

Potential impact of *Cameraria ohridella* on maple: Is a host shift likely?

Sylvie Augustin¹, Christelle Péré², Carlos Lopez-Vaamonde¹, Romain Valade¹, Marc Kenis²

¹INRA-UR633 Zoologie Forestière, Olivet, France, ²Cabi Europe-Switzerland, Delémont, Switzerland

Introduction: The horse chestnut leafminer *Cameraria ohridella* is an invasive pest in Europe. This microlepidoptera, first discovered in Macedonia, almost exclusively develops on leaves of horse chestnut, *Aesculus hippocastanum*, but infestations have also been recorded on maples: *Acer pseudoplatanus* and *A. platanoides*. The fact that *C. ohridella* attacks and develops on *Acer* species might suggest that maple may be the ancestral host plant. As a consequence, we have studied the potential impact of this pest on maples, and we used a molecular phylogeny of the genus to reconstruct the ancestral host use and patterns of host shifts of *Cameraria*.

Methods: We sampled leaves on *A. pseudoplatanus* in Austria, Switzerland and France to investigate the impact of *C. ohridella* in relation to the distance to infested horse chestnut and to the arrival of the insect. In addition, a molecular phylogeny of 20 species of *Cameraria* was reconstructed using 2 genes.

Results: Our results showed that *C. ohridella* is mainly found on *Acer* at the vicinity of heavily infested horse chestnut. Females oviposit large numbers of eggs on maple, in contrast to other broadleaved species, but more than 80% of the larvae die in the first two instars. Attack rate and host tree resistance strongly vary between localities and individual maple. Attacks seem to increase slowly with time. Optimization analyses suggest that *Acer* is likely to be the ancestral host plant of *C. ohridella*.

Conclusions: These results suggest that *C. ohridella* could adapt to *Acer* species in the near future.