Assessing potential expansion of the Pine Wood Nematode (Bursaphelenchus xylophilus) from the spatial genetic structure of the vector (Monochamus galloprovincialis)

Julien Haran, Alain Roques, Geraldine Roux-Morabito

▶ **To cite this version:**

Julien Haran, Alain Roques, Geraldine Roux-Morabito. Assessing potential expansion of the Pine Wood Nematode (Bursaphelenchus xylophilus) from the spatial genetic structure of the vector (Monochamus galloprovincialis). Pine Wilt Disease Conference 2013, Julius Kühn-Institut. DEU., Oct 2013, Braunschweig, Germany. 142 p., 10.5073/berjki.2013.169.000 . hal-02746336

HAL Id: hal-02746336
https://hal.inrae.fr/hal-02746336v1

Submitted on 3 Jun 2020

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Haran J, Roques A, Roux G, Assessing potential expansion of the Pine Wood nematode (*Bursaphelenchus xylophilus*)from the spatial genetic structure of the vector (*Monochamus galloprovincialis*). In: Schröder, T. (ed.), Pine Wilt Disease Conference 2013, pp. 13, Braunschweig, ISSN: 1866-590X

Assessing potential expansion of the Pine Wood Nematode (*Bursaphelenchus xylophilus*) from the spatial genetic structure of the vector (*Monochamus galloprovincialis*)

Haran J, Roques A, Roux G

INRA Orléans, URZF- 2163 Avenue de la Pomme de Pin 45160 ARDON, France
Email: julien.haran@orleans.inra.fr

Monochamus galloprovincialis (Coleoptera, Cerambycidae) is the main factor involved in the natural spread of the Pine Wood Nematode (PWN), a serious pest for pine forests. Since its introduction in Portugal, the PWN has rapidly expanded its range to a large part of the country and will probably keep expanding to the rest of Europe. Estimation of dispersal abilities of *M. galloprovincialis* over various landscapes and across mountains is a key point to predict the invasion of the PWN in Europe, and will help to set up management for this pest.

Microsatellites are highly variable genetic markers. Their polymorphism provides information on genetic structure of organisms at a broad scale (phylogeography), but also at local scale (migration of individuals). We developed a set of 12 microsatellites loci specific to *M. galloprovincialis*. First assessments conducted on six populations along a European North-South transect reveal a reduction of the genetic diversity northward, with a maximum of allelic richness in Spain. This seems consistent with post glacial recolonization of Mediterranean species associated with Pines trees. We have also observed a significant differentiation between some Iberian populations.

Our perspectives are to use the microsatellites markers (i) to construct the European phylogeography of *M. galloprovincialis*, (ii) to estimate the effect of the Pyrenees and the landscape structure on dispersal abilities of this species, and finally, (iii) to look at the effect of PWN invasion on its genetic structure in Portugal.