



HAL
open science

Phylogeography and genetics of invasion of the lime leafminer *Phyllonorycter issikii*

Natalia Kirichenko, Paolo Triberti, Sylvie Augustin, Alain Roques, Carlos Lopez-Vaamonde

► To cite this version:

Natalia Kirichenko, Paolo Triberti, Sylvie Augustin, Alain Roques, Carlos Lopez-Vaamonde. Phylogeography and genetics of invasion of the lime leafminer *Phyllonorycter issikii*. International Symposium on Gracillariidae, Sep 2014, Kozagawa, Wakayama, Japan. 1p. hal-02795732

HAL Id: hal-02795732

<https://hal.inrae.fr/hal-02795732>

Submitted on 5 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.

T-05

10:45-11:10, Saturday, September 27 (Day 2)

Phylogeography and genetics of invasion of the lime leaf miner *Phyllonorycter issikii*

Natalia Kirichenko* (V.N. Sukachev Institute of Forest SB RAS, Krasnoyarsk, Russia; INRA - Institut National de la Recherche Agronomique, UR 0633 Zoologie Forestière, Orléans, France)

Paolo Triberti (Museo Civico di Storia Naturale, Verona, Italy)

Sylvie Augustin (INRA, UR 0633 Zoologie Forestière, Orléans, France)

Alain Roques (INRA, UR 0633 Zoologie Forestière, Orléans, France)

Carlos Lopez-Vaamonde (INRA, UR 0633 Zoologie Forestière, Orléans, France)

*E-mail address: nkirichenko@yahoo.com

The lime leaf miner *Phyllonorycter issikii* Kumata (Lepidoptera: Gracillariidae) (fig. 1) is a moth originating from Eastern Asia. It was described in 1963 by T. Kumata from the island Hokkaido, Japan (Kumata, 1963). Few years later, the species was also reported from Eastern China, Korea and the Russian Far East. Since the mid-1980s, the moth has invaded Western Russia, nearly the whole Eastern Europe and reached some countries in Western Europe. This tiny insect provides a great example of a fast range expansion from East to West throughout Eurasia.

The insect develops on leaves of several lime species *Tilia* spp. (Malvales: Malvaceae). It represents an ornamental pest causing aesthetical damage to the plants in urban parks and gardens. In Western Russia, it has a negative effect on the reproductive and productive characteristics of lime forests which play an important role in honey production (fig. 2).

Here we use molecular sequenced data from three genes: mitochondrial COI and two nuclear genes, 28S and Histone3 to reconstruct the phylogeography of the species. Our preliminary results show a loss of genetic diversity from the East to the West following the range spread. We also found a deep genetic split, clearly individualizing one clade from the Russian Far East, which suggests the possible existence of a new sibling species of *P. issikii*.

This study is supported by LE STUDIUM® (France).



Fig. 1. An emerged adult of *P. issikii*.

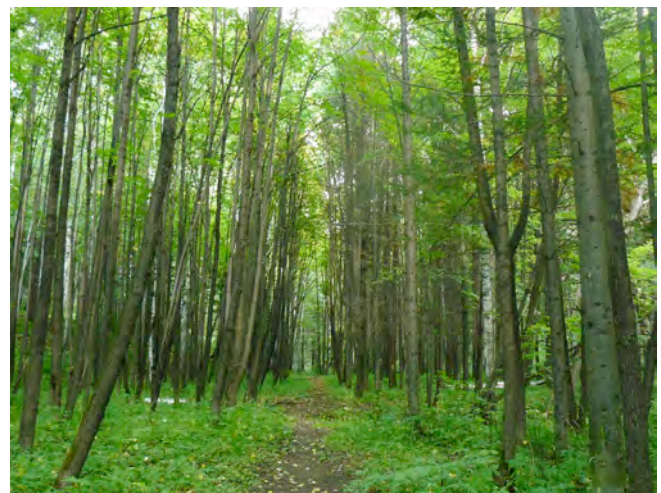


Fig. 2. *Tilia* plantation in Russia.