

Invasive Alien Species



Giant hogweed (*Heracleum mantegazzianum*)

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- Invasive species pose a major and fast growing threat to native biodiversity in Europe.

- Plants and animals that find their way into new, unfamiliar habitats, can overwhelm native flora or fauna and damage the environment. These organisms are known as 'invasive species'.

- They also have a social and economic impact, for example on human health, fisheries, agriculture and food production.

- More trade, tourism, and transport of goods across borders have accelerated their spread.

- The European Union today spends at least €12 billion a year on control and on damage caused by invasive species.

- The EU has recently put forward proposals for a Europe-wide strategy to combat invasive species.

- Early detection is vital: it is much easier and more cost-effective to tackle incoming species before they become established.

- Raising awareness among the public about invasive species is a condition to win this battle.

nature



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environment

Fact 1: Invasive species are a threat to Europe's biodiversity

Europe's flora and fauna have evolved over millions of years. Mountain ranges, seas and rivers have separated populations and allowed a tremendous range of biodiversity to flourish. But expanding international trade and travel have broken down these barriers on a global scale, bringing species into direct contact with one another.

This creates competition for precious food and habitats. And whereas native species have resistance to local pests or diseases,

"Invasive species are a major threat to biodiversity. Given the way they quickly become established and spread, measures taken by one Member State can have no effect if neighbouring countries fail to take action or respond in an uncoordinated manner. The ecological, economic and social consequences of the spread of invasive species for the EU countries are serious and need a harmonised response."

EU Environment Commissioner Stavros Dimas

they often have no, or few, natural defences against foreign organisms, and so they can literally be wiped out. Equally, animals or insects that are kept under control by predators in their own surroundings can reproduce rapidly and overwhelm a new environment where no such checks exist. Darwin's theory of natural selection revealed how the strongest species achieve domination over hundreds or thousands of years. But modern-day mobility is interfering with this process of evolution by bringing together competing species at an unprecedented and artificial rate.

Invasive species (IS), also known as invasive alien species or invasive non-native species, come in all shapes and sizes. Most non-European species were introduced intentionally, including trees and crops that are hardier or grow faster, ornamental garden plants, or pet animals. They may pose no problem until they escape or are released into the wild. Other unwanted aliens have arrived accidentally, as 'stowaways' trapped in airfreight or shipping containers, for example, or crustaceans carried on the hulls of ships.

Fact 2: Our health is at risk

Invasive species also pose a threat to people. The Asian tiger mosquito reached Europe through trade in used tyres. It carries at least 22 viruses, including dengue fever. Climate change could facilitate its passage northwards. Alien plants like giant hogweed provoke allergies and skin irritation and burns. Invasive species have even been connected to the spread of viruses like flu and HIV.

Fact 3: Invasive species cost money

In 2008, the cost of controlling invasive species and repairing the damage they cause across the EU reached an estimated €9.6 - €12.7 billion. But this range is certainly an underestimate, given that many countries are only starting to count the costs. LIFE programme funds are also being invested in schemes to deal with invasive species. Since 1992, the EU has spent over €38 million on 180 projects, both within and outside the Natura 2000 network of conservation areas. By comparison, the US estimates that it spends some €80 billion a year fighting biological invaders.



Establishment in the pan-European region of the worst invasive alien species threatening biodiversity.
Source: EEA, 2007.



Harlequin ladybird
(*Harmonia axyridis*)

Iberian slug (*Arion lusitanicus*)

Fact 4: The number of invasive species in Europe is growing

The DAISIE inventory lists 10 822 non-native species in Europe. While not all of them are invasive, it is estimated that about 10-15% are potentially dangerous to European biodiversity.

The European Environment Agency has drawn up a list of the 163 worst invasive alien species threatening ecosystems in Europe. Since 1950, more than one species per year has become established, and the rate shows no sign of diminishing.

The majority of invasive species come from North America and Asia. However, a sizeable number originate in one part of Europe and are transported to another. Europe's single market and frontier-free travel sustain this flow.

The examples are numerous:

- The **Harlequin ladybird** is from Asia, and poses a deadly threat to native ladybirds in the UK, as well as butterflies and other insects.
- The **'killer slug'**, a native of the Iberian Peninsula, has spread around Europe. Immune to control measures, it eats weaker species of slug.
- The **Zebra mussel**, carried in ships' ballast water, fouls pipes and waterways.
- **Knotweed**, introduced from Asia in the 19th century as an ornamental plant, has since invaded the French countryside.
- **Coypu** and **Musk rat**, brought from America for their fur, are now wild in Europe, damaging canals and flood protection systems.

Fact 5: The EU is taking action

The EU's 2006 Biodiversity Action Plan highlighted the problem of invasive species, and the mid-term review of progress identified the urgent need for an EU-wide strategy. Currently, some parts of Europe have dedicated legislation and established programmes, but other Member States have no national legislation or plans. Fragmented measures will not be effective. In the past, a common approach has been missing, so in 2008 the European Commission issued a Communication Towards an EU Strategy on Invasive Species.

It is internationally agreed that the problem requires a three-step approach:

- **Prevention** is the cheapest and best approach, and means tighter controls at borders and an exchange of information at regional, national and international levels. Implementing the Ballast Water Convention would address some of the problems.
- Once invasive species take root, **eradication** is the most effective measure. To cover wide areas, such action needs central coordination and funding.
- If eradication is not possible, **containment** and long-term control are required to stop the further spread of invasive species. Local authorities are often on the front line when it comes to dealing with problems, so they need support.

Early warning information systems

DAISIE

Delivering Alien Invasive Species Inventories for Europe (DAISIE) is a project supported by EU research funds that brings together data about biological invasions across Europe. Its website gives details of 10 822 alien species currently invading European countryside, waterways and marine environments. An international team of 1657 experts updates the database continually. DAISIE includes an alphabetical list of the 100 worst invaders with detailed maps showing where to find them.

<http://www.europe-aliens.org/>

ALARM

Assessing Large Scale Environmental Risks for Biodiversity with Tested Methods (ALARM) has carried out research on how habitats succumb to invasion, helping to predict which areas might be under threat in the future.

Another study has identified the six main 'pathways' incoming species take: deliberate release; escape; unintentional contamination; stowaway; corridor (along roads, canals etc.); and unaided (natural spread).

ALARM: <http://www.alarmproject.net>

Grey squirrel (*Sciurus carolinensis*)



Zebra mussels
(*Dreissena polymorpha*)

NOBANIS

The North European and Baltic Network on Invasive Alien Species (NOBANIS) is a regional portal supplying information on alien species in northern and central Europe. It involves 18 partner countries within and beyond the EU, and connects with regional and global networks and projects on invasive alien species.

<http://www.nobanis.org/>

Further information:

EU website:

http://ec.europa.eu/environment/nature/invasivealien/index_en.htm

Scope for EU action:

http://ec.europa.eu/environment/nature/invasivealien/docs/2006_06_ias_scope_options.pdf

European Environment Agency 'Signals':

<http://www.eea.europa.eu/pressroom/newsreleases/killer-slugs-and-other-aliens>

Video:

<http://www.tvlink.org/viewer.cfm?vidID=307>

Global Invasive Species database:

<http://www.issg.org/database/welcome/>

Fact 6: Early detection is vital

Although not every alien species is harmful, the precautionary principle dictates that all incomers need to be identified, and authorities have to be ready to respond rapidly and deal with problems. Early detection and rapid response are most cost-effective and more likely to succeed than action after a species has become established.

Information and research initiatives like DAISIE, ALARM and NOBANIS play an important role in developing early warning systems for invasive alien species.

Fact 7: People need to be involved

Raising awareness of invasive species is an important part of the battle. The Commission recently held a public consultation, which attracted 880 replies, three-quarters of them from individuals.

The survey reveals widespread backing for action at EU level. Some 91% of respondents agreed on the urgent need to bring in new measures to prevent the spread of such organisms. Nine out of ten wanted an EU-wide early warning system, and 86% thought that Member States should be legally obliged to take action. Most respondents (90%) saw a lack of public awareness as a barrier, and felt it was important to raise the profile of the issue (77%). The EU is using these results in developing its policy.

Fact 8: Time for a comprehensive strategy

The Commission is now preparing an EU Strategy, which takes into account the feedback to its proposals and is due to be ready in 2011. There is a range of options: from 'business as usual', to better implementing or adapting existing EU legislation, or to drawing up a new, comprehensive approach.

In the meantime, there are moves to set up a European Early Warning and Information System, which would be an important step forward.

EU action can have a decisive impact in reducing the spread of invasive species. Islands in general, but especially those that form part of the European Overseas Entities, are rich in biodiversity. Yet island species are also particularly vulnerable. Over the past century, island biodiversity, which has largely evolved free from competition, has been subject to intense pressure from invasive species. Of the 724 recorded animal extinctions in the last 400 years, about half were island species. In recent years the Overseas Entities have not received enough attention, but in 2008 the EU's French Presidency launched an international initiative to remedy this. In these areas, comparatively low investments could achieve significant results.

Fact 9: Invasive species are an international problem

In 2002, parties to the United Nations Convention on Biological Diversity (CBD) agreed on a comprehensive global approach to tackling invasive species. They urged governments to raise awareness, involve communities and collaborate with neighbouring countries. Preventing the international movement of invasive alien species and coordinating a timely and effective response to invasions will require cooperation and collaboration among governments, economic sectors, NGOs, international treaty organisations and the public in general.

The UN has chosen Invasive Alien Species as the theme for the annual **International Day for Biological Diversity**, on 22 May 2009.