



The aliens are here

They can burn and blister your skin, stop you from getting a mortgage, and even kill you. Plants and animals carried around the world by tourists and trade are costing the European Union over EUR 12 billion per year. Even these estimates are conservative as the data relates mostly to land-based invasive species.

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So-called alien invasive species present health risks to humans and animals by carrying diseases or causing allergies. 'The rate of invasion has increased exponentially – at the same time the resilience of ecosystems is reduced due to other pressures,' said Ana Cristina Cardoso, a scientist from the European Commission's in-house research service (Joint Research Centre) who is at the forefront of the fight against alien species in Europe.

She is currently helping put together the EU-funded European Alien Species Information Network (EASIN), a Europe-wide information network in partnership with European and global data providers that will help researchers pick out trends in the way that species are spread.

While thousands of alien species pose no threat at all – and some are even beneficial – a significant number have adapted so successfully that they have become invasive, displacing or causing the extinction of native

species, disrupting ecosystems and infrastructure, and posing a threat to human health and livelihoods.

To date *Dreissena polymorpha* (zebra mussel) has been the most aggressive freshwater invader worldwide © Shutterstock
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According to the European Environment Agency, there are now 163 'high impact' invasive species in Europe.

Tied up in a knotweed

Europe-wide, the yearly bill for fixing the damage done by invasive species stands at almost EUR 10 billion. Control measures cost about EUR 2.8 billion more.

One of the most expensive to deal with is Japanese knotweed, which damages development sites and transport networks and takes over rivers.

'In some cases people have been unable to borrow money to buy houses with Japanese knotweed nearby,' said Dick Shaw, invasive species coordinator for Europe and the Americas for the Centre for Agricultural Bioscience International (CABI).

'The same plant and its hybrids are widespread in Northern Europe and many countries do not know what to do.'

In the 1970s, shipments of used car tyres to Albania helped carry the Asian tiger mosquito to Europe. Since then, the disease-carrying insect has spread across the continent and is considered responsible for many human deaths.

Asthma-causing common ragweed was originally confined to North America. Travellers introduced it to Europe in the mid-1800s, and it's now found all over the continent. It has caused medical bills of almost EUR 200 million in Hungary and Austria alone, Shaw said.

'Fortunately a COST [European Cooperation in Science and Technology] programme aimed at managing this weed has recently been granted, which will look at many aspects of the plant including biological control.'

Deadly ornaments

Hundreds of years ago, wealthy Europeans would bring back exotic plants as trophies from their travels, unaware of the risks.

Central Asian giant hogweed was introduced to Europe in the 19th century for ornamental reasons, but has poisonous sap that burns the skin and causes blistering.

In the 1700s, rhododendrons were also imported from Asia, and now they have overrun many natural heaths and woodlands, out-competing native trees and threatening their survival. Efforts to halt their spread are time-consuming and costly.

A study published in October 2012 revealed that the river Thames in the UK was one of the most highly invaded freshwater systems in the world.

Scientists looked at the arrival of alien species in the river's catchment area from 1800 to 2010, and found that it had increased from one new species per decade in the early 19th century to one a year by 2010.

'Many species will be present without causing any damage, but others can grow to reach such large numbers that they have a significant economic impact,' said Dr Michelle Jackson, a postdoctoral researcher at Bournemouth University, UK, who authored the study.

'The zebra mussel clogs up water pipes in power plants. And invasive crayfish species are particularly damaging. As well as carrying diseases to which native crayfish species are susceptible, they cause riverbanks

to collapse by burrowing into them.'

The sea grape, a green algae introduced from south-western Australia, has spread rapidly in the Mediterranean since it was discovered off the Libyan coast in 1990. It out-competes native algae and invertebrates in shallow waters.

Alien trackers

The new online network, EASIN, is tracking some 16 000 alien species in Europe and provides the most comprehensive information yet on the pathways and distribution of invasive species in the continent.

It helps environment managers and others to design measures to combat their spread, and then see if they have made a difference.

'What we have done is to provide a mechanism to harmonise and process data from existing data sources,' said Cardoso. 'Existing databases do not cover all environments, taxonomic groups or all parts of Europe.' This 'big picture' view should pay dividends in the future.

'Recently we've evaluated pathways of the introduction of species to the marine environment,' she said. 'We've noticed that the trend of new alien introductions via aquaculture has declined in the past 10 years, presumably due to compulsory measures implemented at a national or European level.'

'Understanding changes like this can inform management actions and policy needs, and show where we should invest to control further introduction.'

More info

[European Alien Species Information Network \(EASIN\)](#)

[Joint Research Centre](#)

['Accelerating rates of freshwater invasions in the catchment of the River Thames' – Michelle C. Jackson and Jonathan Grey](#)

[CABI Invasive Species Compendium](#)