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DNA barcoding reveals the area of origin of the highly invasive horse chestnut leaf-miner *Cameraria ohridella*

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Introduction: Recent biological invasions usually start with a small number of founder individuals which are likely to be a small fraction of the total genetic diversity found in the original population from which they derive. The aim of our work is to genetically trace the geographical origin of the horse-chestnut leafminer, *Cameraria ohridella*, an invasive microlepidoptera, whose area of origin is unknown. Since its discovery in Macedonia twenty years ago, this insect has experienced an explosive westward range expansion progressively colonizing all central and Western Europe. Here we use DNA barcoding to assess the genetic variability of *C. ohridella* populations and to test the hypothesis that *C. ohridella* comes from the Balkans. The Balkans is the region where the moth was first found and from where the European horse-chestnut originates.

Methods: We use DNA barcoding to study the genetic variability of *C. ohridella*, across its known geographical distribution.

Results: Our results show a reduction in genetic diversity of *C. ohridella* populations sampled from natural stands of horse-chestnuts in the Balkan mountains to *C. ohridella* sampled in parks across Europe.

Conclusions: These findings suggest that European populations of *C. ohridella* may indeed derive from the Balkans.