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Tracing the invasion pathways of the highly invasive box tree moth, *Cydalima perspectalis*, in Europe : a phylogeographic approach.

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Ornamental plant trade is a major pathway for alien phytophagous insects entering Europe, with an ever increasing number of these species originating from Asia. A notorious example is the box tree moth, *Cydalima perspectalis*, native to China, Korea and Japan, which was first recorded in 2007 in Europe. Since then, it quickly spread across Europe and to the Caucasus region. One decade after its first record in Germany, this defoliator pest is currently causing a lot of damage on ornamental and natural box (*Buxus*) plants in 27 countries. The trade of ornamental box plants between Europe and China has been hypothesized as the invasion pathway of the insect while the trade between European countries could explain its fast expansion. To disentangle the invasive pathways of the box tree moth, samples of *C. perspectalis* were collected in the native range of China and Korea and so far in 17 invaded countries of Europe. A portion of the mitochondrial genes Cytochrome Oxidase I and II has been sequenced from individuals of native and invaded areas. This preliminary analysis revealed a total of 8 haplotypes in the native region. Among them, 7 were observed in China and 2 in Korea (with one shared with China). In Europe 4 haplotypes, of which 2 being mostly represented, were found so far in the invasive populations sampled. Though preliminary, our results suggest a Chinese origin supported by the fact that all these haplotypes were also found in China. However, the low number of Asiatic samples already analyzed coupled with the lack of genetic structure in the native range, did not yet allow to define precisely the potential donor regions. The genetic diversity observed in Europe also suggests multiple introductions events for the box tree moth. Nevertheless, a wider sampling in the native area in concert with the application of microsatellite markers will help to better understand the invasion pathways of this pest as well as its rapid spread into Europe.

Keywords : Invasion, Insect, *Cydalima perspectalis*, Ornamental plant trade, *Buxus*, Phylogeography, Multiple Introductions