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## Patterns of invasion of Lepidoptera in Europe

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*I am an entomologist interested in the patterns and processes of insect evolution, with a particular focus on leaf-mining microlepidoptera and their associated parasitoids. I obtained a PhD on Evolutionary Biology at Silwood Park, Imperial College (2002) and worked as a postdoctoral associate for three years at the Institute of Zoology in London on molecular and behavioural ecology of social insects. I was then hired as an INRA research scientist in July 2005. My work on invasion biology has been focused on using genetic markers to understand the dynamics of invasion. I am also interested in how communities of phytophagous insects and their parasitoids are assembled in their native range and how they are reassembled in the areas where their host plants have been introduced.*

### Patterns of invasion of Lepidoptera in Europe

Here I provide an overview of Lepidopteran invasions to Europe that result from increasing globalisation and also review expansion of species within Europe. A total of 97 non-native Lepidoptera species (about 1% of the known fauna), in 20 families and 11 superfamilies have established so far in Europe, of which 30 alone are Pyraloidea. In addition, 88 European species in 25 families have expanded their range within Europe and around 23% of these are of Mediterranean or Balkan origin, invading the north and west. Although a number of these alien species have been in Europe for hundreds of years, 74% have established during the 20th century and arrivals are accelerating, with an average of 1.9 alien Lepidoptera newly established per year between 2000–2007. For 78 aliens with a known area of origin, Asia has contributed 28.9%, Africa (including Macaronesian islands, Canaries, Madeira and Azores) 21.6%, North America 16.5%, Australasia 7.2% and the neotropics just 5.2%. The route for almost all aliens to Europe is via importation of plants or plant products. Most alien Lepidoptera established in Europe are also confined to man-made habitats, with 52.5% occurring in parks and gardens.