The box tree moth, *Cydalima perspectalis* Walker 1859: a real threat in Catalonia

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**INTRODUCTION**

The box tree moth, *Cydalima perspectalis*, is a lepidopteran natural from the East of Asia. This insect lives and feeds on the leaves of different species of *Buxus* genera, causing a severe defoliation in ornamental and wild plants. In recent years, *C. perspectalis* has become an invasive specie in Europe. The first detection in Catalonia was on July 2014 in Besalú (La Garrotxa) and his distribution is expected to increase considerably in this area.

**OBJECTIVES**

- Evaluate the current situation of *C. perspectalis* in Catalonia.
- Determine the possible damage in this territory.
- Develop an integrated pest management to control invasion.
- Design an informative sheet of *C. Perspectalis* to inform population.

**CURRENT DISTRIBUTION IN EUROPE**

*C. perspectalis* was first reported in Germany in 2007. The invasion occurs as a consequence of *Buxus* transportation (Wan et al. 2014) and since then it has been detected in some other European countries including France, Italy and Turkey. The first detection in the Iberian Peninsula occurs on September 2013 in Cantabria, and his arrival to Catalonia took place in Besalú on July 2014 (La Garrotxa). The box tree moth has been reported in other towns of Catalonia, such as Figueres (Alt Empordà) or Santa Coloma de Farners (La Selva). It seems likely that in the present day the distribution in Catalonia has increased.

**DESCRIPTION AND CYCLE**

Larvae are green with wide black and thin white lines along the length of his back; white tubercles are black outlined in white (Fig. 1 and 8). The head is black throughout all stages. The rang of stages are 3-7 and the average length for mature larvae is 3.8 cm. *C. perspectalis* overwinters as larva in a cocoon spun, normally in the third stage.

The metamorphosis process takes 2-4 weeks. Pupae are green during the first few days while older pupae become brown (Fig. 2 and 3). Average length of adults wingspan is 3.8 cm. There are 2 varieties: the most common is iridescent white with a wide brown border around the edges (Fig. 4 and 9) and the second one is completely brown. Both varieties show a distinctive spot in the forewing. Females can lay up to 700 eggs; which are placed in clusters of 5-20 on *Buxus* leaves. In Asia they are able to complete 5 generations per year (Leuthardt & Baur 2013), but the average number in Europe is 2-3.

**FUTURE PROSPECTS**

The most important factor to define the potential distribution of *C. perspectalis* is temperature. Northern areas are too cold (cold stress threshold determined in -20 °C) and are not expected to be invaded. Areas where summer temperatures reach 40 °C are also not suitable.

The climate in Catalonia is particularly appropriate for the spread of *C. perspectalis*, and the presence of both natural and ornamental box makes the invasion very likely.

**PREVENTIVE MEASURES**

- Border control and knowledge of the origin of *Buxus*.
- Environmental education and social awareness.
- New technological applications for detection.

**CONTROL AND ERADICATION METHODS**

- Physical control: water propulsion, elimination of infected *Buxus*, etc.
- Chemical control: piretroids, fipronil, spinosad, pheromone traps, etc.
- Biological control: not considered in a short term.

**IN CASE OF DETECTION PLEASE CONTACT THE**

“Servei de Sanitat Vegetal”
(Generalitat de Catalunya)

**CONCLUSIONS**

- Catalonia is a potential territory for the establishment and expansion of *C. perspectalis*.
- Ornamental *Buxus* is expected to suffer the most damage.
- Prevention should be the basis of integrated pest management.
- There is still time to establish protocols to significantly reduce the impact.

**BIBLIOGRAPHY**


Image of phoronic was provided by Emili Bassols i Isamat (Parc Natural de la Zona Volcànica de la Garrotxa).