

ALARM AND OTHER RECENT INITIATIVES ON BIOLOGICAL INVASIONS IN EUROPE

Marc Kenis

CABI Bioscience Switzerland Centre, 2800 Delémont, Switzerland

Abstract

Europe has long been far behind other continents regarding research on biological invasions, probably because Europe has suffered less from plant, animal or pathogen invaders than other regions. However, in the last few years, initiatives on biological invasions have flourished. One of the reasons is the large number of new invasive alien species (IAS) that have established and spread on the continent. In recent years, European have been alerted by the establishment and spread of a high number of IAS, many of which are serious pests elsewhere in the world. New aliens in Europe that have attracted much attention among the public include the western corn rootworm (*Diabrotica virgifera virgifera*), the Asian tiger mosquito (*Aedes albopictus*), the Asian and citrus longhorn beetles (*Anoplophora* spp.), the horse-chestnut leaf miner (*Cameraria ohridella*), the pine wood nematode (*Bursaphelenchus xylophilus*), the American gray squirrel (*Sciurus carolinensis*), several *Phytophthora* spp., fire blight (*Erwinia amylovora*), ragweed (*Ambrosia artemisiifolia*), Japanese knotweed (*Fallopia japonica*), giant hogweed (*Heracleum mantegazzianum*), etc. Consequently, most European countries are now developing national action plans against IAS. At the continental scale, the Council of Europe has just released a “European Strategy against Invasive Alien Species”. Regional networks on IAS have been established and more than 10 international conferences on IAS have been organized in Europe in the last 2 years. European research

programs on IAS, mostly funded by the European Union, have been developed. The first projects targeted single IAS, such as the western corn rootworm, the horse-chestnut leaf miner, the pine wood nematode or the giant hogweed. Other projects are now considering the problem of IAS as a whole. One of these projects is ALARM (Assessing Large Scale Environmental Risks for Biodiversity with Tested Methods, 2004-2009), funded by the EU. The main objective of ALARM is to develop an integrated large scale risk assessment to terrestrial and freshwater biodiversity, including risks consequent on climate change, environmental chemicals, biological invasions and rates and extend of loss of pollinators. Within ALARM, 12 European teams work specifically in the biological invasion module. The aims of this module are to (1) assess concurrently both the risks (e.g. likelihood of introduction, establishment and naturalization) and the impacts (ecological and economic consequences) of invasive species; (2) incorporate environmental, historical, cultural and biogeographical data into assessments of the risks and impacts of invasions; (3) introduce a hierarchical perspective of ecosystem vulnerability by examining invasions at local and regional scales; (4) undertake a multidisciplinary approach that involves stakeholders, ecologists, statisticians, modelers and economists, to the problem of ecosystem vulnerability to invasion. Most taxa will be covered, with the notable exception of pathogens.