Published December 28, 1999

Klapalekiana, **35**: 157-159, 1999
ISSN 1210-6100

Notes on bionomics of *Gnorimoschema steueri* (Lepidoptera: Gelechiidae)

Poznámky k bionomii druhu *Gnorimoschema steueri* (Lepidoptera: Gelechiidae)

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Bionomy, host-plant, life history, larva, Lepidoptera, Gelechiidae, *Gnorimoschema steueri*, central Bohemia, south Moravia

Abstract. The development of larvae of *Gnorimoschema steueri* Povolný, 1975 collected in the Český kras karst in central Bohemia and near Brno in southern Moravia has been observed in laboratory conditions. The larvae are miners that feed on *Aster amellus* L. They form conspicuous whitish mines in the ground leaves of the host plant and hide in a tubelet that is about 1-2 cm long and built with silk and small soil grains. Larvae are capable of transfer to nearby plants if the conductive tissues of the host plant has been destroyed. The pupal cocoons are about 8 mm long and 2.5 mm in diameter, built just below the soil surface and covered by sand grains. The species inhabits rocky limestone steppes on edges of thermophilous oak forests with sufficiently dense populations of *Aster amellus*.

The type material of *Gnorimoschema steueri* Povolný, 1975 comes from Germany (Thuringia, Blankenburg Muschelkalk, type locality; Porzmühle) and Italy (the Piemonte Mts, Segurét, 1900 m a.s.l.). Other records are known from Austria (Burgenland), France (Alpes Savoie - Vanoise) and Slovakia (The Carpathians - Spiš). All specimens were caught as adults. The moths were found on sunny slopes with a calcareous substrate during August and at the beginning of October (Povolný 1975, 1992). The bionomy of this species has been unknown so far. Following the bionomics of other members of the tribe Gnorimoschemini, the species was assumed to feed on some plant of the family Asteraceae (Povolný 1990). The following data on the bionomics including the host plants were briefly mentioned in Novák et al. (1997). They are discussed in detail in the present article.

During the field work on the Vysoká stráň hill (faunistic grid mapping square code 6050) in the Český kras (= Bohemian karst) protected landscape area on 20.v.1995 I found a ground leaf of *Aster amellus* with a conspicuous whitish mine in a rocky-limestone steppe on an edge of a thermophilous oak wood with a well-developed cover of *A. amellus*. Other numerous mines were found near the village Srbsko (6050) in a similar habitat on 4.vi.1995. About 30 plants with mines containing yellowish, ca 7-8 mm long larvae were collected and reared in capture.

The larvae formed large, flat, whitish mines in leaf blades (Fig. 1). The mines were communicated with the petiole and the root neck by a narrow gallery. The larvae also formed a narrow, 1-2 cm long hiding and resting tubelet made from silk and small lumps of soil closely below or on the soil surface at the base of the host plant.

The last instar larvae has a pale honey-yellow body without colour patterns and with visible viscera (tracheae, muscular tissues, intestine). The head is amber yellow; stigmata, papillae and hooks of abdominal legs are rusty-brown. Setae are colourless and transparent.

The feeding of the last instar larvae resulted in the death of the host plant due to the destruction of conductive tissues. During their development, the larvae changed mines within one plant several times, and were capable to pass to another plant nearby if the host plant was too small and/or destroyed. After the feeding on about 20.vii.1995, the larvae built pupal cocoons that are about 8 mm long and 2.5 mm in diameter, situated just below the soil surface and covered by sand grains. From the 30 reared larvae, only 1 ♂ (7.viii.1995) and 1 ♀ (9.ix.1995) emerged. All other specimens died as larvae.

I collected additional larvae on the same host plant at the same locality near the Srbsko village in the Český kras karst and at a locality in Brno – Hády (6766) that I visited on 10.vi. and 16.vi.1997 and 30.iv.1996, respectively. Despite the effort to provide optimal conditions for the



Fig. 1. The leaf mine (a) and the hiding tubelet (b) of the larva of *Gnorimoschema steueri* on a plant of *Aster amellus*. Orig. G. Elsner.

Obr. 1. Listová mina (a) a úkrytová trubička (b) larvy *Gnorimoschema steueri* na rostlině *Aster amellus*. Orig. G. Elsner.

development of larvae, only a few adults emerged (Srbsko: 1 ♂ 18.viii., 1 ♀ 29.viii.1996, 1 ♂ 13.viii., 2 ♀♀ 11.viii., 1 ♀ 13.viii., 1 ♀ 23.viii.1997; Brno – Hády: 1 ♂ 20.viii.1996; all specimens deposited in author's collection and in the collection of G. Elsner, Prague). Larvae and probably even pupae seem to be very sensitive to microclimatic conditions, which are very difficult to ensure in laboratory.

Despite the failure to rear more specimens to adult stage, the results presented in this paper give an important information on the life cycle of *G. steueri*.

ACKNOWLEDGEMENT. I am obliged to my colleague Gustav Elsner for his drawing of the host plant.

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SOUHRN

Gnorimoschema steueri Povolný, 1975 byla chována v zajetí ve stadiu housenek nalezených na svazích Vysoké stráně poblíž Srbska v Chráněné krajinné oblasti Český kras ve středních Čechách, a v Brně – Hádech na jižní Moravě. Jako živná rostlina byla zjištěna hvězdnice chlumní (*Aster amellus* L.). Byl pozorován vývoj housenek v laboratorních podmínkách. Housenka vytváří v listových čepelích nápadné bělavé ploché miny a ukrývá se v rource vytvořené při bázi rostliny z přediva a hrudek půdy (viz obr. 1). V případě, že žír housenky vede k odumření rostliny, je housenka schopna přejít na jinou rostlinu v blízkém okolí. Kuklí se mimo tento úkryt v zemním kokonu velikém 8 x 2,5 mm. Druh obývá v Českém krasu vnější okraje šípákových doubrav a proniká zřejmě i do volné květnaté stepi s bohatými porosty živné rostliny.

Nálezy jsou významné též z hlediska faunistického. Potvrzují výskyt tohoto druhu ve středních Čechách a na jižní Moravě.