

CABI General Summary of Invasive Species

CABI works across the research-development spectrum finding solutions to agricultural, forestry and environmental pest problems - including invasive weeds, plant pathogens, phytophagous insects and plant-parasitic nematodes. CABI has regional centres in Trinidad and Tobago, UK, Switzerland, Malaysia, Pakistan and Kenya and conducts work in more than sixty countries.

CABI identifies and screens for biological control agents, including insects and fungi, to manage weeds, such as Himalayan Balsam and Japanese knotweed in Europe, more than ten weeds in North America including successes against leafy spurge, Dalmation toadflax, purple loosestrife, houndstongue and knapweeds, and rubber vine and mile-a-minute weed in tropical Australia and Asia, respectively. Water hyacinth is present in Asia, Africa and southern Europe and clogs waterways amongst many other detrimental features. We were involved in selecting insect biological control agents and supporting partners in Malawi to introduce them. CABI also identifies natural enemies to control insect pests, for example, an encyrtid wasp to control the pink hibiscus mealy bug, a pest on tropical crops including cacao, cotton, teak and other crops in the Caribbean and parasitic nematodes of the western corn rootworm, one of Europe's major maize pests.

CABI researchers take an ecosystem function perspective by considering how soil and microclimatic factors can affect invasions and how these can be manipulated by management. Furthermore, biodiversity impacts of invasives are considered and CABI has participated in Convention of Biological Diversity and Council of Europe expert meetings on biodiversity loss. CABI runs a project on *Harmonia axyridis*, an invasive ladybird in Europe, which is predatory and outcompeting other aphid predators. Native ladybirds, some of which control crop pests, are under threat. Recently we have been mandated to prepare black and watch lists of alien animals in Switzerland.

CABI works with stakeholders and partners globally to provide information on the risks, impacts and management of invasive species. We aim to strengthen policies for prevention and control. The project 'PRATIQUE' includes teams from Europe, Australia and New Zealand and addresses pest risk analysis (PRA) in Europe. The GEF invasives project in Zambia, Ghana, Uganda and Ethiopia has developed management plans for invasive plant species including water hyacinth, lantana, paper mulberry, mimosa, and prosopis. We have expertise in the increasingly important area of sanitary and phytosanitary protection, looking at the risk of invasive species to trade and participating in international regulatory bodies. In East Africa, we assist farmers to forecast for armyworm attacks on maize in their local communities.

In 2008, CABI organised regional consultations with its member countries in Latin America and the Caribbean, Africa, and Asia. As a result, CABI has a mandate to support developing countries in adapting to climate change and will focus on managing changing pest risks to minimise crop losses in this time of food and energy insecurity. CABI is a participant in BACCARA, a pan-European project developing

tools to predict the effect of climate change on forest productivity and pest interactions. CABI is also initiating studies on the effects of changing temperatures on important agricultural and environmental weeds in Central Africa to assess the impact on local agriculture and biodiversity.