

**First records of *Ascalenia viviparella* in Central Europe
(Lepidoptera: Cosmopterigidae: Chrysopeleiinae)**

**První nálezy *Ascalenia viviparella* ve střední Evropě
(Lepidoptera: Cosmopterigidae: Chrysopeleiinae)**

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Abstract. *Ascalenia viviparella* Kasy, 1969 is a Central Asian species inhabiting desert and semi-desert areas, so far known in Europe only from the southern Urals, Volga-Don region, Crimea and Lithuania. In 2024, it was suddenly recorded at several sites in Czechia. In this paper, photographs of adult Czech specimens and their male and female genitalia are presented. The origin of the captured specimens is discussed.

Palearctic Region, Czechia, faunistics, new record, spreading, migrants

INTRODUCTION

The genus *Ascalenia* Wocke, 1876 was previously assigned to the family Walshiidae Hodges, 1962 (e.g., Kasy 1969). Riedl (1969) reduced the family Walshiidae to a subfamily within the family Momphidae. Later, Hodges (1978) defined the subfamily Chrysopeleiinae Mosher, 1916 within the family Cosmopterigidae Heinemann et Wocke, 1876, into which the genus *Ascalenia* was assigned. Riedl (1984) raised the subfamily Chrysopeleiinae to a separate family and established the family Walshiidae as its synonym. Koster & Sinev (2003) followed this taxonomic conclusion and presented re-descriptions of eight West Palearctic species including all European *Ascalenia* species. The genus *Ascalenia* is currently classified within the subfamily Chrysopeleiinae of the family Cosmopterigidae, based on molecular data (Heikkilä et al. 2013). The genus *Ascalenia* has Palearctic, African and Australian distribution and currently includes about 49 species (Savella 2024). In Europe seven *Ascalenia* species occur, but only one, namely *Ascalenia vanella* (Frey, 1860), was previously known from Central Europe (Lepiforum 2024). The aim of this paper is to present the first, and quite unexpected, records of *Ascalenia viviparella* Kasy, 1969 in Central Europe and indicate the likely mass “invasion” of the species from the east or southeast.

MATERIAL AND METHODS

The material discussed was attracted to light sources with a predominantly ultraviolet spectrum and subsequently captured with a net, only specimens collected by the first author were captured with portable insect traps.

Pinned specimens were photographed using a Canon 750D camera in combination with a Canon MP-E-65 mm lens. Slide-mounted genitalia were photographed using a Canon EOS 200D DSLR camera mounted on an Olympus CX-31 stereomicroscope. For each photograph, sets of 40–60 images were taken at different focal planes and focus-stacked using Helicon Focus 6. The final images were edited in Adobe Photoshop 2023.

Abbreviations of collections

NMPC National Museum of the Czech Republic
NP National Park

RESULTS AND DISCUSSION

Ascalenia viviparella Kasy, 1969 (Figs 1–6)

Records. Bohemia mer., Kestřany env., Řezabinec locality, 49°15'24"N, 14°05'14"E, 2.ix.2024, 1 ♂ (gen. prep.), F. Krampl leg., det. et coll. Moravia mer.: Podyjí National Park, Havraníky env., Havranické vřesoviště, 48°48'57"N, 16°00'06"E, 5.ix.2024, 1 ♂, 1 ♀, J. Liška leg. et det., coll. NMPC; Podmolí env., Kozí hřbet, 48°50'15"N, 15°55'44"E, 7.ix.2024, 1 ♂ (gen. prep. JŠ24081), 1 ♀ (gen. prep. JŠ24075), J. Šumpich leg. et det., coll. NMPC; Zlámaná skála, 48°49'28"N, 15°58'33"E, 7.ix.2024, 1 ♀ (photo JŠ24074), J. Šumpich leg. et det., coll. NMPC; Protected Landscape Area Pálava, Mikulov, Na cvičišti Nature Monument, 48°49'21"N, 16°40'39"E, 6.ix.2024, 1 ♀, 1 spec. observed, A. Laštůvka & Z. Laštůvka leg., A. Laštůvka det. et coll.

Remarks on specific characters. Identification of our specimens of *A. viviparella* was relatively easy, because the species is very characteristic both externally and in the genitalia of both sexes, and differs conspicuously from all its congeners. However, small differences were recognized in male genitalia of the now dissected Czech specimens (2 ♂♂) and those described and illustrated in the original description (Kasy 1969) and further in Koster & Sinev (2003). In both our males, the aedeagus has one conspicuous thorn dorsally in the middle and two smaller ones somewhat lateral to it (on both sides). Kasy (1969) mentioned and also figured only one thorn (besides the distal “thorn”, perhaps referring to the rather pointed and more strongly sclerotized tip of the aedeagus). Koster & Sinev (2003) gave in the middle two thorns of different lengths, as clearly shown in their illustration. Although these small differences are remarkable, they probably lack any significant taxonomic value. Moreover, the male genitalia of this species form a compact structure and therefore it is very difficult to arrange them well for adequate observation in lateral, ventral and dorsal views. Thus, the differences, if they actually exist, might represent or outline a geographical variability between eastern or south-eastern populations (the original description was from north-east Iran and south-west Afghanistan) and those inhabiting northern and western regions, e.g., Russia (Volga-Don region and East Caucasus region), Turkey, Crimea, and others.

Distribution. *Ascalenia viviparella* was described from north-east Iran, based on the female. The type series includes, among additional Iranian specimens of both sexes, also several

specimens from Afghanistan (Kasy 1969). Sinev (1980) published records from Mongolia, and subsequently also from Kazakhstan, Russia, Turkmenistan, and Uzbekistan (Sinev 1984). In Russia hitherto known from Volga-Don region and East Caucasus region (Sinev 2019). Recorded also in Armenia, Crimea (Koster & Sinev 2003, Lepiforum 2024), Turkey (Koçak & Kemal 2009), and Lithuania (Ivinskis et al. 2019).

Ecological requirements. Falkovitsh (1969) found caterpillars in shoots and fruits of *Calligonum junceum*, *C. setosum*, and *C. leucocladum* (Polygonaceae). The species has two generations, the caterpillar develops in late spring and in the second half of summer (Koster & Sinev 2003). These authors also state that the species is very abundant in desert and semi-desert habitats. Czech records are from in the climatically warm regions of southern Moravia and one record is from a relatively warm region of southern Bohemia. The habitats of the particular records are different: heath, forest-steppe, light forest, rocky steppe, and dry meadow near a pond. All Czech records were taken during a very short time interval in the first half of September. It can be assumed that the species was transferred to Central Europe by warm easterly winds. In the first days of September 2024, a pressure low was located over western Europe, and a large pressure high over northeastern Europe. This caused a relatively strong flow of very warm air from east or southeast into Central Europe, with wind speeds of 30–50 km/h at ground level and increasing higher. Daytime temperatures were quite unusual for the period, exceeding 30 °C (cf. In-Počásí 2024). Thus, it is very questionable whether the species has or will be able to establish permanently in Central Europe, as none of the previously known food plants (nor closely related plants) are found here.

The first occurrence of *A. viviparella* in Bohemia, Kestřany was recorded on the 2nd September (1 ♂) on a dark, nearly windless night, with a temperature of 21.5 °C at 21.00 CEST (Central European Summer Time). Some other migrant Crambidae also occurred: *Euchromius ocella* (Haworth, 1811) (1 ♀), *Palpita vitrealis* (Rossi, 1794) (1 ♂), and *Nomophila noctuella* (Denis et Schiffermüller, 1775) (2 ♂♂, 1 ♀). At the same site, five days later (7th September), under similar weather conditions, with temperature of 23 °C, a stronger influx of migrants was observed, but no specimens of *A. viviparella*: *E. ocella* (1 ♂, 1 ♀), *P. vitrealis* (9 ♂♂, 4 ♀♀) (both Crambidae), and *Helicoverpa armigera* (Hübner, 1808) (4 ♂♂, 4 ♀♀, Noctuidae).

Migrants were also recorded together with *A. viviparella* at the Zlámáná skála locality in Podyjí NP, namely *Dysgonia algira* (Linnaeus, 1767) (3 ♂♂, Erebidae) and *Spodoptera exigua* (Hübner, [1808]) (1 ♂, Noctuidae). Later (25.–26.x.2024) several migrants were also recorded at the Koží hřbet locality (the second locality for *A. viviparella* in the Podyjí NP), some of which were detected for the first time in this territory: *Plutella xylostella* (Linnaeus, 1758) (more than 40 specimens, Plutellidae), *Spoladea recurvalis* (Fabricius, 1775) (1 ♂, first record from Podyjí NP), *P. vitrealis* (1 ♂), and *Nomophila noctuella* (1 ♂) (all Crambidae). The relatively high number of migrants is undoubtedly also a consequence of favourable climatic conditions in the serotinal period in southern Moravia in 2024.

SOUHRN

Ascalenia viviparella Kasy, 1969 byla popsána na základě samice ze severovýchodního Íránu. Typová řada zahrnuje kromě dalších íránských exemplářů také několik exemplářů z Afghánistánu (Kasy 1969). Sinev (1980) publikoval nálezy z Mongolska a následně také z Kazachstánu, Ruska, Turkmenistánu a Uzbekistánu (Sinev 1984). V Rusku je dosud známý

z Povolží a východního Kavkazu (Sinev 2019). Zjištěn byl také v Arménii, na Krymu (Koster & Sinev 2003, Lepiforum 2024), v Turecku (Koçak & Kemal 2009) a v Litvě (Ivinskis et al. 2019).

Bionomii druhu zkoumal Falkovitsh (1969), který našel housenky ve výhonech a plodech kysleců *Calligonum junceum*, *C. setosum* a *C. leucocladum* (Polygonaceae). Druh má dvě generace, housenka se vyvíjí koncem jara a v druhé polovině léta (Koster & Sinev 2003). Tito autoři také uvádějí, že druh je velmi hojný na pouštních a polopouštních biotopech. České nálezy jsou lokalizovány v klimaticky teplých oblastech jižní Moravy a jižních Čech. Biotopy jednotlivých nálezů jsou různé – vřesoviště, suché trávníky (v okolí rybníku), lesostep, světlý les a skalní step. Všechny české nálezy byly pořízeny ve velmi krátkém časovém intervalu v první polovině září. Lze předpokládat, že do střední Evropy byl druh zanesen teplými východními větry. V prvních dnech září 2024 se nad západní Evropou nacházela tlaková níže a nad severovýchodní Evropou velká tlaková výše. To způsobilo poměrně silné proudění velmi teplého vzduchu z východu nebo jihovýchodu do střední Evropy s rychlostí větru 30–50 km/h při zemi, lokálně i vyšší. Denní teploty byly pro období poměrně neobvyklé, přesahovaly 30 °C (srov. In-Počasí 2024). Je přitom velmi sporné, zda se tento druh může (bude) trvale vyskytovat ve střední Evropě, neboť se zde nenachází žádná z dříve známých živných rostlin (ani blízké příbuzných rostlin).

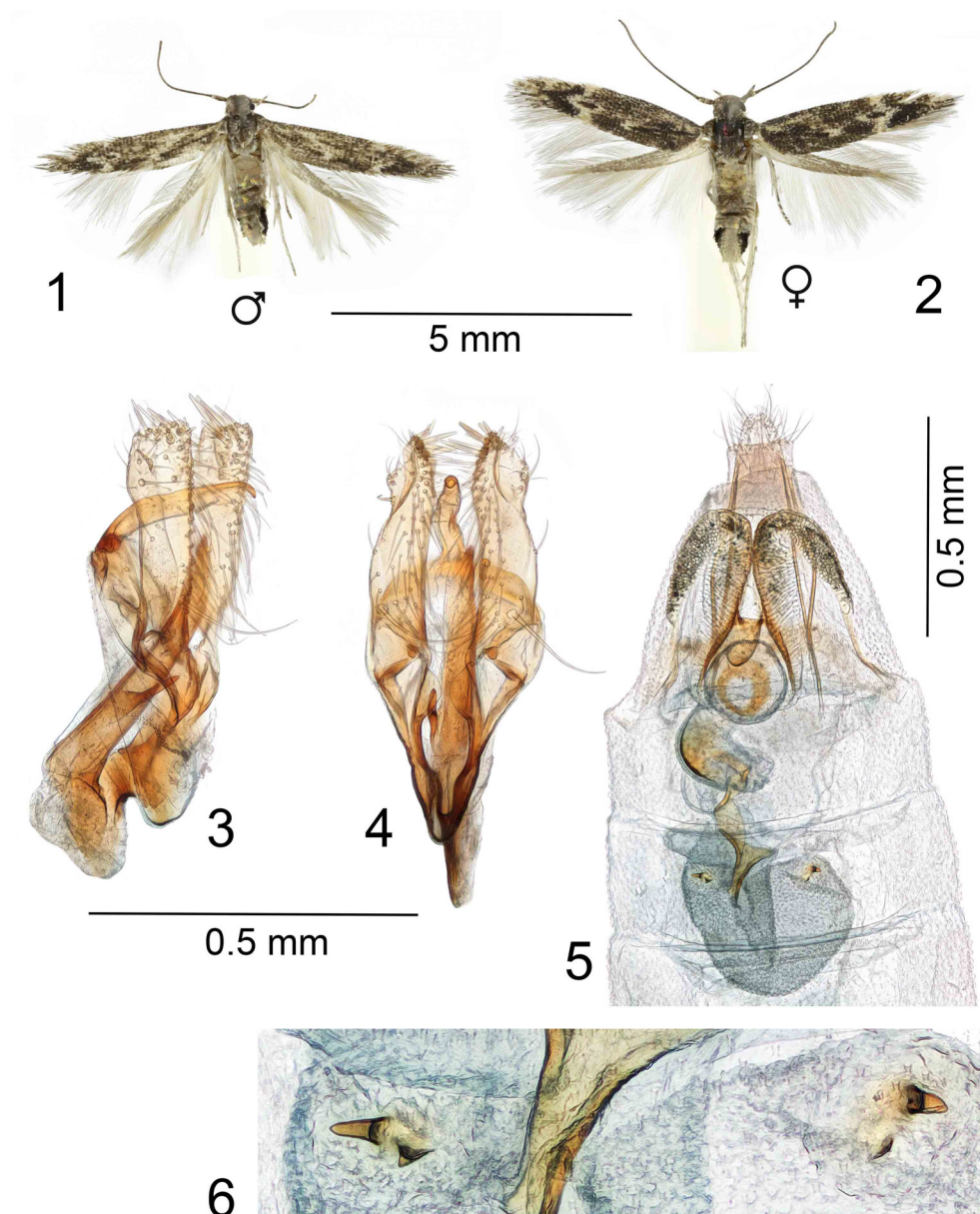
První výskyt *A. viviparella* v Česku byl zaznamenán 2. září u Kestřan v jižních Čechách za tmavé noci, téměř bezvětrí, s teplotou 21,5 °C ve 21:00 SELČ. Kromě tohoto druhu byli zaznamenáni i následující migranti z čeledi Crambidae: *Euchromius ocella* (Haworth, 1811) (1 ♀), *Palpita vitrealis* (Rossi, 1794) (1 ♂) a *Nomophila noctuella* (Denis et Schiffermüller, 1775) (2 ♂♂, 1 ♀). Na stejném místě, o pět dní později (7. září), za podobných povětrnostních podmínek, s teplotou 23 °C, byl pozorován silnější přilet migrantů, ale už žádný exemplář *A. viviparella*: *E. ocella* (1 ♂, 1 ♀), *P. vitrealis* (9 ♂♂, 4 ♀♀) (oba Crambidae) a *Helicoverpa armigera* (Hübner, 1808) (4 ♂♂, 4 ♀♀, Noctuidae).

V NP Podyjí na lokalitě Zlámaná skála byli spolu s *A. viviparella* zaznamenáni migranti *Dysgonia algira* (Linnaeus, 1767) (3 ♂♂, Erebidae) a *Spodoptera exigua* (Hübner, [1808]) (1 ♂, Noctuidae). O několik týdnů později (25.–26.X.2024) byli na lokalitě Kozi hřbet (druhá lokalita *A. viviparella* v NP Podyjí) zaznamenáni další migranti, z nichž někteří byli poprvé zjištěni na území NP Podyjí: *Plutella xylostella* (Linnaeus, 1758) (více než 40 ex., Plutellidae), *Spoladea recurvalis* (Fabricius, 1775) (1 ♂, první záznam z NP Podyjí), *P. vitrealis* (Rossi, 1794) (1 ♂) a *N. noctuella* (1 ♂) (vše Crambidae). Relativně vysoký počet zjištěných migrantů je nepochybně též důsledkem příznivých povětrnostních podmínek v serotinálním období v jižních oblastech Česka v roce 2024.

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Figs 1–6. *Ascalenia viviparella* Kasy, 1969, Czechia, Podyjí National Park, Koží hřbet. 1–2 – Voucher specimens, male (1) and female (2). 3–4 – Male genitalia in lateral view (3) and frontal view (4). 5 – Female genitalia. 6 – Detail of signa. Photographs by J. Šumpich.

Obr. 1–6. *Ascalenia viviparella* Kasy, 1969, Česko, Národní park Podyjí, Koží hřbet. 1–2 – Sbirkové doklady, samec (1) a samice (2). 3–4 – Samčí genitálie z bočního (3) a čelního pohledu (4). 5 – Samičí genitálie. 6 – Detail signa. Fotografie J. Šumpich.



Figs 7–8. Habitats in southern Moravia, where *Ascalenia viviparella* Kasy, 1969 was recorded. 7 – Podyjí National Park, Koží hřbet. 8 – Protected Landscape Area Pálava, Na cvičišti. Photographs by J. Šumpich (7) and Z. Laštůvka (8).
 Obr. 7–8. Stanoviště na jižní Moravě, kde byla *Ascalenia viviparella* Kasy, 1969 zaznamenána. 7 – Národní park Podyjí, Koží hřbet. 8 – Chráněná krajinná oblast Pálava, Na cvičišti. Fotografie J. Šumpich (7) and Z. Laštůvka (8).

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