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Pine sawyer beetle, *Monochamus galloprovincialis* (Coleoptera: Cerambycidae)

Géraldine Roux, Julien Haran, Alain Roques, Christelle Robinet

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**2016 XXV International
Congress of Entomology**

Orlando, Florida, USA | September 25-30

Monday, September 26, 2016

03:45 PM - 04:00 PM

📍 *Convention Center - Room W224 A*

Species in the worldwide genus *Monochamus* have drawn particular attention since they vector the pine wood nematode (*Bursaphelenchus xylophilus*, PWN), responsible for pine wilt disease. Although a secondary pest in its native North America, PWN has devastated conifer forests in invaded regions of eastern Asia, and more recently of southwestern Europe, incurring huge management costs to attempt eradication which remains unsuccessful. So far, only one native European species, *M. galloprovincialis*, has been proven to have developed a novel association with the invasive PWN. This oligophagous species has a wide palearctic distribution clustered into two main evolutionary lineages and presents a large host-range in the genus *Pinus*. The insects insure transportation of the dispersal form of the nematode in their trachea and the transmission to a new host tree occurred during its two periods of flight in summer, i.e. mostly during the maturation feeding, but also during the oviposition. A spread model was developed to figure out the potential spread of PWN-infected beetles over space and time. *M. galloprovincialis* populations differentiated in five groups which likely resulted from distinct postglacial recolonization routes and barriers to gene flow. Although adults have strong flight ability, mountain ranges and high pine densities may act as natural barriers to spread. Conversely, low pine densities constitute corridors, suggesting that open areas can enhance dissemination of PWN throughout the Iberian Peninsula and potentially the rest of Europe. Future strategies aimed at preventing disease expansion (buffer zones, clear cut belts) must take these results into account.

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Authors

[Géraldine Roux](#)

INRA

[Julien Haran](#)

INRA

[Alain Roques](#)

INRA

[Christelle Robinet](#)

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