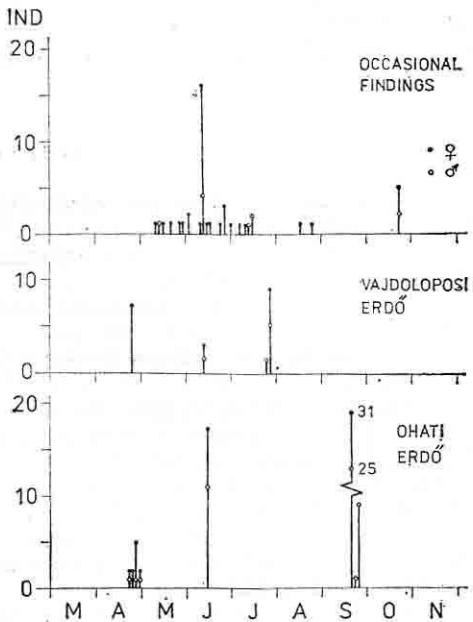


Fig. 2. Seasonal dynamics and sex ratio of *Ontholestes haroldi* in pitfall trap samples in the collection of Museum of Natural History in Budapest (the data of exposition of the traps are not in the locality cedulas) and timing of occasional findings of *Ontholestes haroldi* in the literature and collections.

ximately balanced or the females might dominate. In spite of this, the serotinal peak is characterized by the dominance of males.

These changes can be interpreted in the context of seasonal dynamics as follows. The first individuals appear in average during May (sporadically in April) and June can be considered as the mating period. The individuals of old generation decay after the mating period and the populations of *Ontholestes haroldi* are dominated by larvae during July and August. The larvae finish their development in the second half of September until October. There is a striking proterandry in the new generation of *Ontholestes haroldi*.

As to the habitat preference, the warm, dry, light and thin forests and bushes in the lowlands in the oak to beech oak vegetation tier (Zlatník, Raúšer, 1966) can be considered the habitats typical of *Ontholestes haroldi*. The abundant occurrence in the heavily polluted and anthropogeneously affected habitats in Vrakuňa (Šustek, 1984) and Sered (Šustek, 1982) suggests that *Ontholestes haroldi* is not sensible to the anthropogeneous factors and that it could be even favorized by them.

The sporadic occurrence of *Ontholestes haroldi* noted by all senior authors and the surprisingly high numbers obtained by pitfall trapping independently in two relatively distant regions (south-western Slovakia and eastern Hungary) indicate that there are striking differences between the bionomy of *Ontholestes haroldi* and of *Ontholestes tessellatus* (Fourcroy, 1785) and *Ontholestes murinus* (Linnaeus, 1758).* While these both species are known to be typical coprophilous and cadavericolous predators, *Ontholestes haroldi* seems to be a litter and soil surface inhabiting species similarly as the species of the genera *Staphylinus*, *Tasgius*, *Ocyphus* and some species of *Philonthus* and *Quedius*. This fact is supported also by the absence of both other species in the soil traps. So the relatively high infrequency of *Ontholestes haroldi* given in older literature sources is only a consequence of the lack in knowledge of its autecology and is due to the past minor attention paid to sampling the staphylinids by quantitative methods.

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BIONOMICKE A EKOLOGICKÉ POZNÁMKY K DROBČÍKOVI ONTHOLESTES HAROLDI
(EPPELSHEIM, 1884) (COLEOPTERA, STAPHYLINIDAE)

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Drobčík *Ontholestes haroldi* bol donedávna známy ako vzácny stredoeurópsky druh. Bohatý materiál získaný v ostatných rokoch vo východnom Maďarsku a na juhozápadnom Slovensku umožnil zistieť, že tento druh má v priebehu roka dva výrazné vrcholy výskytu, prvý v júni a druhý od konca augusta do polovice septembra. Nová generácia sa liahne koncom augusta a začiatkom septembra a vykazuje výraznú proterandriu. Na rozdiel od druhov *Ontholestes tesselatus* a *Ontholestes murinus* má *Ontholestes haroldi* podobnú bionómu ako väčšina druhov rodov *Staphylinus*, *Ocypus*, *Tasgius* a niektoré druhy rodov *Philonthus* a *Quedius*. Uprednostňuje svetlé, teplé a suché lesy a kroviská v dubovom až bukovo-dubovom vegetačnom stupni. Zdá sa, že je pomorene odolný oproti antropogennemu narušeniu prostredia a priemyselným imisiám.

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БИОНОМИЧЕСКИЕ И ЭКОЛОГИЧЕСКИЕ ПРИМЕЧАНИЯ К ONTHOLESTES HAROLDI
(EPPELSHEIM, 1884), (COLEOPTERA, STAPHYLINIDAE)

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Ontholestes haroldi был еще недавно известен как редкий среднеевропейский вид. Богатый материал, приобретенный за последние годы в Восточной Венгрии и в Югоизападной Словакии, позволил обнаружить, что этот вид имеет в течении одного года две выразительных вершин встречаемости, первую в июне и вторую с конца августа до половины сентября. Новая генерация вылупливается в конце августа и в начале сентября, и проявляет выразительную претерандрию. В отличие от видов *Ontholestes tesselatus* и *Ontholestes murinus*

An other rich collection of *Ontholestes haroldi* was discovered in the extensive material from Pavlovské kopce (South Moravia) after this paper was supplied to the redaction.

имеет *Ontholestes haroldi* подобную биономию как большинство видов родов *Staphylinus*, *Ocypus*, *Tasgius* и некоторые виды родов *Philonthus* и *Quedius*. Отдавают они предпочтение светлым, теплым и сухим лесам и кустарникам в дубовой даже буково-дубовой вегетационных степенях. Кажется, что является устойчивым в определенной степени и к антропогенному нарушению среды и против промышленных иммиссий.