



Pine processionary moth, *Thaumetopoea pityocampa* (Lepidoptera: Notodontidae)

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2016 XXV International Congress of Entomology

Orlando, Florida, USA | September 25-30

0495: Pine processionary moth, *Thaumetopoea pityocampa* (Lepidoptera: Notodontidae)

Monday, September 26, 2016

02:00 PM - 02:15 PM

📍 *Convention Center - Room W224 A*

Native of the Mediterranean basin, pine processionary moth (*Thaumetopoea pityocampa*) is expanding its range northwards because of warmer winter temperatures increasing larval survival. Although it is a major forest pest with irritant larvae, moth knowledge remained scattered between countries and disciplines. Combining all knowledge and developing adapted management strategies has become an important challenge since the IPCC considers the moth as one of the few insects for which causal relationships between climate change and range expansion were demonstrated.

European and French projects developed since 2000 have taken a multidisciplinary approach, incorporating entomology, medical, and veterinary science, to study the natural history, genetics, impact on all organisms (tree, insect biodiversity, humans, and animals), risk modelling, and management of this pest.

We mapped the present insect range at the European scale as a baseline for assessing precisely its future expansion. Models revealed that most of western and central Europe is already favorable to establishment but colonized at only ca. 5 km/year due to the limited flight capabilities of females. However, convergent genetic and ecological studies showed that isolated colonies observed beyond the front edge mainly result from long-distance jumps related to the trade of mature ornamental trees or pupae being moved with the accompanying soil. Isolated pine trees in semi-urban areas (artificial heated-islands) act as corridors to facilitating expansion. This species is thus turning into an urban sanitary threat and health concerns associated with this invasion led to proposed new management tools based on a 'slow the spread' strategy.

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