

The New Pest *Cydalima perspectalis* (Walker, 1859) (Lepidoptera: Crambidae) in Turkey

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Abstract: *Cydalima perspectalis* (Walker, 1859) is an invasive alien species of East Asia origin. In Europe, it was reported for the first time in 2007 in Germany. Following years, the *Cydalima perspectalis* (Walker, 1859) continued to spread in Germany and nearby countries. The species has now also reached the European side of Istanbul in Turkey. In this research, *C. perspectalis* distribution and host plants were investigated in Istanbul.

Key words: *Cydalima perspectalis*, crambidae, alien species, *Buxus sempervirens*, Turkey, Istanbul

INTRODUCTION

Cydalima perspectalis (Walker, 1859) is an invasive alien species of East Asia origin. The natural range of the *C. perspectalis* is the humid subtropical regions of East Asia, India, China, Japan, Korea and Russian Far East (Mally and Nuss, 2010). It has been identified as the most important pest of *Buxus*. *Cydalima perspectalis* (Walker, 1859) is also known by the synonym *Diaphania perspectalis*, *Glyphodes perspectalis*. In Europe, it was reported for the first time in 2007 in Germany (May, 2007 in the city of Weil am Rhein and its surroundings).

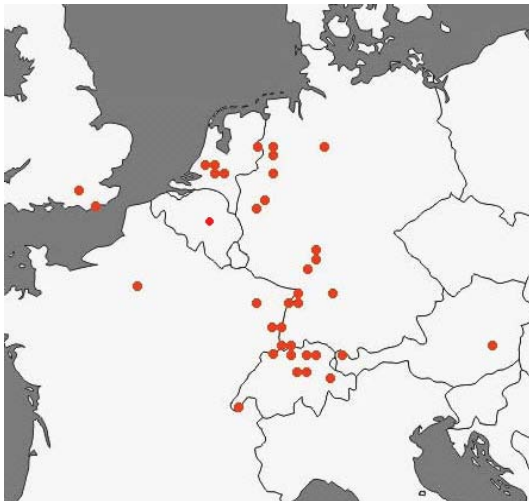


Fig. 1: Distribution of *Cydalima perspectalis* in Europe
(Van der Straten and Muus, 2010)

Following years, the *Cydalima perspectalis* (Walker, 1859) continued to spread in Germany and nearby countries like Switzerland in 2007, United Kingdom in 2008, Netherlands in 2008, France in 2008, Austria in 2009 and Belgium in 2010 (Fig. 1) (Van der Straten and Muus, 2010). *Cydalima perspectalis* larvae feed on leaves and shoots while severe infestations can lead to almost complete defoliation of the *Buxus*. The species has now also reached the European side of Istanbul in Turkey.

MATERIALS AND METHODS

The adult *C. perspectalis* were identified in the campus of Istanbul University, Faculty of Forestry for the first time on 15th June, 2011. From that date, *Buxus* sp. were observed in the campus. Larvae and pupae were seen on *Buxus sempervirens* and *B.s. cv. aureavariegata* on July 25th and they were brought to the laboratory for examinations. The adult *C. perspectalis* began to be seen both in the campus and laboratory on July 30th. The presence of these pests and the damaged host plant were investigated between June 20th and July 30th in parks and gardens in Istanbul.

RESULTS AND DISCUSSION

The eggs are translucent and are laid in a flat sheet, overlapping each other in clusters of about 8-18 eggs on the underside of the box leaves. The average egg size is 1 mm (Fig. 2a). Mature larvae retain the green ground colour to their bodies and develop a striking of thick black and thin white stripes along the length of the body with

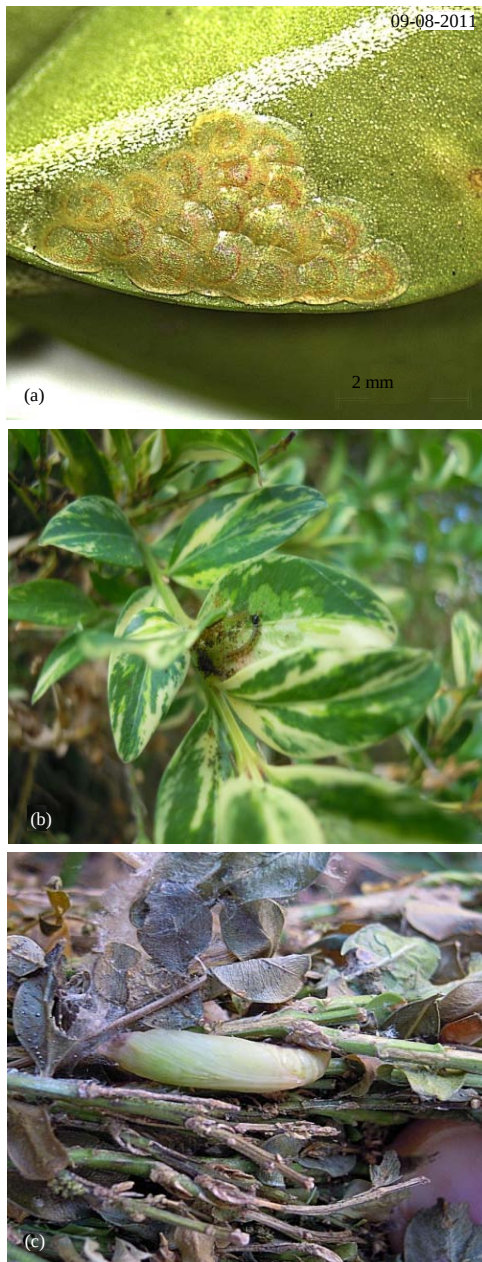


Fig. 2: a) *C. perspectalis* eggs; b) larvae and c) pupae

large black dots outlined in white on the dorsal side (Fig. 2b). The average length of mature larvae was measured 3.8 cm (number of sample, $n = 30$). Pupae is initially green with dark stripes on the dorsal surface while older pupae turn brown. It is concealed in a cocoon of white webbing spun among the leaves and twigs (Fig. 2c). The average length of pupae was measured 1.9 cm ($n = 30$). The adults have a thick dark brown border of uneven width around the edges of the white colored wings.

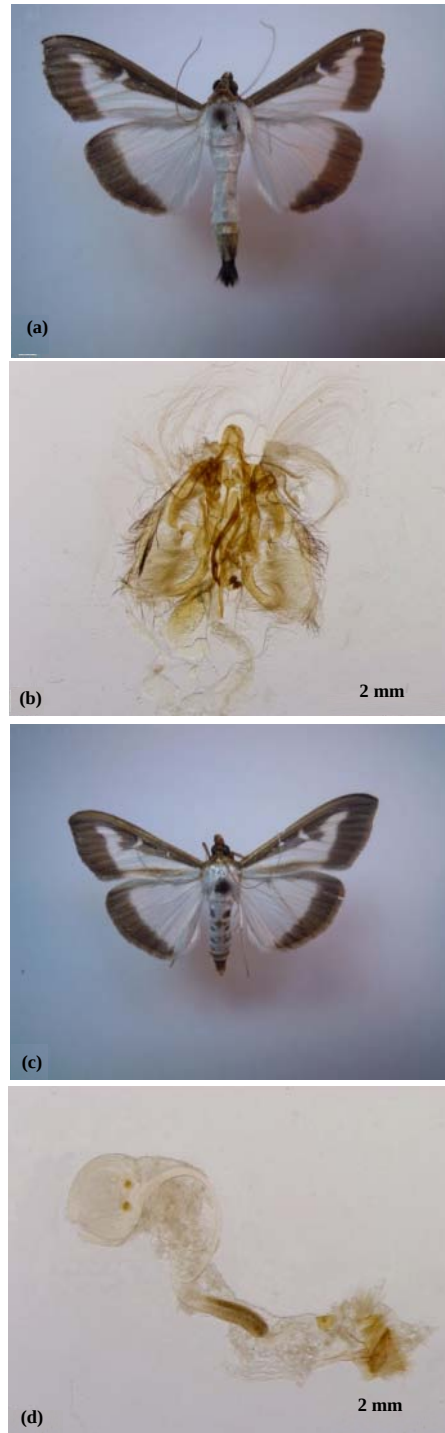


Fig. 3: *Cydalima perspectalis* adults; a) male; b) male genitalia; c) female and d) female genitalia

The forewings have white extension to the central white portion of the wing which extends into the brown border towards the front of the wing (Fig. 3). The average

adult wingspan was measured 3.8 cm (n = 30). No significant difference was found between female and male wingspan. *C. perspectalis* was identified in Sariyer district (Bahcekoy, Emirgan, Haciosman, Yenikoy, Zekeriyakoy) by the survey that took place on June 20th and July 30th in the parks and gardens in Istanbul. It was determined that damage was strong on *Buxus* sp., in Sariyer district (Fig. 4 and 5).



Fig. 4: *B. sempervirens* affected by *C. perspectalis* (Sariyer district)

During the investigation, *C. perspectalis* host plants were examined and it was observed that only *B. sempervirens* and *B.s. cv. aureavariegata* were damaged.

Cydalima perspectalis has been reported for the first time in the European side of Istanbul in Turkey while the pest has been effective particularly at Istanbul's European side in Sariyer district.

Cydalima perspectalis was not detected in the Anatolian side of Istanbul. However, it is possible that the adult *Cydalima perspectalis* can fly and pass to Anatolian side and cause damage in *Buxus* sp., in a short while *Cydalima perspectalis* caused severe damage on *Buxus* sp., in parks and gardens in Sariyer district as a result of extensive use of this plant in these areas. *Cydalima perspectalis* cause serious damage on *Buxus* sp.

The plant loses all the leaves in a short period. There are two natural *Buxus* species (*Buxus balearica*, *B. sempervirens*) in Turkey (Yaltirik and Efe, 2000). *Cydalima perspectalis* is a new harmful species that pose a great threat to both natural *Buxus* sp. and also the ones used in the parks and gardens.

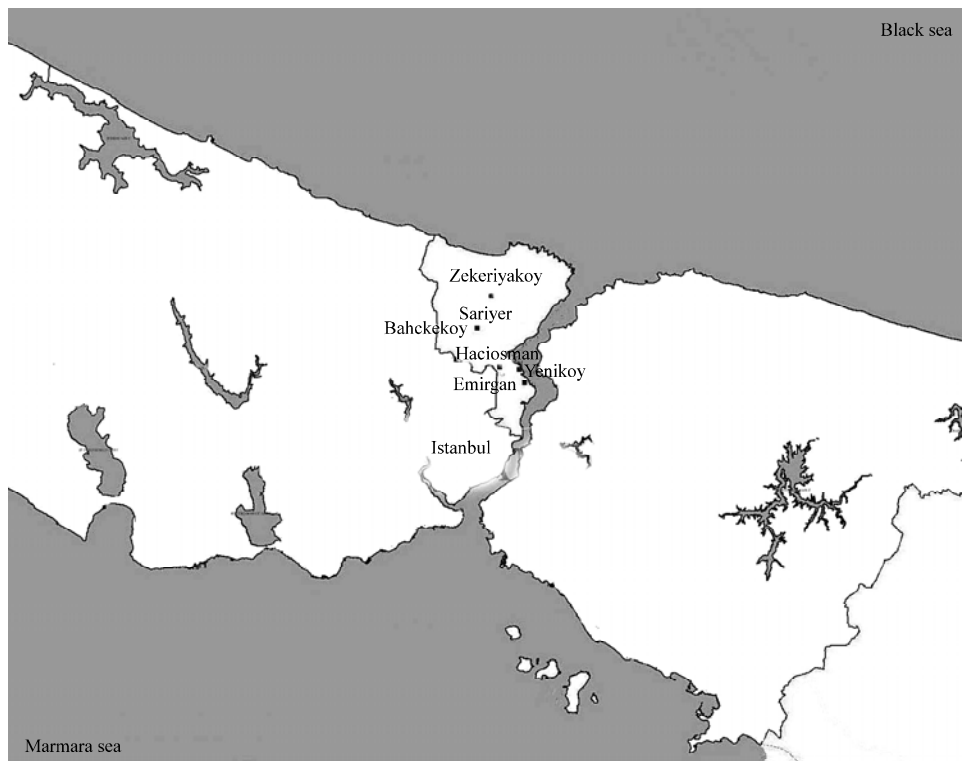


Fig. 5: Distribution of *Cydalima perspectalis* in Istanbul

CONCLUSION

It was reported that *Cydalima perspectalis* cause damage on *Buxus microphylla*, *B. sempervirens*, *B. sinica*, *Euonymus japonicus*, *E. Alata*, *Ilex purpurea* (Van der Straten and Muus, 2010; Kawazu *et al.*, 2007, 2010; Maruyama, 1993; Korycinska and Eyre, 2009). According to this study investigation, *C. perpectalis* damaged only *B. sempervirens* and *B.s. cv. aureavariegata* at Istanbul's European side. It is possible that *Cydalima perspectalis* has entered Turkey from China and Europe on imported plants.

There is not enough information about the biology of *Cydalima perspectalis*. It is reported to be 2 or 3 generations per year in Germany (Korycinska and Eyre, 2009). Detailed studies are required about the biology, distribution, chemical and biological control methods of *Cydalima perspectalis* in Turkey.

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