*CHOREUTIS NEMORANA* (HÜBNER, 1799) (LEPIDOPTERA: CHOREUTIDAE) – FIRST RECORD IN BULGARIA

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**Abstract:** *Choreutis nemorana* was found on *Ficus carica* in Plovdiv region, Bulgaria in 2016. This is the first record reported from Bulgaria. Distribution data, morphological, biological data and life history of the species are presented.

**Key words:** *Choreutis nemorana; Ficus carica, Bulgaria*

**INTRODUCTION**

On 30 September 2016, a damaged fig tree (*Ficus carica* L.) was noticed in Plovdiv region. The leaves looked skeletonized and whitened even from a distance. On the skeletonized leaves some caterpillars, pupae in white cocoons and many empty pupae in cocoons were remarked. We took some caterpillars and cocoons and kept them in the lab. Two larval specimens which pupated on 2 October emerged on 20 and 23 October respectively. The moth from pupa emerged between 15 and 19 October. This year (2017) at the end of summer on the same fig tree and on two others nearby were observed the same damage. The moths emerged in the end of October. It is the most likely that those moths are from second generation. Probably damages from the first generation were minor and stay unremarkable. The only species that has larvae specialized in eating the leaf tissue on a fig tree is *Choreutis nemorana* (Hübner, 1799), which is not listed in Bulgaria, this appears to be the first report of this species.

**DISTRIBUTION**
C. nemorana (Hübner, 1799) also known as a fig leaf roller or fig-tree skeletonize moth. The species was described by Hübner, 1799. Synonym name is Tortrix nemorana Hübner, 1799. This species is commonly distributed wherever there are Ficus carica trees - the Mediterranean area, Canary Islands and Madeira, North Africa, Asia Minor, Iran, the Caucasus, Georgia, Azerbaijan, Armenia and Uzbekistan (Diakonoff, 1986). C. nemorana has also been recorded from Albania, Austria, Belgium, Bosnia and Herzegovina, Croatia, Cyprus, France (incl. Corsica), Germany, Gibraltar, Greece (incl. Aegean Islands, Crete, Dodecanese Islands), Hungary, Italy (incl. Sardinia and Sicily), FYRMacedonia, Malta, Portugal, Romania, Spain (incl. Balearic Islands), Switzerland, Turkey, and Ukraine (incl. Crimea) (De Prins, De Prins, 2014). The pest has expanded its distribution since 2005-2006 to the northern countries where the F. carica is planted for ornamental purposes. The first northern record was reported from Austria in 2004 (Embacher et al., 2004; Fauster, 2016), then from Germany in 2006 (Bryner, 2007; Gaedike, 2008), Switzerland in 2008 (Christian et al. 2008), Belgium in 2009 (De Prins et al., 2009), Hungary in 2012 (Fazekas, 2015; Szaboky, 2015). The recent records are from British Island in 2014 (De Prins, De Prins 2014), the Netherlands in 2014 (Vosser, 2015) and Slovakia in 2015 (Lendel, 2017). The most northerly latitude where the C. nemorana was found is London 51.3031N 0.0949W (De Prins, De Prins 2014). The presence of the species in these areas likely confirms the assumption of potential changes in distribution of the moth related to global warming.

DAMAGE

C. nemorana exclusively associated with F. carica and is a leaf tissue feeder (Mifsud et al., 2012). Fig moth is considered a minor pest on F. carica that attacks almost exclusively to the abandoned fig trees. It is rarely being detected in the fig crops. Nevertheless C. nemorana can
also be a destructive pest of fig tree as it is in Guilan province Iran (Chitgar et al., 2014) and in Tunisia (Zouba, 2010). The damage is caused by the larva (caterpillar). The young caterpillar eats upper parenchymal cells but leaves the underside of the leaf untouched. It is protected by a web of silken threads. Later larval instars feed on upper and under parenchymal cells leaving the veins intact, where the pest name is skeletonized moth. They often turn down a leaf’s edge and feed under this shelter (Fig. 1). Mature larvae pupate on the upper side of the leaf in a white silken cocoon. The larvae can cause distortion, discoloration of the leaves and even extensive defoliation. At times of severe infestation the damage on fig leaves may significantly reduce photosynthesis, which can lead to significant losses (Chitgar et al., 2014).

**MORPHOLOGY**

The adult insect is a small moth that has a wingspan 16-20 mm (Fig. 2). The body is coloured in light grayish on the ventral part to brown on the dorsal part. The head is light grayish. The forewings are almost square, have mainly an orange-brownish ground colour with a very narrow silver-grey transverse line and a rather broad postdiscal transverse band of the same colour. The hindwing is brown and has some yellowish to golden spots in the discal area and along the margin. Eggs are spherical, cream white colour, 0.5 mm in diameter. Larvae are light green with numerous black verrucae on thorax and abdominal segments; the head is yellowish brown marked with black (Fig 3). Fully grown larvae are 15 mm long. The pupa is dark brown, and 6-7 mm long. The cremaster is formed from two hard thorns sub dorsal located with a crooked tip like a hook (Fig. 4).

**BIOLOGY**

Overwintered moths appear in the early spring and deposit eggs on the upperside of the leaves. Larvae feed and grow for a few weeks and then pupate. The adults from first generation
emerge in July–August. The moths of the second generation flight in September–October. The adults of this autumn generation hibernate in plant debris.

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REFERENCES


Fig. 1. *F. carica* tree damaged by *C. nemorana* in Plovdiv region (42.08167N 24.70416E), Bulgaria during 2016.

Fig. 2. *C. nemorana* adult emerged on 20 October 2016.

Fig. 3. *C. nemorana* larva - 30 September 2016.
Fig. 4. Pupae, cremaster.

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