



## CONVENTION ON BIOLOGICAL DIVERSITY

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### PRESS RELEASE

#### **Governments seek strategies for battling invasive alien species**

Montreal, 9 March 2001 – Officials from the 180 member governments of the Convention on Biological Diversity are meeting in Montreal from 12 – 16 March to examine how best to detect, eradicate, and control species that cross the oceans and other barriers to colonize new regions where they then threaten the native plants and animals and the ecosystems.

“Over the past few centuries, invasive alien species have caused untold damage to natural ecosystems and human economies alike,” said Klaus Toepfer, Executive Director of the United Nations Environment.

“In today’s highly integrated world, where tourism and trade offer more and more opportunities for unwanted species to hitchhike to new homes, we urgently need a more effective international system for turning back the tide of harmful non-native species,” he said.

The meeting will consider 17 draft principles for guiding action against invasive alien species. The principles relate to such matters as the precautionary approach, the ecosystem approach, border controls and quarantine measures, intentional and unintentional introductions, eradication, control, and containment. The meeting will also consider national reports detailing governments’ current efforts as well as case studies.

“The reports confirm that invasive alien species are a major issue for biodiversity management,” said Hamdallah Zedan, the Convention’s Executive Secretary. “The problem is that most countries have a very limited ability to cope with the problem. Increased collaboration and capacity-building will be essential.”

The sixth meeting of the Convention’s Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) is also addressing a range of other biodiversity issues, including marine and coastal biodiversity, in-land water systems, scientific assessments, the Global Taxonomy Initiative, biodiversity and climate change, and migratory species. The meeting will forward its results and recommendations to the Conference of the Parties when it holds its sixth meeting in April 2002 in The Hague.

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**Note to journalists:** The meeting will be held at the ICAO Building in Montreal. For interviews or more information, please contact Arthur Nogueira at +1-514-287-xxx, fax +1-514-288-6588, or e-mail [Arthur.nogueira@biodiv.org](mailto:Arthur.nogueira@biodiv.org). Official documents and other information are posted at [www.biodiv.org](http://www.biodiv.org).

# PRESS BACKGROUNDER

## How alien species threaten native life

The world's biological diversity is a vast and undervalued resource. Biodiversity encompasses every form of life, from the smallest microbe to the largest animal, plus the ecosystems that they form. It provides humanity with an abundance of goods and services, from food, energy and fibre to the genes that help us to control pests and diseases. It also underpins the natural processes that help control soil erosion, purify water and air and recycle carbon and nutrients.

The threat to biodiversity has never been so great as it is today. Human activities are affecting the distribution and abundance of species, ecological systems and genetic variability and thus undermining the basis for life everywhere.

Invasive alien species are considered to be the most important threat to biological diversity loss after habitat destruction. The 1992 Convention on Biological Diversity is now addressing the impact of alien species on forest, agricultural biodiversity, freshwater and marine and coastal areas, and in dry and sub-humid lands.

### What are invasive alien species?

All ecosystems – from forests and grasslands to marshes and coastal zones –are vulnerable to invasive alien species. Every country in the world has experienced invasions. Isolated areas such as islands are particularly vulnerable.

Invasive alien species are referred to by several names, which are often used interchangeably: *non-natives*, *introduced*, *non-indigenous*, *exotic*, *foreign*, *noxious species*, *aggressive species*, *pest species*, *harmful species*. Here are just a few examples of such species and the damage they can cause:

\* Introduced fish can eliminate native species and reduce biodiversity. It has been estimated that 20% of all freshwater fish species are at risk of becoming extinct in the near future unless the present situation is reversed.

\* Invasive plant species cover an estimated 100 million acres in the US and are spreading annually across three million additional acres, an area twice the size of Delaware. US farmers spend billions of dollars every year on pesticides to destroy invasive plants and weeds.

\* The Hibiscus mealybug, *Maconellicoccus hirsutus*, has invaded the Caribbean and is attacking a range of plants, including fruit and forestry trees.

\* The corn rootworm, *Diabrotica virgifera*, was accidentally introduced into the Balkans in the late 1990s during the conflict there; this pest is now spreading and threatening the region's maize production.

\* The invasive sea lamprey has caused trout and other fish stocks in the Great Lakes to collapse. Canada and the US spend \$13 million a year attempting to control this pest.

\* \$4.5 million is devoted annually to implement a comprehensive interagency program to prevent the spread of the brown tree snake and control this pest on Guam.

\* The Weed Science Society of America recognizes about 1,200 plant species as weeds in Canada and the US. Of these, about 65% in the US are non-natives.

\* In the Galapagos Islands – a World Heritage Site that is renowned as a natural showcase of evolution – the number of introduced plants is almost as high as the number of natives due to introduced mammalian predators and herbivores as well as insects and plants.

\* In the Eurasian part of the Arctic, the alien Raccoon dog, *Nyctereutes procyonoides*, is multiplying and consuming large numbers of various small mammals. It is also spreading rabies.

\* *Prosopis* (Mesquite) in the Thar desert of India has displaced other flora of the area, while the species introduced to a semi-arid area Sri Lanka in the early 1950s, has become an invasive seriously threatening the biodiversity of the only Ramsar-listed wetland of the country.

## **The invasion routes**

Invasive alien species are sometimes introduced intentionally into the environment. Examples include bio-control agents that eliminate pests, and species that are exploited in agriculture, forestry, horticulture, and fisheries. Alien species also enter the environment after being placed in containment or captivity for use in mariculture, aquaculture, horticulture, zoos, the pet trade, and scientific research.

Unintentional introductions occur due to transport, trade, travel and tourism. Alien species can hitchhike rides on boats, airplanes, tourists and other travellers, and timber, produce, and other exported items.

Human activities have made it much easier for harmful species to travel. Expanding international trade, for example in seafood and pets, offers additional pathways. About 80% of all commodities are carried by ships, whose anchor chains, sediments, ballast water, and hulls, can transport alien organisms on a transoceanic scale.

Marine organisms, in particular, frequently travel from one location to another via ships. Some 10 million tons of ballast water are shipped annually, carrying diverse marine species. Ballast water is thus particularly significant for the global distribution of micro-organisms and waterborne diseases affecting plants and animals.

## **The environmental impacts**

*Effects on ecosystems:* Invasive alien species can change light levels, decrease dissolved oxygen in water, change soil chemistry and its structure, and increase surface run-off and soil erosion. Most importantly, alien species can affect ecosystem processes such as nutrient cycling, pollination, regeneration of soils, and energy flows. They can also alter the disturbance regimes of ecosystems such as the frequency, spread, and intensity of fire, and obstruct water flows.

*Effects on native species:* Invaders can compete with native biota, displace them, consume them, act as parasites or transmit diseases, reduce growth and survival rates, cause the decline or extinction of local populations or even entire species, and uproot or damage plants.

*Effects on genetic diversity:* Invasive alien species can diminish genetic diversity through the loss of genetically distinct populations, loss of genes and gene complexes, and the hybridization or interbreeding of introduced species with native ones.

### The economic impacts

Estimates of the economic costs of invasive alien species vary widely. Invasive species cost to the United States' economy an estimated \$123 billion annually and are second only to habitat destruction in threatening extinction of native species. Ecologists conclude that a special feature of biological invasions is that, once set in motion, the costs of invasions are largely self-perpetuating: even if the source of the introduction ceases to operate, damage from the invasive species can continue and may generally increase over time. The indicative costs of the impacts of some invasive species are given in the table below.

INDICATIVE COSTS OF THE IMPACTS OF SOME INVASIVE ALIEN SPECIES			
SPECIES	ECONOMIC VARIABLE	ECONOMIC IMPACT	REFERENCE
Knapweed and leafy spurge	Impact on economy in three US states	US\$40.5 million per year direct costs US\$89 million indirect	Bangsund, 1999; Hirsch & Leitch, 1996
Zebra mussel and other aquatic invasives	Damages to US and European industrial plants	Cumulative costs 1988-2000=US\$3.1-5.0 billion	Khalanski, 1997; Bright, 1999
Most serious invasive alien plant species	Costs 1983-92 of herbicide control in Britain	Ancient (8 spp) US\$152 million/year Modern (4 spp) US\$192 million/year	Williamson, 1998
Six weed species	Costs in Australian agroecosystems	US\$105 million/year	Watkinson, Freckleton & Dowling, 2000
<i>Pinus, Hakea, Acacia</i>	Costs in South African fynbos to restore pristine	US\$169 million	Turpie & Heydenrych, 2000
Water hyacinth ( <i>Eichornia crassipes</i> )	Costs in 7 African countries	US\$71.4 million/year	Kasulo, 2000
Rabbits	Costs in Australia	US\$373 million/year (agricultural)	White & Newton-Cross, 2000
Green crab <i>Carcinus maenas</i>	Impact on North Pacific Ocean fisheries	US\$44 million per year in Oregon and Washington	Cohen <i>et al.</i> , 1995

### What can be done?

Biological invasions now operate on a global scale. They look poised to undergo a rapid increase in this century due to interactions with other global changes set in motion by humans. Increasing globalization of markets and explosive rises in global trade, travel, and tourism are conveying more and more species to all parts of the world and thus enhancing the possibility of bio-invasions across all ecosystems in all areas of the world.

The best way to limit the impact of invasive alien species is to prevent them from invading in the first place. If this fails, complete removal may still be feasible very early in an invasion. Priority, then, should be given to preventing entry; if entry has already taken place, actions should be undertaken to prevent establishment and spread. Where eradication is not feasible or cost-effective, containment and long-term control measures should be considered.

Collaboration between and within countries is key. The battle against alien invasive species also requires strengthened partnerships between public and private landowners, government, industry, academia, and non-governmental organizations.

### **Where to find more information**

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