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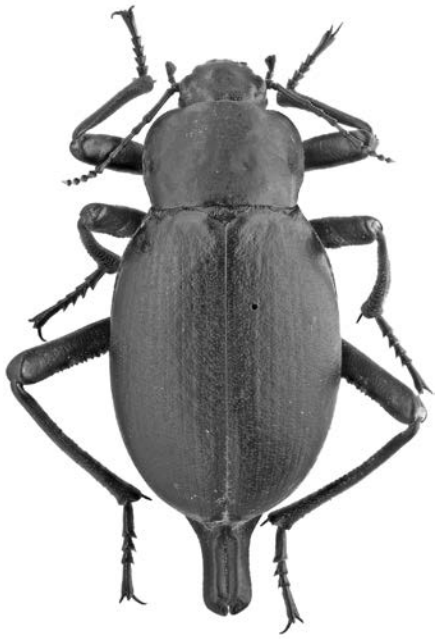

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The first record of *Ethmia discrepitella* (Rebel, 1901) (Lepidoptera: Depressariidae) from the Crimean Peninsula, with notes on its bionomy

Первое указание *Ethmia discrepitella* (Rebel, 1901) (Lepidoptera: Depressariidae) для Крымского полуострова с замечаниями по биологии

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Key words: Lepidoptera, Depressariidae, *Ethmia discrepitella*, Crimean Peninsula, new faunistic find.
Ключевые слова: Lepidoptera, Depressariidae, *Ethmia discrepitella*, Крымский полуостров, новая фаунистическая находка.

Abstract. The first record of *Ethmia discrepitella* (Rebel, 1901) from the Crimean Peninsula is presented. Early stages of the species were studied for the first time, and its larval foodplants and other details of bionomy were determined.

Резюме. Для Крымского полуострова впервые указывается *Ethmia discrepitella* (Rebel, 1901). Впервые исследованы преимагинальные стадии вида, установлены кормовые растения гусениц и другие особенности биологии.

Introduction

Over 80 species of the genus *Ethmia* Hübner, 1819 are known from the Palaearctic, represented by mesophiles and mesoxerophyles, chiefly associated with open landscapes. Their caterpillars are often boldly coloured and are usually associated with members of Boraginaceae, or, less frequently, Ranunculaceae [Zagulajev, 1981]. Until now, 7 species of this genus were known from the Crimean Peninsula: *E. fumidella* (Wocke, 1850) [Budashkin, 1987, 1998, 2004], *E. candidella* (Alphéraky, 1908) [Budashkin, 1987, 2004, 2006; Budashkin, Savchuk, 2008], *E. pusiella* (Linnaeus, 1758) [Budashkin, 1987, 2004], *E. terminella* T. Fletcher, 1938 [Budashkin, 1987, 2004], *E. aurifluella* (Hübner, 1810) [Zagulajev, 1981; Budashkin, Savchuk, 2012], *E. bipunctella* (Fabricius, 1775) [Budashkin, 1987, 2004, 2006; Budashkin, Savchuk, 2010a, b], and *E. haemorrhoidella* (Eversmann, 1844) [Budashkin, 1992, 2004]. All of the mentioned species are also present in the authors' collections.

Apart from this, there are published records for a further two species, the presence of which in the peninsula we could not confirm: *Ethmia nigripedella* (Erschoff, 1877) [Zagulajev, 1975, 1981; Danilevskij, 1980; Nupponen, 2015] with the closest records to Crimea coming from Orenburg Region of Russia [Nupponen, 2015] and *E. nigrimaculata* Sattler, 1967 [Zagulajev, 1981; Nupponen, 2015] which was reported as doubtful for Crimea. The closest records for the latter are from Tyva Republic (Russia) [Sinev, 2008].

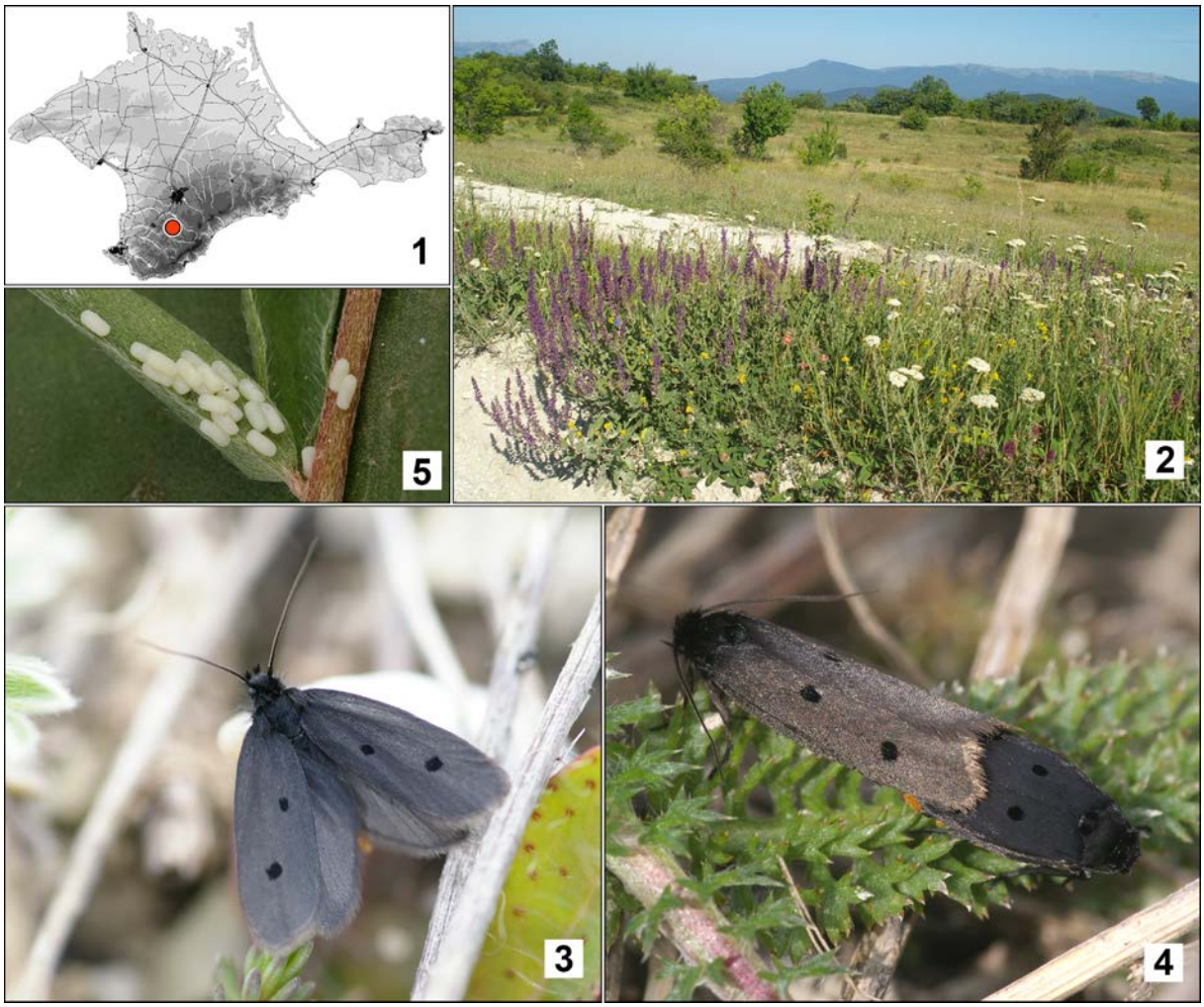
In 2013 we have discovered a population of *Ethmia discrepitella* (Rebel, 1901) in the south-west of the Crimean Peninsula (Fig. 1). Prior to this, it was known by a few records from Krasnodar, Saratov, Samara, Orenburg and Chelyabinsk regions and Barnaul [Shovkoon, 2008; Shovkoon, Sachkov, 2014; Nupponen, 2015]. The record is the westernmost one known and the first one for Crimea. Early stages of the species were studied by rearing, and larval foodplants, overwintering stage and other details of early stages were determined.

Material and methods

Material. *Ethmia discrepitella*: 11♂, 1♀, Crimean Peninsula, Bakhchisaray dist., 1.5 km NW of Nauchny settl., Sel-Buchra Mt., 600 m, 14.04.2013 (V.V. Savchuk, N.S. Kajgorodova).

During fieldwork on the eastern slope of the Sel-Buchra hill, several actively-flying males were captured with an aerial net, and a mating pair was found. After copulation, the ova were taken from the fertilized female. The successfully hatched caterpillars were placed in a breeding cage with numerous possible food plant candidates and reared to the adult stage.

Identification was carried out by means of wing characters and male genitalia. Genitalia were prepared by macerating in KOH, and examined with a binocular microscope MBS-9. Material is stored in authors' collections.



Figs 1–5. *Ethmia discrepitella* (Rebel, 1901), distribution, habitat, imago and ova.
1 – distribution in Crimea; 2 – habitat, June 2013; 3 – male, in the wild; 4 – copulating pair, in the wild; 5 – ova.
Рис. 1–5. *Ethmia discrepitella* (Rebel, 1901), распространение, биотоп, имаго и яйца.
1 – распространение в Крыму; 2 – биотоп, июнь 2013; 3 – самец в природе; 4 – копулирующая пара в природе; 5 – яйца.

Results and discussion

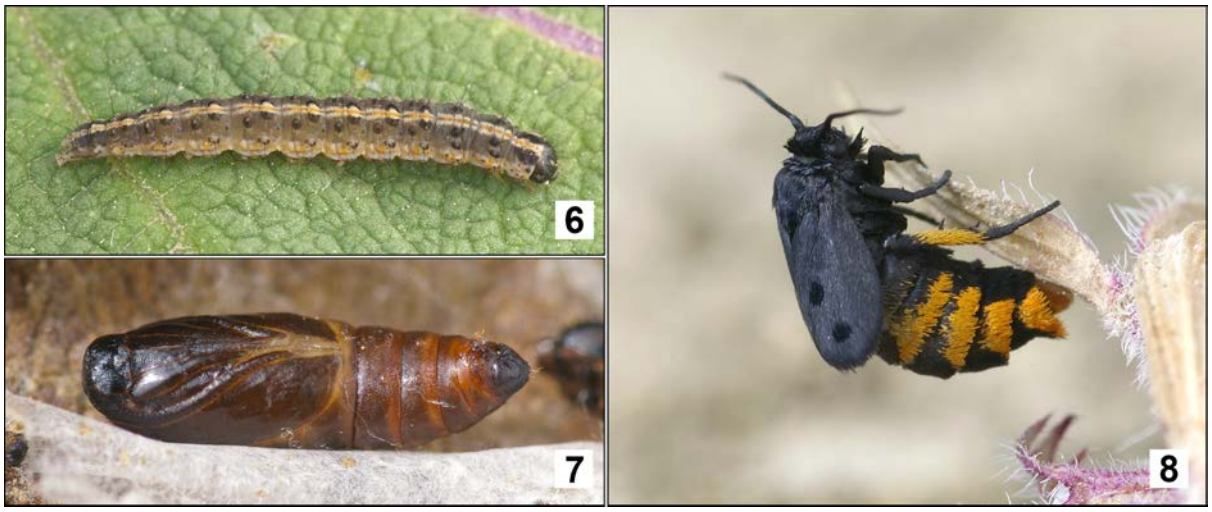
The locality of the population, Sel-Bukhra hill is located approximately 10 km east of Bakhchisaray, and 1.5 km nort-west of Nauchny settlement in the south-western part of the Crimean Peninsula. The hill is comprised of limestone, with its peak 658 m a.s.l. The slopes are mostly covered by a broadleaved woodland. The southern slope is steep and sliding, with a sparse xerophytic vegetation. The top of the hill is formed as a plateau, and is covered mostly by grassland.

The habitat of *Ethmia discrepitella* on the eastern slope of Sel-Buchra hill represents a small plot of a limestone steppe with a negligible amount of shrubs (Fig. 2). Vegetation consists of Salvia nemorosa L., Salvia aethiopis L., Thymus roegneri (K. Koch) C. Koch, Sideritis montana L. s. l., Teucrium chamaedrys L., Melampyrum arvense L., Medicago falcate L. s. l., Onobrychis miniata Steven, Dorycnium herbaceum Vill., Anthyllis sp., Potentilla recta L. s. l., Scabiosa argentea L., Galium verum L. s. l., Pimpinella tragium Vill., Eryngium campestre L., Jurinea sordida Steven, Achillea sp., Anthemis sp., and Hieracium sp., among other plants.

Males fly in the morning, between approximately 9:30 and 11:00 am. They fly low over the vegetation, occasionally settling on the higher dry plants (Fig. 3). We have noted two types of behaviour of resting males. When alarmed, they either fly away, or drop down into the vegetation. Later we found out the latter type of behaviour is also typical for the females.

While observing the flying males, one was noted to settle beside a female. Mating took place straight away (Fig. 4). After photography session, the mating pair was relocated into a breeding cage. Under indoor conditions, the mating ended on the afternoon of 17th April, thus continuing for more than three days.

For oviposition, the female was placed into a cage containing several plants collected at the locality of capture. Leaf of Onobrychis miniata Steven. was chosen. Oviposition took place between 17th April and 1st May, with most of the ova produced in the beginning. Altogether



Figs 6–8. *Ethmia discrepitella* (Rebel, 1901), larva, pupa and female.
6 – final-instar larva; 7 – pupa; 8 – female, ex ovo.
Рис. 6–8. *Ethmia discrepitella* (Rebel, 1901), гусеница, куколка и самка.
6 – гусеница последнего возраста; 7 – куколка; 8 – самка, выведенная из яйца.

89 ova were obtained. The ovum is oblong, 1–1.05 mm in length, with longitudinally-granular surface, white with a creamy-yellow tinge (Fig. 5). As it matures, it attains a rosy hue, later becoming dark-grey. The caterpillars hatched between 2nd and 10th May.

The caterpillars were offered a variety of plants mentioned above, which were found at the collecting locality. Of those, Thymus roegneri (K. Koch) C. Koch and Salvia nemorosa L. were accepted. The first plant is numerous in the locality and is likely to be its natural hostplant in the Crimean Peninsula. Apart from that, several plant species of the family Lamiaceae not found in the collection locality, were also presented to the caterpillars. Of those, Salvia nutans L. and Mentha spicata L. were accepted.

Additionally, Thalictrum minus L. was offered to caterpillars, as it was earlier suggested to be a hostplant [Shovkoon, 2008], but was absent from the collection locality. It was also accepted. Considering this, and the fact that moths were reported to be swept from this plant [Nupponen, 2015], it is likely to be a natural hostplant as well.

The caterpillars only feed on mature leaves, not accepting young leaves or flowers. Early instars skeletonize leaves from the upper surface. Later instars graze along the leaf edges or make irregular holes in the middle. Last instar caterpillars again skeletonize leaves, leaving only major veins. Feeding takes place at night. During the day, they hide among the leaf litter, where they construct hiding shelters by slightly binding debris together with silk. They are very mobile and wary, jumping off the foodplant when alerted.

Freshly-hatched caterpillar is approximately 2 mm long, and as fully-grown it is about 15 mm. Coloration is less bright than in some other *Ethmia* species. Dorsum is light-grey with a thin fulvous longitudinal stripe with lighter edges. Laterally it is light-beige, with a small fulvous blotch on each segment. Both thoracic and abdominal legs are light-beige. The body is covered by large black pinacula, each carrying a black seta. Head is black, also with black setae (Fig. 6).

Active feeding and growth continues until the end of July, when it slows down significantly. By this time the body length is approximately 13 mm.

Development concludes between the end of August and the end of October. Pupation takes place in leaf litter, in a thin white papery cocoon. Pupa is smooth, light-brown in colour, with three groups of hook-tipped setae at the rear end. Its length is 5.5–6 mm (Fig. 7).

Adults emerged after overwintering, between 4th and 8th April 2014. The peak of emergence was on 7th April with 2 males and 2 females. Altogether from the 89 ova obtained 4 males and 5 females were bred to adulthood (Fig. 8). Bred moths were smaller than those caught in nature.

Thus, the first population of *Ethmia discrepitella* was found in the Crimean Peninsula, which is the westernmost in the species' known range. Larval hostplants, overwintering stage and other details of development are determined for the first time. The use of the family Lamiaceae as host plants is documented for the genus *Ethmia* for the first time.

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