

**SCOPE OPTIONS FOR EU ACTION
ON INVASIVE ALIEN SPECIES (IAS)
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LIST OF ABBREVIATIONS

6EAP	Sixth Environmental Action Programme
ACP	African, Caribbean and Pacific countries
AEWA	Agreement on the Conservation of African-Eurasian Migratory Waterbirds
ALARM	Assessing Large-scale environmental Risks for biodiversity with tested Methods
BAP	biodiversity action plan(s)
BFIS	Belgian Forum on Invasive Alien Species
CBD	Convention on Biological Diversity
CIEMS	Mediterranean Science Commission
CITES	Convention on International Trade in Endangered Species of Wild Flora and Fauna
CMS	Convention on the Conservation of Migratory Species of Wild Animals
CNCSIS	National University Research Council in Romania
COP	Conference of Parties
CRNFB	Invasive species in the Walloon watercourses – project
CWSS	Common Wadden Sea Secretariat
DAISIE	Delivering Alien Invasive Species Inventories for Europe
EAP	Environmental Action Programme
EC	European Community
ECJ	European Court of Justice
EEA	European Environment Agency
EIA	environmental impact assessment
EIFAC	European Inland Fisheries Advisory Commission
EPIDEMIE	Exotic Plant Invasions: Deleterious Effects on Mediterranean Island Ecosystems
EPPO	European and Mediterranean Plant Protection Organisation
EU	European Union
FAO	Food and Agriculture Organisation of the United Nations
GEF	Global Environment Facility
GISIN	Global Invasive Species Information Network
GISP	Global Invasive Species Programme
GLEWS	Global Early Warning System for Animal Diseases including zoonoses
GMO	genetically modified organism
GP	guiding principle
HELCOM	Convention on the Protection of the Marine Environment of the Baltic
HOS	Hellenic Ornithological Society
HPAI	Highly Pathogenic Avian Influenza
IAS	invasive alien species
ICAO	International Civil Aviation Organization
ICES	International Council for the Exploration of the Sea
ICPM	Interim Commission on Phytosanitary Measures
ISSG	Invasive Species Specialist Group (of IUCN)
IUCN	the World Conservation Union
IHR	International Health Regulations

IMO.....	International Maritime Organisation
INPLANBEL	Invasive plants in Belgium: patterns, processes and monitoring - project
INVADER.....	Invasion and Ecosystem Restoration – project
IPPC	International Plant Protection Convention
ISPM	International Standard for Phytosanitary Measures
IUCN.....	World Conservation Union
JLG.....	Joint Liaison Group
LIFE	Financial Instrument for the Environment
LMO.....	living modified organism
LMO-FFP.....	living modified organisms for food, feed or processing
MBP-NIB.....	Marine Biological Station (Piran, Slovenia)
MEA.....	Multilateral Environmental Agreement
MEPC.....	IMO Marine Environment Protection Committee
MOP	Meeting of the parties to the Cartagena Protocol on Biosafety
MS.....	Member State(s)
MSD	proposed Marine Strategy Directive
MTK.....	Finnish Central Union of Agricultural Producers and Forest Owners
NEOBIOTA	German Group on Biological Invasions
NOBANIS.....	North European and Baltic Network on Invasive Alien Species
NPBD	Latvian National Programme on Biological Diversity
OCT.....	Overseas Countries and Territories
OIE.....	World Organisation for Animal Health
OSPAR.....	Convention for the Protection of the Marine Environment of the North-East Atlantic
PAS	Polish Institute of Botany
PEBLDS.....	Pan-European Biological and Landscape Diversity Strategy
RBINS-MUMM.....	Alien crustaceans and molluscs in Belgium - project
SBSTTA.....	Subsidiary Body on Scientific, Technical and Technological Advice
SEA	Strategic environmental assessment
SEBI.....	Streamlining European 2010 Biodiversity Indicators
SIA	Sustainability impact assessment
SIDS.....	Small Island Developing States
SPS Agreement..	WTO Agreement on the Application of Sanitary and Phytosanitary Measures
STDF.....	Standards and Trade Development Facility
UNCCD.....	United Nations Convention to Combat Desertification
UNCED.....	United Nations Conference on Environment and Development
UNEP	United Nations Environment Programme
UNFCCC.....	United Nations Framework Convention on Climate Change
WFD.....	Water Framework Directive
WHO	World Health Organisation
WTO	World Trade Organisation

1 INTRODUCTION

Invasive alien species (IAS) are non-native species that are introduced deliberately or unintentionally outside their natural habitats where they become established, proliferate and spread in ways that cause damage to biological diversity (see definitions, box 1). For this reason, IAS are now recognised as one of the greatest biological threats to the environment and economic welfare of the planet. The threat to biodiversity due to IAS is considered second only to that of habitat loss. IAS are a serious impediment to conservation and sustainable use of global, regional and local biodiversity, with significant undesirable impacts on the goods and services provided by ecosystems. IAS can include species from all groups of taxa, from mammals and birds, to insects, plants, viruses, and bacteria.

Europeans today are more mobile than ever before. Increased numbers of flights carry tourists in and out of the EU and within its borders. Shipping routes span the globe, and due to increasing global trade we are able to access an increasing range of the world's biological resources without leaving home. Enlargements of the European Community have expanded the Single Market and facilitated translocation of organisms to new areas.

Increased mobility for people and goods means increased mobility for other species, some of which have or may go on to have negative effects on ecosystems and the habitats and species of which they are composed. The European Union is now faced with the challenge of ensuring that its policy framework supports continuing economic development while not compromising the integrity of its species and ecosystems.

Article 8(h) of the Convention on Biological Diversity (CBD) obliges Parties to the Convention to 'prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species'. The European Community (EC) is a party to the Convention and must therefore take actions to ensure its policies comply with that Article as far as possible. All of the EU-25 Member States (MS) are also parties to the CBD in their own right, as are Bulgaria and Romania, the current EU Accession Countries.

In March 2002, the Council (meeting as the Environment Council) recognised that IAS are one of the main recorded causes of biodiversity loss and is a cause of serious damage to economy and health. It supported the use, as appropriate, of national, transboundary and international action. These include, as a matter of priority, measures to prevent such introductions occurring, and measures to control or eradicate those species following an invasion.

BOX 1. DEFINITIONS USED

The definitions used in this report correspond to those used in the CBD Guiding Principles (CBD decision VI/23) and the European Strategy on IAS:

'*invasive alien species*' means an alien species whose introduction and/or spread threaten biological diversity;

'alien species' refers to a species, subspecies or lower taxon, introduced outside its natural past or present distribution; includes any part, gametes, seeds, eggs, or propagules of such species that might survive and subsequently reproduce. NB: some international/regional/national instruments (eg Conventions) use the terms *'exotic species'*, *'non-indigenous species'* or *'non-native species'* when referring to *'alien species'*. In the report the term *'alien species'* has been used throughout the text, but where applicable the references used in the original texts have been maintained;

'introduction' refers to the movement by human agency, indirect or direct, of an alien species outside of its natural range (past or present). This movement can be either within a country or between countries or areas beyond national jurisdiction;

'intentional introduction' refers to the deliberate movement and/or release by humans of an alien species outside its natural range;

'unintentional introduction' refers to all other introductions which are not intentional;

'establishment' refers to the process of an alien species in a new habitat successfully producing viable offspring with the likelihood of continued survival.

See <http://www.biodiv.org/decisions/default.aspx?dec=VI/23>

2 OBJECTIVE AND SCOPE OF THE REPORT

Since the Council recognition of the IAS problem in 2002, there has not been any major specific reform of Community policy or legislation to address IAS-related issues. However, the reviewers of the Natural Resources Biodiversity Action Plan noted in 2004 that the Plan's actions and targets did not 'fully reflect the need for a comprehensive response to the problem of invasive alien species and need to be adjusted accordingly'¹. The Message from the Malahide Stakeholder Conference (see Duke 2005) set out some specific targets in relation to IAS, and these have now been reflected in the Action Plan attached to the recent Communication from the Commission on 'Halting the Loss of Biodiversity by 2010 – and Beyond' (COM(2006)216 final).

For the EC to fulfil its obligations under Article 8(h) of the CBD, there is a need for a thorough assessment of the Community's current legal and policy framework related to IAS to identify what, if any, changes are needed to this framework. The existing framework may already provide tools that are not currently being utilised to address IAS issues but could be further explored. Some matters related to IAS are likely to concern individual MS only and would not be appropriately addressed at a Community level. In some cases, however, Community policies may inhibit MS in taking action against IAS within their own borders.

The aim of this report is to provide advice to the European Commission on determining and prioritising future areas of Community action with respect to IAS. The advice should assist the work of the Biodiversity Expert Group and contribute to the development of

¹ See papers for Malahide Conference: MALAHIDE/WGP/Audit/1, Background Paper for Working Group 1, available at:

http://ec.europa.eu/environment/nature/biodiversity/develop_biodiversity_policy/malahide_conference/pdf/malahide_wgp_audit_1.pdf

future EC policies in this field. For this purpose, the report provides a review of the existing legal and policy framework for IAS at international, EU and Member State level. It identifies areas of relevance to Community competence (totally or partially) in the CBD's Guiding Principles on IAS and the European Strategy on Invasive Alien Species developed under the Bern Convention. Based on the information on the existing international, EU and national legal/policy frameworks, the report identifies gaps in the existing EU IAS framework and makes recommendations for filling such gaps.

3 CONTENT OF THE REPORT AND METHODOLOGY USED

The report summarises the current international legal and policy framework for IAS, particularly covering developments from 2000-2006 worldwide with specific reference to developments applying to the European region (Chapter 4). The report also provides information on existing Member State actions and policies in relation to IAS (Chapter 7) and reviews existing and proposed Community legal instruments, policies and research projects dealing with issues related to IAS (Chapter 6). It then carries out an assessment of the fifteen CBD Guiding Principles and the European Strategy on IAS, highlighting points of complementarity to provide a checklist of internationally-recommended actions and to identify the specific areas for which the Community (as opposed to MS) has clear competence (Chapter 8).

Building on the analysis in the previous chapters, a gap analysis is presented in Chapter 9. This identifies existing gaps in the EU framework of IAS-related measures and policies when compared to the provisions of the CBD Guiding Principles and the European Strategy on IAS. Finally, recommendations for filling the gaps are provided.

4 A REVIEW OF RECENT INTERNATIONAL DEVELOPMENTS IN RELATION TO IAS

Invasive alien species policy is evolving globally and regionally at a rapid pace. The global legal framework was comprehensively reviewed in 2000 (Shine et al 2000) but there have been many changes and developments since then, including the adoption of the CBD Guiding Principles and the European Strategy on IAS.

This Chapter outlines the main international and European developments in the legal and policy framework for IAS during the period of 2000-2006. The current international and regional framework for IAS as applicable to Europe, including both binding and non-binding instruments, is set out in Annexes 1 and 2. The analysis focuses on those international and regional developments with direct implications for the EU. The existing gaps in the international framework are set out (as identified by the CBD Ad Hoc Technical Expert Group²). Additionally, this chapter highlights world-leading developments in New Zealand and Australia (see Box 2), focusing on lessons that could be applied in Europe.

² CBD Ad Hoc Technical Expert Group on Gaps and Inconsistencies in the International Regulatory Frameworks on Invasive Alien Species, established in COP7 in 2004 (Decision VII/13).

4.1 Developments within the CBD

Within the CBD framework³ (binding instrument), the key development in relation to IAS during the last five years was the adoption of fifteen *Guiding Principles for the prevention, introduction and mitigation of impacts of alien species that threaten ecosystems, habitats or species*. The Guiding Principles were agreed at the sixth meeting of the CBD Conference of the Parties (COP) in 2002 (The Hague, the Netherlands) and included in COP Decision VI/23 (Alien species that threaten ecosystems, habitats or species). The Principles provide an international framework for governments and other organisations to develop effective strategies to prevent the introduction of, and promote control and eradication of IAS (See Chapter 5).

Another CBD decision addressing IAS problem was taken at COP 7 in 2004 (Kuala Lumpur, Malaysia). This decision established an Ad Hoc Technical Expert Group to address gaps in the international regulatory frameworks on IAS. The objective of the Expert Group was to provide the CBD Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) with recommendations prior to COP 9 in 2008 where IAS will be addressed as an issue for in-depth consideration.

IAS have been formally designated as a cross cutting issue within the CBD's programme of work. This means that issues related to IAS must also be addressed where appropriate through the CBD's various other programmes and activities. Since 2000, provisions related to IAS have been included as an integral part of CBD thematic work programmes on dry and sub-humid lands (COP Decision VII/2), marine and coastal biological diversity (COP Decision VII/5), inland water ecosystems (COP Decision VII/4) and mountain biological diversity (COP Decision VII/27). In addition, IAS have been addressed in the context of several other CBD cross-cutting programmes, such as protected areas (COP Decision VII/28) and climate change and biological diversity.

The Global Strategy on Plant Conservation was adopted at COP 6 in 2002 (COP Decision VI/9). The Strategy's ultimate and long-term objective is to halt the current and continuing loss of plant diversity. The Strategy also sets targets for invasive plant eradication stating that by 2010 management plans for at least 100 major IAS that threaten plants, plant communities and associated habitats and ecosystems should be in place (Target 10).

At the most recent COP meeting (COP 8) in Brazil in 2006 the Contracting Parties focused on discussing the gaps and inconsistencies in the international regulatory framework on IAS. The recommendations of the COP 8 Decision on IAS (Decision VIII/27) address the gaps identified in the current regulatory framework (eg gaps related to aquaculture/marine culture, ballast water and biofouling (particularly hull fouling), civil air transport, tourism, international development assistance and emergency relief). The Decision highlighted also the need for risk analyses and assessments on potentially invasive alien species that are subject to export. In addition, the Decision further

³ Convention on Biological Diversity: www.biodiv.org

emphasised the importance of capacity building, adequate funding and exchange of information and experience.

4.1.1 Adoption of the Cartagena Protocol on Biosafety

The CBD Cartagena Protocol on Biosafety⁴ (binding instrument) was adopted by COP 5 in 2000 and it entered into force in September 2003. The objective of the Protocol is to contribute to ensuring an adequate level of protection in the field of safe transfer, handling and use of living modified organisms (LMOs) that may have adverse effects on the conservation and sustainable use of biological diversity.

The Protocol is relevant to IAS in that it introduces an advance informed agreement procedure for the first intentional transboundary movement of LMOs for intentional introduction into the environment (Article 7). The Protocol also deals with the issue of handling, transport, packaging and identification of all LMOs (Article 18), and addresses liability and redress for damage resulting from the transboundary movements of LMOs. In addition, the Protocol obliges Contracting Parties to undertake risk assessments as a part of their LMO-related decision-making. It also requires the Parties to establish and maintain appropriate mechanisms, measures and strategies to regulate, manage and control risks identified in the risk assessments.

Detailed provisions in relation to some of these issues still need to be established. For example, the Contracting Parties have agreed to adopt rules and procedure for liability and redress within four years of the first meeting of the Parties to the Protocol in 2004. However, to date no consensus on the liability regime has been reached (Abu Amara & Kettunen 2006). In 2004 an Open-ended Ad Hoc Working Group of Legal and Technical Experts on Liability and Redress was established (Decision BS-I/8 and BS-II/11). The Working Group's mandate is to develop rules and procedures for damage resulting from the transboundary movement of LMOs under the Protocol. It is due to conclude its work in 2008.

With regard to risk assessment, an Ad Hoc Technical Expert Group on Risk Assessment was established in 2005 (Decision BS-II/9). The objective of the Expert Group is to further consider the nature and scope of existing approaches to risk assessment, evaluate such approaches and identify any gaps, and identify capacity-building needs. The Group has compiled and analysed national, regional and international guidance on risk assessment that was made available for the meeting of the Parties in March 2006. Capacity building workshops are planned on this issue during the next two years.

The third meeting of the Parties took place in Brazil in March 2006. The most significant outcome of the meeting was the agreement on detailed documentation requirements for living modified organisms for food, feed or processing (LMO-FFPs), as specified in Article 18.2(a) (Decision BS-III/10). The agreed package, known as the 'Curitiba Rules' requests parties to take measures to ensure that documentation accompanying LMO-FFPs in commercial production clearly states that the shipment contains LMO-FFPs in cases

⁴ Cartagena Protocol for Biosafety: <http://www.biodiv.org/biosafety/default.asp>

where the identity of the LMO is known through means such as identity preservation systems. The Curitiba Rules still allow that, in cases where the identity of the LMO is not known through such measures, the documentation should state that the shipment may contain one or more LMO-FFPs and list names, the transformation events and/or the unique identifiers of the LMOs that may be contained in the shipment. The Rules also provide for reviewing experience gained with these documentation requirements at the fifth meeting of the Parties in 2010 with a view to considering a phaseout of ‘may contain’ documentation at the sixth meeting of the Parties in 2012. Finally, the Rules also include special provisions for capacity building, especially relating to using and developing simple, rapid, reliable and cost-effective sampling and detection techniques for LMOs.

4.2 Developments regarding sanitary and phytosanitary measures

4.2.1 Pests of plants

Aspects related to pests and diseases of plants form an integral part of the IAS framework. Alien pests and diseases of plants can have significant negative impacts on both individual plant species and entire ecosystems. Since plants often do not have resistance towards alien pests or diseases, the effects of these invaders can often be very severe. For example, since the 1910s European elms have been affected by Dutch elm disease caused by the alien fungus *Ophiostoma ulmi* thought to be native to Asia (GISP database, undated).

Those IAS that qualify as pests of plants or plant products have been covered under the International Plant Protection Convention (IPPC)⁵ (binding instrument) since its establishment in 1951. Parties to the World Trade Organisation’s Agreement on the Application of Sanitary and Phytosanitary Measures (the SPS Agreement), which was signed by the European Commission on behalf of the EU in 1994, are obliged to take only those sanitary and phytosanitary measures that are justified, and to avoid measures that would constitute disguised restrictions on trade. The SPS Agreement identifies IPPC as the relevant reference body for international standards in relation to plant health. WTO parties may apply measures that differ from the IPPC standards only where this is scientifically justified.

It is only recently that guidance was agreed under the revised IPPC with regard to pests that affect unmanaged ecosystems. In 2003, the Fifth Session of the IPPC Interim Commission on Phytosanitary Measures (ICPM) adopted two supplements to the International Standard for Phytosanitary Measures (ISPMs) that are directly relevant to IAS.

The IPPC Supplement on ‘Analysis of environmental risks’ to ISPM No.11 (Pest risk analysis for quarantine pests) focuses on plants that are potential weeds, even where they do not directly impact on agricultural systems. According to the Supplement, a species that is allowed entry based on available information but subsequently moves from the

⁵ International Plant Protection Convention (IPPC): <http://www.ippc.int/IPPC/En/default.isp>

intended environment to an unintended environment and becomes problematic can be treated as if it had just arrived and is a new pest. The IPPC provisions for the entry of a pest can thus be applied to a domestic movement years after its introduction. The Supplement also provides for control of pests that can cause indirect impacts on biodiversity and ecosystem function as well as direct impacts to plants.

The IPPC Supplement on ‘Guidelines on the understanding of potential economic importance and related terms including reference to environmental considerations’ to ISPM 5 (Glossary of Phytosanitary Terms) clarifies that pest risk analysis can account for environmental concerns in economic terms by using monetary or non-monetary values and that market impacts are not the sole indicator of pest consequences. Accordingly, Contracting Parties have the right to adopt phytosanitary measures with respect to pests for which the economic damage caused to plants, plant products or ecosystems within an area cannot be easily quantified.

The first ISPM for packaging was approved in 2002. ISPM 15 on ‘Guidelines for regulating wood packaging material in international trade’ describes measures to reduce the risk of introduction and/or spread of quarantine pests associated with wood packaging material in use in international trade. According to these Guidelines, the National Plant Protection Organisations should accept wood packaging material that has been subjected to an approved measure without further requirements. Countries can, however, use other measures if these can be justified on technical grounds. Exporting and importing countries should put in place procedures to verify that an approved measure has been applied, including the use of a new globally recognized wood packaging mark.

The developments described above provide guidance on the application of the IPPC to address certain risks posed by IAS. However, they do not extend the IPPC definition of ‘pest’ to include organisms that are not pests of plants (eg hitchhiker organisms such as spiders in table grapes, ants in taro). Additionally, given that the supplements have just been adopted, it is too early to assess how they are being applied.

At the pan-European level, the European and Mediterranean Plant Protection Organisation (EU is not a member of EPPO) is developing a cooperative strategy for protection against IAS and also contributed to the development of the Bern Convention’s Strategy on IAS. EPPO has established an Ad hoc Panel on Invasive Alien Species and appointed a scientific officer for IAS issues in 2005. The Panel has developed a list of plants considered to pose an important threat to plant health, environment and biodiversity in the EPPO region. EPPO recommends that countries in which biodiversity is endangered by these species take measures to prevent their further introduction and spread or manage unwanted populations (eg publicity, restriction on sale and planting, control).

4.2.2 Animal diseases

Introductions of exotic animal diseases and parasites are often considered primarily a threat to agricultural production and human health. However, such introductions can also have severe effects on susceptible native species and ecosystems. For example, in

Hawaii, avian malaria and avian pox have been implicated in the decline and changed distribution of several forest bird species (see, eg, Atkinson et al, 2000). In the European context, the parasite *Gyrodactylus salaris* has had impacts in the fisheries sector in Norway⁶.

As for plant pests, the measures taken by WTO Members (including the EU) in relation to animal pathogens need to be in accordance with the SPS Agreement. The World Organisation for Animal Health (Office International des Epizooties or OIE) is identified in the SPS Agreement as the reference body for international standards on animal health. WTO parties may apply measures different from those in OIE standards only where this is scientifically justified. OIE standards relate to international trade in animals and animal products, and do not refer to the risks relating to invasiveness of potential ‘carrier’ animals in their own right. Animal diseases which do not present a threat to food-producing animals or humans (but could threaten native animals, eg, avian malaria) also fall outside the scope of these standards.

A number of outbreaks of harmful diseases took place during the period of 2000-2005, eg foot and mouth disease in 2001 and avian influenza in 2005. Consequently, many major developments in the international and regional frameworks relating to animal diseases have been driven by these events.

The Global Strategy for the Progressive Control of Highly Pathogenic Avian Influenza (HPAI, non-binding instrument) was published in 2005 by the Food and Agriculture Organisation of the United Nations (FAO), OIE and World Health Organisation (WHO) (FAO/OIE/WHO, 2005). The Strategy provides approaches and implementation plans for the global control of the influenza. The approaches will be implemented over 3 time frames: immediate to short (1-3 years), short to medium (4-6 years) and medium- to long-term (7-10 years). The strategy outlines a general global response rather than a local one, highlighting the importance of capacity building, collaboration, and creation of information systems in times of health emergency.

In addition to this joint response by OIE, FAO and WHO, three biodiversity-related international organisations have also addressed the outbreak and implications of avian influenza (the Ramsar Convention (Resolution IX.23), the Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA) (Resolution 3.18) and the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention/CMS) (Resolution 8.27)) (binding instruments)).

In 2003, the FAO, OIE and WHO agreed to jointly implement a Global Early Warning System for Animal Diseases including Zoonoses (GLEWS, non-binding instrument). Through sharing of information on animal disease outbreaks and epidemiological analysis, the GLEWS initiative aims at improving global early warning as well as transparency among countries. The response component of the GLEWS has yet to be established. It will complement the existing response systems of FAO, OIE and WHO in order to deliver a rapid coordinated international response to animal disease emergencies.

⁶ For more information, see <http://www.bellona.no/imaker?id=12780&sub=1>.

The three organisations are also developing a joint strategy to strengthen regional activities for animal disease control.

4.3 Developments regarding the maritime and aviation pathways of IAS

The International Maritime Organisation (IMO) began developing a mandatory instrument for the control of ships' ballast water in 1997 and the International Convention for the Control and Management of Ships' Ballast Water and Sediments was finally adopted in February 2004 (BWM Convention, binding instrument). The aim of the Convention is to prevent, minimize and ultimately eliminate the transfer of harmful aquatic organisms and pathogens through the control and management of ships' ballast water and sediments.

The Convention will require all ships to implement a Ballast Water and Sediments Management Plan. All ships will have to carry a Ballast Water Record Book and will be required to carry out ballast water management procedures to a given standard. Existing ships will be required to do the same, but after a phase-in period. Parties to the Convention are also given the option to take additional measures, which are subject to criteria set out in the Convention and to IMO Guidelines. Parties should also ensure that ballast water management practices do not cause greater harm than they prevent to their own environment, human health, property or resources or to those of other States.

In July 2005, IMO's Marine Environment Protection Committee (MEPC) adopted 'Guidelines for uniform implementation of the International Convention for the Control and Management of Ships' Ballast Water and Sediments'. The Guidelines cover ballast water management equivalent compliance; approval of ballast water management systems; ballast water management and development of ballast water management plans; ballast water exchange and procedures for approval of ballast water management systems that make use of Active Substances.

The BWM Convention is to enter into force 12 months after ratification by 30 States with 35 per cent of the world's fleet tonnage. At April 2006, there were only six Contracting States to the Convention⁷.

In addition, IMO is currently implementing Phase 2 of the Global Ballast Water Management Programme (Globallast) that aims to build awareness, regional cooperation and developing country capacity to implement the IMO Guidelines and prepare for the BWM Convention ratification and implementation.

With regard to the spread of IAS through air transport pathways, the International Civil Aviation Organization (ICAO) first addressed the issue of introductions via civil air transportation in 1998 (ICAO Resolution A32-9 on Preventing the introduction of invasive alien species, non-binding instrument). During 2000-2005, this Resolution has been updated on two occasions by stronger recommendations (Resolutions A33-18 in 2001 and A35 -19 in 2004). The Resolutions urge Contracting States to support one

⁷ For most recent information, see the IMO's Summary of Conventions at http://www.imo.org/Conventions/mainframe.asp?topic_id=247.

another's efforts to reduce the risk of introducing, through civil air transportation, potentially invasive alien species to areas outside their natural range. The Secretariat has also conducted a survey of member nations to assess IAS risks associated with civil aviation pathways.

4.4 Building synergies between different agreements

In recent years increasing attention has been paid to enhancing synergies between different international Multilateral Environmental Agreements (MEAs) and other biodiversity-related conventions with the aim of improving coherent and effective implementation of MEAs and avoid duplicated and contradicting of work.

In 2001, a Joint Liaison Group (JLG) between the three Rio Conventions (CBD, UN Framework Convention on Climate Change (UNFCCC, binding instrument) and UN Convention to Combat Desertification (UNCCD, binding instrument) was established as an informal forum for exchanging information, exploring opportunities for synergistic activities and increasing coordination. As a result, several collaborative activities between these conventions have been undertaken, including a joint programme of work on Biodiversity of Dry and Sub-Humid Lands (CBD and UNCCD) and a cross-cutting initiative on climate change and biodiversity (CBD and UNFCCC).

In 2004, a liaison group between the five biodiversity-related conventions (CBD, the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES), the Bonn Convention, the Ramsar Convention and the World Heritage Convention) was set up (CBD Decision VII/26, also CITES Resolution 13.10). Cooperation between these conventions has led to several shared activities, including establishment of joint work plans. Cooperation agreements also exist between other conventions that support the CBD's objectives. One of the joint initiatives included a workshop: 'Invasive Alien Species and the International Plant Protection Convention: An expert consultation of phytosanitary services and environmental protection agencies' that was held in Braunschweig, Germany, in 2003. The workshop was co-organised by the IPPC Secretariat, with the objective of helping phytosanitary experts, environmentalists, and regulators exchange ideas and learn how the IPPC and related tools may help in the management of IAS.

Cooperation between different conventions and agreements provides an opportunity to address issues related to IAS. These are now routinely included in the list of options for enhanced cooperation between conventions (eg UNEP/CBD/WG-RI/1/7/Add.2). A number of joint work programmes, notably the third Ramsar-CBD Joint Work Plan (2002-2006), specifically address issues related to IAS (UNEP/CBD/COP/7/INF/27). Additionally, the African-Eurasian Waterbird Agreement, Bonn Convention, and Ramsar Convention Work Programme (2002-2003) also identified pilot projects for invasive alien species.

An important development with regard to IAS has been increased cooperation between conventions in different sectors. A memorandum of cooperation between IPPC, CBD and Cartagena Protocol on Biosafety was signed in 2004. This memorandum formalised the

cooperation between the three conventions and initiated the development of a joint work plan as well as regular tripartite meetings which address IAS issues as they affect plant health in the broadest sense.

The CBD COP (Decision VII/13) supports extension of such inter-sectoral cooperation arrangements eg to include closer linkages with the OIE.

4.5 Other relevant international developments

Issues related to IAS have also been addressed in the broader context of sustainable development. Agenda 21, adopted by the United Nations Conference on Environment and Development (UNCED) in 1992, includes several Recommendations (non-binding instrument) that are relevant to the introduction of IAS (see Annex 2). During 2000-2005, problems related to IAS were also addressed at the UNCED Johannesburg Summit in 2002. In the context of maritime safety, the Johannesburg Summit urged the international community to accelerate the development of measures to address IAS in ballast water (Johannesburg Plan of Implementation Chapter 34(b)). In relation to the conservation and sustainable use of biodiversity, the Summit supported the strengthening of national, regional and international efforts for IAS control and encouraged the development of effective work programmes on IAS at all levels (Johannesburg Plan of Implementation Chapter 44(i)). The most recent UNCED Summit in New York in 2005 did not produce specific recommendation on IAS, but reiterated its support for the implementation of the CBD's provisions as well as the Johannesburg commitment for a significant reduction in the rate of loss of biodiversity by 2010.

In relation to the conservation of migratory waterbirds, the African-Eurasian Migratory Waterbird Agreement (AEWA) adopted 'Guidelines on Prevention of Introduction of Alien Migratory Waterbird Species and their Control' in 2002 (Resolution 2.3, binding instrument). The AEWA Guidelines urge countries to put monitoring systems in place to regularly assess the status of alien species, including in waterbird collections, provide essential data for risk evaluation and include alien species in regular waterbird inventories. Appendix I of the Guidelines provides guidance on assessment of risk posed to biodiversity by alien waterbird species within the AEWA region and includes a provisional classification of each species as high, medium or low risk.

IAS in wetland ecosystems are addressed by the Ramsar Convention on Wetlands' Resolution VIII.18 on Invasive Species and Wetlands, adopted in 2002 (binding instrument). The Resolution urges Parties to:

- address wetland IAS issues in a decisive and holistic manner, making use of tools and guidance developed by various institutions and under other conventions (eg CBD Guiding Principles);
- identify the presence of IAS in Ramsar sites and other wetlands, the threats they pose to these sites' ecological character and the actions underway or planned for prevention/mitigation; and
- undertake a risk analysis of alien species that may pose a threat to the ecological character of wetlands.

The 13th meeting of the CITES Conference of Parties in 2004 addressed trade in IAS. Resolution 13.10 on trade in alien invasive species (binding instrument) recommends that the Parties of CITES should consider the problems of invasive species when developing national legislation and regulations that deal with trade in live animals or plants. It is recommended that the exporting Party should consult with the Management Authority of a proposed country of import, when possible and when applicable, when considering exports of potentially invasive species, to determine whether there are domestic measures regulating such imports.

In 1994 the Programme of Action for the Sustainable Development of Small Island Developing States (SIDS) (Barbados Programme of Action⁸, non-binding instrument) was adopted. IAS pose a particular threat to island states' biodiversity and therefore the Barbados Programme also included several actions addressing IAS. An International Meeting for the 10-year Review of the Barbados Programme of Action took place in 2005 in Mauritius. At that meeting, the Mauritius Strategy for further implementation of the Barbados Programme of Action was adopted. The Strategy reiterates the recommendation to control major pathways for potential IAS in Small Island Developing States.

4.6 Developments at the pan-European level

At the pan-European level, the main development during the 2000-2005 period was the adoption of the 'European Strategy on Invasive Alien Species' developed under the Bern Convention (binding instrument) with input from a wide range of stakeholder and non-governmental organisations (See Chapter 5). The Strategy, approved in 2003, offers advice to the Contracting Parties to the Bern Convention on measures to prevent unwanted introductions and tackle IAS. The Convention's Standing Committee has recommended that Contracting Parties draw up and implement national strategies on IAS, taking into account the European Strategy on Invasive Alien Species, and co-operate, as appropriate, with other Contracting Parties and Observer States in the prevention of IAS introduction, the mitigation of their impacts on native flora and fauna and natural habitats, and their eradication or containment where feasible and practical (Recommendation No. 99). In addition, the Bern Convention IAS expert group has continued to hold meetings bringing together IAS experts from a range of Convention's Member States.

In 2003, the 5th Environment for Europe Ministerial Conference adopted the Kyiv Resolution on Biodiversity (non-binding instrument), which extended the EU target of halting the loss of biodiversity by 2010 to the pan-European region. The Resolution includes a specific action point related to invasive alien species stating that by 2008, the European Strategy on Invasive Alien Species developed under the Bern Convention should be implemented by at least half of the countries of the pan-European region through their respective Biodiversity Strategies and Action Plans.

⁸ Barbados Programme of Action and Mauritius Strategy: <http://www.sidsnet.org/>.

At the same Conference, the Framework Convention on the Protection and Sustainable Development of the Carpathians (Carpathian Convention, binding instrument) was developed. According to the Convention's Article 4.3 on Conservation and Sustainable Use of Biological and Landscape Diversity the Parties shall pursue policies aiming at the prevention of introduction of IAS and release of genetically modified organisms threatening ecosystems, habitats or species, their control or eradication. The Convention was signed by authorities from the Czech Republic, Hungary, Poland, Romania, Serbia and Montenegro, Slovakia, and Ukraine. The Convention entered into force on 4 January 2006.

4.7 Gaps within the international IAS framework

In 2004 the CBD established an Ad Hoc Technical Expert Group to address gaps and inconsistencies in the international regulatory framework in relation to IAS with the objective of providing SBSTTA (Subsidiary Body on Scientific, Technical and Technological Advice) with recommendations prior to COP 9 in 2008. The Expert Group concluded that several of the remaining problems related to control of IAS do not result from gaps in the international regulatory framework, but are caused by inadequate implementation of existing international provisions at national level. For most pathways for the introduction and spread of IAS, the underlying factor influencing and hindering the implementation of CBD Article 8(h) is inadequate national capacity.

The Expert Group also identified a lack of formal standards set at international level to deal with some IAS pathways. In many cases, this is because there is no standard-setting body recognised under the SPS Agreement with a mandate to develop standards to address certain risks, eg there is a significant general gap relating to the lack of international standards to address organisms that are invasive but do not qualify as pests of plants as defined by the IPPC (eg 'hitchhiker' organisms such as ants and spiders).

Other major gaps in the binding international regulatory framework relate to known pathways like hull fouling and civil air transport. Specific gaps and inconsistencies have been identified for several IAS pathways, including aquaculture/mariculture; military activities; emergency relief, aid and response; international development assistance; scientific research; tourism; pets, aquarium and garden pond species, live bait and live food; biocontrol agents; ex-situ animal breeding programmes; incentive schemes linked to reforestation (eg carbon credits); inter-basin water transfer and canals; unintended protection of IAS as a part of national nature conservation legislation and international conventions and other agreements; and inconsistency in terminology and lack of clear guidelines on the interpretation of relevant legislation (UNEP/CBD/AHTEG/IAS/1/2, UNEP/CBD/SBSTTA/11/16).

The Expert Group proposes several specific actions to address these gaps and inconsistencies (UNEP/CBD/SBSTTA/11/INF/4). These involve improved implementation of existing international agreements and regional approaches or action by national government agencies. Collaboration amongst government agencies and international bodies/instruments is of high importance. Sharing of best practice,

development of codes of practice and increasing education and public awareness are also recognised as crucial factors in addressing IAS problems.

In order to address animals that are IAS but are not pests of plants under IPPC, options proposed include the expansion of the mandate of the World Organisation for Animal Health (OIE) beyond a limited number of animal diseases, the development of a new instrument, the development of binding requirements under an existing agreement or agreements or the development of non-binding guidance.

In order to address the problem of limited financial and technical resources hindering national implementation of biodiversity-related Multilateral Environmental Agreements (MEAs) the United Nations Environment Programme (UNEP) is currently developing practical tools to assist countries to improve the implementation of their MEA obligations. The UNEP Issues-Based Modules Project⁹ aims to provide structured information on concerns that are dealt with by a number of MEAs. IAS constitute one of the project modules. The project will identify IAS-related implementation requirements under different international and regional agreements and cluster these obligations according to the various activities required to prevent and manage IAS. This project will provide an important tool to assist countries address gaps in IAS frameworks and streamline implementation at the national level.

BOX 2. IAS RELATED DEVELOPMENTS IN NEW ZEALAND AND AUSTRALIA: KEY FEATURES

Although the political and environmental conditions in New Zealand and Australia are very different from those in Europe, there are some features of their systems related to IAS that are potentially applicable here. These are set out below.

Single agency approach

Both New Zealand and Australia have established agencies with clear lead responsibility for most IAS issues (Biosecurity Australia and Biosecurity New Zealand). The existence of these agencies creates a single clearing point for media enquiries and publicity in relation to IAS, and also enables a more coordinated ‘cross-cutting’ approach to the issues across the affected sectors (eg health, agriculture, marine environment). The single agency approach appears to have improved effectiveness and understanding, and reduced conflict.

Strong and clear strategy

The New Zealand government published a ‘Biosecurity Strategy’ in 2003 (New Zealand Biosecurity Council, 2003). This was the result of a broad review of systems, and an open consultation process that brought together participants from industry, non-governmental groups, and various government departments. This Strategy is now the foundation for the development of new systems and processes in New Zealand, and lays out the country’s priorities in a transparent manner.

Robust external border control and public awareness about IAS issues

Both New Zealand and Australia allocate a high level of resources to policing their external borders, and encourage media interest in relation to new incursions of exotic species and the way these are dealt with. The public (and media) appear to be generally better informed about the potential risks of new species introductions.

⁹ Project website at: www.svs-uneplibmdb.net (still under construction).

Extra protection for fragile habitats and species

For some fragile areas (eg offshore islands), strict controls have been established with regard to the passage of goods. Certain species are banned from import or for possession on some islands due to the risk they present to native species (eg Lord Howe Island in Australia where domestic cats are being 'phased out').

For more information

Biosecurity Australia: <http://www.affa.gov.au/biosecurityaustralia>

Biosecurity New Zealand: <http://www.biosecurity.govt.nz/>

5 INTRODUCTION TO CBD GUIDING PRINCIPLES AND THE EUROPEAN STRATEGY ON INVASIVE ALIEN SPECIES

5.1 CBD Guiding Principles

The CBD Guiding Principles (GPs) for the prevention, introduction and mitigation of impacts of alien species that threaten ecosystems, habitats and species were adopted by the Parties to the CBD in 2002. The fifteen GPs provide general guidance to governments and organisations for developing effective strategies to prevent the introduction of, and promote control and/or eradication of IAS (see Box 3). The Principles cover groups of organisms, including GMOs and LMOs where these are IAS, but do not include taxon/functional group-specific guidance. They address both intentional and unintentional pathways of introduction and support decision-making based on the precautionary and ecosystem approaches.

The GPs affirm that prevention is generally more cost-effective and environmentally desirable than measures taken following the introduction and establishment of an IAS and recommend that priority should be given to preventing introduction of IAS between and within States (eg through border control and quarantine measures). However, if an IAS has been introduced, early detection and rapid eradication should take place to prevent its establishment. In the event that eradication is not feasible or resources are not available for eradication, containment and long-term control measures should be implemented.

5.2 European Strategy for Invasive Alien Species

The Bern Convention initiative for a European Strategy on Invasive Alien Species (in collaboration with the European Section of the IUCN Invasive Species Specialist Group) started in 2000. The Strategy, approved by the Bern Convention Standing Committee in 2003, promotes the development and implementation of coordinated measures and cooperative efforts throughout Europe to prevent or minimise adverse impacts of IAS on Europe's biodiversity, as well as their consequences for the economy and human health and well-being.

The Strategy covers terrestrial, freshwater and marine environments under the sovereignty or jurisdiction of Bern Convention Parties. It also provides guidance for activities carried out in areas beyond national jurisdiction (eg shipping). The Strategy also covers alien species (as defined by CBD, see Box 1) in all taxonomic groups¹⁰. However, GMOs and LMOs fall outside the scope of the Strategy.

¹⁰ Including viruses, prions, bacteria mycorrhiza and feral animals of domestic species.

The Strategy provides guidance to help Bern Convention Parties in their efforts to:

- increase awareness and information on IAS issues and ways to tackle them;
- strengthen national and regional capacity and cooperation to deal with IAS;
- prevent the introduction of new IAS into and within Europe and support rapid response to detected incursions;
- reduce the adverse impact of existing invasive alien species;
- recover species and restore natural habitats and ecosystems that have been adversely affected by biological invasions, where feasible and desirable; and
- identify and prioritise key actions implemented at the national/regional level.

The European Strategy for IAS is in line with the CBD Guiding Principles. However, the Strategy also provides guidance to some issues that are not addressed within the Guiding Principles framework, eg recovery and restoration of species and habitats affected by invasions. More detailed information on the CBD Guiding Principles and the European Strategy for IAS (eg their complementarity) is given in Chapter 8 below.

BOX 3. CBD GUIDING PRINCIPLES

General principles

Guiding principle 1. Application of precautionary approach;

Guiding principle 2. Application of three-stage hierarchical approach, ie prevention, eradication and control;

Guiding principle 3. Application of ecosystem approach as described in COP Decision V/6;

Guiding principle 4. The role of States in recognising the risk that activities within their jurisdiction or control may pose to other States as a potential source of IAS and taking appropriate actions to minimise that risk.

Guiding principle 5. Undertaking research and monitoring activities

Guiding principle 6. Increasing education and public awareness

Prevention

Guiding principle 7. Implementing border control and quarantine measures

Guiding principle 8. Exchanging of information on IAS

Guiding principle 9. Increasing cooperation, including capacity-building

Introduction of species

Guiding principle 10. Guidelines regarding intentional introduction

Guiding principle 11. Guidelines regarding unintentional introductions

Mitigation of impacts

Guiding principle 12. Taking appropriate steps to mitigate impacts of IAS

Guiding principle 13. Eradication when feasible

Guiding principle 14. Containment when eradication of not appropriate

Guiding principle 15. Implementing effective control measures

See CBD Guiding Principles on IAS: <http://www.biodiv.org/programmes/cross-cutting/alien/decision-v8.shtml?dec=VI/23&menu=cross-cutting&filter=alien>

6 REVIEW OF EUROPEAN COMMUNITY LEGAL AND POLICY INSTRUMENTS WITH REGARD TO IAS

In order to establish the adequacy of the current European framework for IAS with regard to internationally-agreed rules and guidelines, an examination of policies, projects, legislative instruments, and other relevant documents was carried out. The details of this analysis are contained in Annex 4.

The section below summarises European Community legislation in place in relation to:

- import and export of IAS into and out of the European Community;
- possession and trade in IAS within the European Community;
- introduction of IAS within and outside the European Community; and
- control and eradication of IAS within and outside the European Community.

It then addresses relevant Community policies and ongoing research activities that contribute to the European framework on IAS, and provides a short summary of Community provisions.

A short description of the European framework in relation to animal health policy is set out in box 4. This area of policy is well established in the EU, and there is a large body of legislation in place in this area, some of which has relevance to IAS.

BOX 4: EUROPEAN FRAMEWORK ON ANIMAL HEALTH – RELATIONSHIP WITH IAS

Animal Health policy in the EU is coordinated by DG-Health and Consumer Protection (DG-SANCO). The objective of this policy area is to protect and raise the health status and condition of animals in the Community, in particular food-producing animals, whilst permitting intra-Community trade and imports of animals and animal products in accordance with appropriate health standards and international obligations. The policy and legal framework includes instruments that apply to both intra-community trade (between EU Member States) and to importation (the introduction into the Member States from third Countries outside the European Union) of live animals and products of animal origin.

The current framework is based on the WTO's Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement) and standards produced by the Office International des Epizooties (OIE). It includes preventive health measures on intra-community trade and imports of: live animals; semen, ova and embryos; and animal products. There is also Community legislation on animal diseases, including control measures (to be taken as soon as the presence of a disease is suspected); eradication and monitoring programmes (for diseases that are already within the Community); and in relation to the EU's financial contribution to managing animal diseases in the EU. A new Animal Health Strategy is under development, to improve the prevention and control of animal disease in the EU. Other activities include identification measures, to guarantee the traceability of animals.

The CBD definition of IAS is clearly broad enough to include animal diseases and pathogenic organisms, and in some countries, animal diseases are believed to threaten native biodiversity (eg avian malaria in Hawaii). Therefore, the approach taken in this report is that animal health and IAS policy are areas which overlap in some cases. However, in many cases, the diseases that are managed for animal health purposes will present no direct threat to biodiversity, and would therefore not be considered IAS under the CBD definition. It should also be mentioned that some animal diseases which do not present a threat to food-producing animals (but could threaten native animals, eg, avian malaria) may not be considered by the OIE, and hence may not be covered by current Community legislation relating to animal health.

It should also be noted that the DG-SANCO framework on animal health does not consider the risks of invasiveness connected with ‘carrier’ organisms. For example, the disease risk in relation to squirrels may be the same for all species, although some species may carry more risk in terms of potential to be invasive. The current European legislative framework (based on OIE standards) is not able to ‘ban’ imports of certain species on the basis of risk of invasiveness.

For more information and detail on the legislative and policy instruments in place, see DG-SANCO’s website: http://ec.europa.eu/comm/dgs/health_consumer/index_en.htm

6.1 Community legislation regarding import and export of IAS

Key legislation related to import and export of IAS is summarised in Table 1. At present, systems for control of imports and exports of IAS into and out of the European Community appear to be well-established and implemented with regard to:

- pests of plants (those organisms falling within the ‘harmful organism’ definition in Directive 2000/29/EC);
- animal pathogens, including those affecting aquaculture organisms; and
- genetically modified organisms.

In addition, the Wildlife Trade Regulations (Council Regulation 338/97/EC and Commission Regulation 1808/2001/EC) list four animal species¹¹ that are banned from import into the EC (but not banned from export).

It is apparent that there are significant gaps in this framework. There are no European-level import controls for the following categories of organisms (amongst others):

- non-genetically modified plant species, including highly invasive aquatic plants¹²;
- non-genetically modified animals (aside from the four species listed under the Wildlife Trade Regulations); and
- invertebrates that fall outside the ‘harmful organism’ definition in Directive 2000/29/EC, eg hitchhiker organisms such as invasive ants.

The framework for export controls in relation to IAS is weak. In principle, no quantitative or qualitative restrictions to exports from the European Community are in place (Council Regulations (EEC) No 2604/69 and (EEC) No 3918/91). This means that very few existing instruments can be used to address possible risks related to the export of IAS from the EU to third countries. Among the few examples are the Regulation on transboundary movements of genetically modified organisms (EC 1946/2003) and the Regulation on export control of dual use items (EC 1334/2000, amended and updated by Regulation EC 2006/394). The Regulation on transboundary movements establishes a system to control movements of GMOs to third countries (both intentional and unintentional). The Regulation on dual use items can be used to prevent the export of micro-organisms (including some GMOs) that could be used for military purposes after their exportation.

¹¹ Species listed are the red-eared slider (*Trachemys scripta elegans*); the American bullfrog (*Rana catesbeiana*); the painted turtle (*Chrysemys picta*); and the American ruddy duck (*Oxyura jamaicensis*).

¹² Some agricultural weeds may be covered by the legislation on pests of plants, but most potentially invasive plants are not covered.

In the context of EU external assistance and development cooperation, the EU External Action Regulations for the instruments for external assistance in 2007-2013 do not refer to the negative effects that development actions (eg humanitarian aid) may have with regard to intentional or unintentional spread of IAS (COM(2004)627, COM(2004)628, COM(2004)629, COM(2004)630 (proposals), and Council Regulation (EC) No 1257/96). For example, in the context of aiming to improve food security in developing countries, introduction of species alien to the region might lead to problems with IAS (see section 6.3 below).

IAS-related issues are not included in the Commission Regulation on the association of overseas countries and territories with the European Community (2304/2002/EC). This is significant as overseas countries and territories, along with developing countries where EU aid is focused, are often rich in biodiversity and are vulnerable to the impacts of IAS due to their geographic isolation.

Outside the Community framework, regional agreements and national policies/legislation applying to/present in third countries can, in principle, provide guidance and/or pose restrictions relevant to EU external actions in a given country (eg in relation to IAS).

Table 1: Key European legislation (and relevant Commission legislative proposals) in relation to import and export of IAS.

Instrument	Area of Application	Key implications for IAS	Key actors
Wildlife Trade Regulations (Council Regulation 338/97/EC and Commission Regulation 1808/2001/EC)	Limit trade in certain alien species presenting an ecological threat	Currently restricts import of 4 alien species into the EC, all of which are already established in Europe. Provisions under the Regulations to restrict holding or movement of alien species within the EC have not been utilised for these or any other species.	Member States
Directive on protective measures against the introduction into the Community of organisms harmful to plants or plant products and against their spread in the Community (2000/29/EC)	Pests of plants (based on IPPC)	Establishes a system to restrict import, prevent spread, and ensure control of pests of plants within the EC.	Member States.
Species-specific and general Directives containing precautions against animal disease introductions (many and various)	Animal diseases and parasites (including in aquaculture)	Establishes a system to restrict import, prevent spread, and ensure control and early notification of animal diseases and parasites within the EC.	Member States, with centralised notification system and some programmes financed centrally.
Directives on contained use of genetically modified micro-organisms and release of genetically modified organisms (90/219/EC, 2001/18/EC)	Genetically modified organisms	Establishes systems for control of holding, release, classification and assessment, public consultation etc. in relation to genetically modified organisms.	Member States
European Parliament and the Council Regulation on transboundary movements of genetically modified organisms (EC 1946/2003)	Genetically modified organisms	Establishes a system to control the transboundary movements of genetically modified organisms (intentional and unintentional)	Member States
Council Regulation setting up a Community regime for the control of exports of dual-use items and technology (EC 1334/2000, amended and updated by Council Regulation 2006/394/EC)	Micro-organisms, genetically modified organisms	Establishes a system to prevent the exportation of micro-organisms/GMOs that could be used for military purposes	Member States

6.2 European legislation regarding possession and trade of IAS within the EC

Key legislation related to possession and trade of IAS within the EC is summarised in Table 2. As with controls on import and export, systems for control of possession and trade in IAS within EC territory appear to be well-established and implemented with regard to:

- pests of plants (those organisms falling within the ‘harmful organism’ definition in Directive 2000/29/EC);
- animal pathogens, including those affecting aquaculture organisms; and
- genetically modified organisms.

In addition, a proposed Regulation has been developed to address the risks from the use of alien or locally absent species in aquaculture (COM(2006)154), and this is expected to come into force in 2006. The Wildlife Trade Regulations (Council Regulation 338/97/EC and Commission Regulation 1808/2001/EC) contain provisions that could be used to restrict holding and movement of listed animal species (reg 9(6)), but these provisions have not been applied to any species to date.

As with controls on imports and exports, it is apparent that there are significant gaps in the European framework related to possession and trade in IAS. Even in the case of species that are known to be invasive in one MS, there are no European-level restrictions on further sale or distribution within the Community: this is even the case with the four species that are banned from import into Community territory under the Wildlife Trade Regulations.

Certain categories of organisms are not covered by the framework at all, while in contrast, others are quite strictly controlled. This selective coverage may relate to risk perception at European level. However, the system is certainly not targeting all organisms that have significant economic, agricultural, or biodiversity impacts in Europe. This is highlighted when the measures at MS level relating to control and/or eradication of IAS are examined – the species being controlled include many that are not included in the European framework (see Annex 3 for detail of Member State measures, and discussion in chapter 7).

Table 2: Key European legislation (and relevant Commission legislative proposals) in relation to possession and trade of IAS.

Instrument	Area of Application	Key implications for IAS	Key actors
Wildlife Trade Regulations (Council Regulation 338/97/EC and Commission Regulation 1808/2001/EC)	Limit trade in certain species presenting an ecological threat	Provide legal basis to restrict holding or movement of alien species within the EC but have not been used to date (even the four alien species whose import into the EC currently prohibited under this Regulation).	Member States
Directive on protective measures against the introduction into the Community of organisms harmful to plants or plant products and against their spread in the Community (2000/29/EC)	Pests of plants (based on IPPC)	Establishes a system to restrict import, prevent spread, and ensure control of pests of plants within the EC.	Member States.
Species-specific and general Directives containing precautions against animal disease introductions (many and various)	Animal diseases and parasites (including in aquaculture)	Establishes a system to restrict import, prevent spread, and ensure control and early notification of animal diseases within the EC; can include controls on possession and trade in potential disease/parasite hosts where necessary.	Member States, with centralised notification system and some programmes financed centrally.
Directives on contained use of genetically modified micro-organisms and release of genetically modified organisms (90/219/EC, 2001/18/EC)	Genetically modified organisms	Establish systems for control of holding, release, classification and assessment, public consultation etc. in relation to genetically modified organisms.	Member States
European Parliament and the Council Regulation on transboundary movements of genetically modified organisms (EC 1946/2003)	Genetically modified organisms	Establishes a system to control the transboundary movements of genetically modified organisms (intentional and unintentional)	Member States
Proposed Regulation regarding use of alien and locally absent species in aquaculture (COM(2006)154)	Aquaculture species	Aims to establish systems to reduce risk from the use of alien and locally absent species in aquaculture.	Member States

6.3 Community legislation regarding introduction of IAS

Key legislation related to the introduction of IAS is summarised in Table 3. As with import/export and possession and trade, controls on introduction of IAS are best established and implemented with regard to:

- pests of plants (those organisms falling within the ‘harmful organism’ definition in Directive 2000/29/EC);
- animal pathogens, including those affecting aquaculture organisms; and
- genetically modified organisms.

The birds and habitats Directives (Directives 79/409/EEC and 92/43/EEC) contain general provisions related to intentional introductions to the wild. These are not restricted in scope to possible impacts on protected sites or species. For birds, Member States must ensure that any introduction of species of bird which do not occur naturally in the wild state in the European territory of the Member States does not prejudice the local flora and fauna. Under the habitats Directive, Member States must ensure that the deliberate introduction into the wild of any species which is alien to their territory is regulated so as not to prejudice natural habitats within their natural range or wild native fauna and flora and, if they consider it necessary, prohibit such introduction. No guidance has been developed to assist in the implementation of these provisions.

The Wildlife Trade Regulations contain provisions that could be used to restrict holding and movement of listed species, including introductions of such species, but these provisions have not been applied to any species to date.

A proposed Regulation has been developed to address the risks from the use of alien or locally absent species in aquaculture, and this is expected to come into force in 2006 (COM(2006)154). This Regulation will contain provisions for risk analysis in association with the introduction of any alien species for aquaculture.

Along with these ‘core’ instruments, the Environmental Impact Assessment (EIA) Directive (85/337/EEC as amended), Strategic Environmental Assessment (SEA) Directive (2001/42/EC), and Environmental Liability Directive (2004/35/CE) may have some relevance to introductions of IAS. The EIA Directive covers ‘the direct and indirect effects of a project on human beings, fauna and flora and on soil, water and landscape’ (Article 3). This could include impacts from IAS if caused or exacerbated by a project, and these potential impacts should therefore be considered in EIAs. For example, tourism developments (with accompanying landscaping using exotic plants) are known to have been the cause for the introduction of alien invasive plant species in the past.

The SEA Directive requires an environmental assessment for all ‘plans and programmes for agriculture, forestry, fisheries, energy, industry, transport, waste management, water management, telecommunications, tourism, town and country planning or land use [...] or (b) which, in view of the likely effect on sites, have been determined to require an assessment pursuant to Article 6 or 7 of Directive 92/43/EEC’. The assessment should consider significant environmental effects, and in particular, effects on sites designated

under the habitats and birds Directives, or transboundary effects: these could include the impacts of IAS. Plans and programmes for transport could include development of transport corridors (which could represent potential routes for spread of IAS); forestry plans could include planting of potentially invasive exotic species; and plans for water management have, in some areas, included introduction of potentially invasive alien molluscs for water filtration. The potential impacts of IAS should, therefore, be considered in the SEA process. Despite their possible application, the research undertaken for this project did not find any evidence that either the EIA or SEA Directives have been applied to the IAS issue.

The Commission's recent Biodiversity Communication (COM(2006)216) includes an action in this area: action 4.6.4: *to take stock of effectiveness of EIA and SEA in preventing and minimising negative impacts and improving positive impacts of developments on biodiversity and consider necessary measures to improve EIA and SEA performance in this respect (by 2008)*. This assessment should include analysis of the performance of these assessments in relation to the affects of IAS.

The Environmental Liability Directive could be used to apply the polluter pays principle to those who introduce IAS into the natural environment. Environmental damage as defined must be caused/threatened by an occupational activity listed in Annex III (which covers activities involving GMOs) or any other occupational activity whenever the operator has been at fault or negligent. However, there need to be one or more identifiable polluters, the damage must be concrete and quantifiable and a causal link should be established between the damage and the identified polluter(s). This may make it difficult to bring successful proceedings as it will often be impossible to link negative environmental effects from IAS with the actions or omissions of identifiable individuals or companies.

As with the other areas assessed, there are gaps and inconsistencies in the Community framework in relation to the introduction of IAS. While some types of organisms are covered in detail, others are completely absent from the framework. For example, when the proposed Regulation on the use of alien and locally absent aquaculture organisms (COM(2006)154) comes into force, such organisms will be subject to far stricter controls and risk assessments than non-aquaculture fish species that may be introduced for recreational fishing purposes or through use as bait fish.

Introduction of IAS outside EC territory is not covered in the legislation related to development cooperation, external assistance, trade or overseas territories (eg Regulations for the instruments for external assistance in 2007-2013, Overseas Association Decision 2001/822/EC, Commission Regulation on implementing the Overseas Association Decision (No 2304/2002/EC)). In this context, the issues related to IAS can be addressed mainly as a part of the strategic environmental assessments that the Community has committed to carry out on a systematic basis as part of its development policy ('European Consensus on Development' (2006/C 46/01)). Additionally, regional agreements and national policies/legislation applying to/present in third countries might also provide guidance, or even pose restrictions, to EU external actions in a given country

(eg in relation to IAS). On the positive side, control of IAS may also be a legitimate aid activity to assist with human development as well as environmental goals.

The omission of IAS related issues from the Community legislative framework for development cooperation and external assistance is an important gap, as IAS may be promoted through development programmes (eg planting of some invasive alien plants has been promoted by aid agencies; use of *Gambusia* (mosquito fish) has been promoted by health agencies). The overseas territories of some European countries (eg the sub-Antarctic islands owned by the UK and France) are especially vulnerable to the impacts of invasive alien species due to their isolation and their unique assemblages of flora and fauna.

Table 3: Key European legislation (and relevant Commission legislative proposals) in relation to introduction of IAS.

Instrument	Area of Application	Key implications for IAS	Key actors
Habitats & birds Directives (Directive 79/409/EEC and Directive 92/43/EEC)	Throughout MS territories, particularly in protected areas (Natura 2000)	Require regulation of deliberate introductions that may threaten native species; require site management including avoiding deterioration of sites which may mean control of IAS is required.	Member States
Directive on protective measures against the introduction into the Community of organisms harmful to plants or plant products and against their spread in the Community (2000/29/EC)	Pests of plants (based on IPPC)	Establishes a system to restrict import, prevent spread, and ensure control of pests of plants within the EC.	Member States.
Directive concerning the animal health conditions governing the placing on the market of aquaculture animals and products (91/67/EEC)	Disease organisms of aquaculture organisms	Establishes a system to restrict import, prevent spread, and ensure control of diseases of aquaculture organisms within the EC.	Member States
Council Directive 1999/22/EC of 29 March 1999 relating to the keeping of wild animals in zoos	Animal species kept in zoos, animal diseases	Requires Member States to prevent unintentional introductions of alien animal species (eg animal diseases and pests) to wild from zoos.	Member States
Species-specific and general Directives containing precautions against animal disease introductions (many and various)	Animal diseases and parasites (including in aquaculture)	Establishes a system to restrict import, prevent spread, and ensure control and early notification of animal diseases within the EC.	Member States, with centralised notification system and some programmes financed centrally.
Directives on contained use of genetically modified micro-organisms and release of genetically modified organisms (90/219/EC, 2001/18/EC)	Genetically modified organisms	Establish systems for control of holding, release, classification and assessment, public consultation etc. in relation to genetically modified organisms.	Member States
European Parliament and the Council Regulation on transboundary movements of genetically modified organisms (EC 1946/2003)	Genetically modified organisms	Establishes a system to control the transboundary movements of genetically modified organisms (intentional and unintentional).	Member States
EIA Directive (85/337/EEC)	Environmental effects of public and private projects	Includes afforestation, some agricultural applications which could lead to IAS introductions.	Member States

SEA Directive (2001/42/EC)	Environmental effects of plans and programmes	Covers plans and programmes related to sectoral activities that could result in IAS introductions	Member States
Environmental Liability Directive (2004/35/EC)	Liability for damage resulting from release of IAS	Could result in a polluter-pays framework in relation to IAS releases that are negligent or intentional. However, quite restricted in application.	Member States
Proposed Regulation regarding use of alien and locally absent species in aquaculture (COM(2006)154)	Aquaculture species	Aims to establish systems to reduce risk from the use of alien and locally absent species in aquaculture.	Member States

6.4 Community legislation regarding control and eradication of IAS

Key legislation related to control and eradication of IAS is summarised in Table 4. As in the other policy areas examined, provisions in relation to control and eradication are well established for the same three categories of organisms (pests of plants, animal pathogens and GMOs) that have been mentioned in relation to the other areas of Community legislation assessed.

Other categories of organisms are not explicitly included in these systems for control and eradication. However, Member States have implied obligations relating to control of IAS in some parts of their territories, namely:

- in waters subject to classification under the Water Framework Directive (2000/60/EC); and
- at Natura 2000 sites, and sites related to species protected under the habitats and birds Directives, where they must take necessary steps to prevent disturbance to species or deterioration of site status.

The proposal for a Marine Strategy Directive may also oblige Member States to address IAS in marine waters in order to achieve good environmental status (as under the Water Framework Directive).

This suite of obligations should oblige Member States to undertake control of IAS in many of the places where they are likely to present a threat to European biodiversity. However, due to the highly mobile nature of many IAS, a reliance on control at only selected sites would mean that Member States would need to commit to ongoing expenditure for an indefinite time period. In addition, there are no requirements for neighbouring Member States to consult each other or coordinate their control and eradication programmes.

Resources for IAS control appear to be available under the major European Funds for the 2007-2013 funding period (eg Regulation on support for rural development by the European Agricultural Fund for Rural Development (EAFRD) (EC) No 1698/2005) and proposed Regulations for Regional Development Fund (COM(2004)495) and Cohesion Fund, COM(2004)494). However, they are not specifically mentioned in any of the Regulations.

It should be noted that the habitats, birds and Water Framework Directives do not apply in many of the overseas territories, so the existing requirements for control of invasive alien species at specific sites are not applicable there. However, the Commission's recent Biodiversity Communication (COM(2006)216) contains a specific recommendation on applying a *nature directives-type approach for valued sites and species in those EU Outermost Regions not covered by nature directives (2006 onwards)*. This recommendation is directed specifically at France, and will not cover all of the overseas territories.

Table 4: Key European legislation (and relevant Commission legislative proposals) in relation to control and eradication of IAS.

Instrument	Area of Application	Key implications for IAS	Key actors
Water Framework Directive (2000/60/EC)	Freshwater/coastal waters	Requires MS to achieve good ecological status in fresh waters – may include control of IAS.	Member States
Habitats & birds Directives (Directive 79/409/EEC and Directive 92/43/EEC)	Throughout MS territories, particularly in protected areas (Natura 2000)	Require regulation of deliberate introductions that may threaten native species; require site management including avoiding deterioration of sites which may mean control of IAS is required.	Member States
Directive on protective measures against the introduction into the Community of organisms harmful to plants or plant products and against their spread in the Community (2000/29/EC)	Pests of plants (based on IPPC)	Establishes a system to restrict import, prevent spread, and ensure control of pests of plants within the EC.	Member States.
Species-specific and general Directives containing precautions against animal disease introductions (many and various)	Animal diseases and parasites (including in aquaculture)	Establishes a system to restrict import, prevent spread, and ensure control and early notification of animal diseases within the EC.	Member States, with centralised notification system and some programmes financed centrally.
Directives on contained use of genetically modified micro-organisms and release of genetically modified organisms (90/219/EC, 2001/18/EC)	Genetically modified organisms	Establish systems for control of holding, release, classification and assessment, public consultation etc. in relation to genetically modified organisms.	Member States
Proposed Marine Strategy Directive (COM(2005)505)	Marine environment	Aims to establish systems to achieve good environmental status in marine waters – as with the Water Framework Directive this may include the need to control IAS.	Member States
Proposed Regulation regarding use of alien and locally absent species in aquaculture (COM(2006)154)	Aquaculture species	Aims to establish systems to reduce risk from the use of alien and locally absent species in aquaculture.	Member States

6.5 Policies and Research

6.5.1 Community Policies

In addition to the legislative instruments in place, there are a number of non-binding Community instruments in place with relevance to IAS (see Table 5) and some ongoing research projects that will also contribute to understanding and provide platforms for possible future action in respect of the issue (Table 6).

Table 5: Key European Policy Documents Related to IAS

Policy	Area of Application	Key implications for IAS	Key actors
Communication from the Commission on the Precautionary Principle (COM 2000(1))	Outlines approach to using the precautionary principle	Application of the precautionary principle is one of the CBD guiding principles for IAS	European institutions and Member States
Sixth Environmental Action Programme (2001-2010) (Decision 1600/2002/EC of the EP and the Council of 22 July 2002)	Establishes programme of Community action on the environment.	Sets a key objective 'prevention and mitigation of impacts of IAS and genotypes'; and 'developing measures aimed at the prevention and control of invasive alien species including alien genotypes'	European institutions
European Community Biodiversity Strategy (COM(98)42)	Sets out framework for developing Community policies to comply with the CBD	Includes IAS as a key pressure. States that the Community should take measures to reduce the risks posed by IAS.	European institutions
European Community Biodiversity Action Plans (COM(2001)162 final)	Sectoral BAPS set out actions for biodiversity	IAS included in BAP for Natural Resources and Fisheries. Actions have included the development of regulations for Aquaculture organisms (underway). Progress was assessed in 2004 and found to be insufficient, but many of the actions will be picked up in the upcoming Communication on Biodiversity (see below).	European institutions
Communication on Biodiversity: Halting the Loss of Biodiversity by 2010 – and Beyond (COM(2006)216)	Identifies areas for action to 2010 and sets out objectives in relation to each area.	Includes a priority objective and actions in relation to IAS.	European institutions and Member States

Table 6: Key Ongoing or recent EU-level/European Research and Networking Activities Related to IAS

Research	Area of Application
DAISIE (Delivering Alien Invasive Species Inventories for Europe) (2005-2008)	Inventories of all IAS in Europe including terrestrial, marine and freshwater species, inventory of experts in IAS-related issues, basis for an early warning system for IAS, assess and summary of ecological, economical and health impacts of the most widespread and / or noxious invasive species.
ALARM (Assessing Large-scale Risks for biodiversity with tested Methods) (2004-2008)	Large scale risk assessment in relation to IAS and other threats to biodiversity. Risk analysis will aim at developing protocols to help prevent the introduction and spread of IAS to European ecosystems.
EPIDEMIE (Exotic Plant Invasions: Deleterious Effects on Mediterranean Island Ecosystems) (2001-2004)	EPIDEMIE delivered insights into plant invasions, original approaches to management of vulnerable ecosystems, and new perspectives in local and regional policy
NOBANIS (North European and Baltic Network on Invasive Alien Species)	NOBANIS is developing a distributed, integrated network of regional invasive species databases and promoting information exchange among the thirteen member countries, contributing to implementation of recent CBD and Bern Convention recommendations
SEBI2010 (Streamlining European 2010 Biodiversity Indicators), funded by European Environment Agency (2004-2009)	Developing an indicator related to IAS (and other indicators) in order to monitor progress towards the 2010 goal of halting biodiversity loss.

The main Community Policy documents relating to biodiversity - the Sixth Environmental Action Programme (6EAP) (Decision 1600/2002/EC of the EP and the Council of 22 July 2002), the Community Biodiversity Strategy (COM(98)42), and two of the four Biodiversity Action Plans (COM(2001)162) highlight the importance of IAS as an issue with negative effects on biodiversity. The Biodiversity Strategy states that ‘applying the precautionary principle, the Community should take measures pursuing to prevent that alien species cause detrimental effects on ecosystems, priority species or the habitats they depend on and establish measures to control, manage and, wherever possible remove the risks that they pose’ (Chapter 2 Paragraph 4).

However, despite this recognition, the actions that were set out under the 6EAP, Strategy or Action Plans have not been completed. The Commission Biodiversity Communication (COM(2006)216) includes some of the same actions (see Box 5); others are currently being addressed (eg development of a Regulation for the use of alien species in aquaculture).

<p>Box 5: Actions in the Biodiversity Communication (COM(2006)216) directed at IAS</p> <p>Objective 5: To substantially reduce the impact on EU biodiversity of invasive alien species (IAS) and alien genotypes</p> <p>Headline target: Negative impacts on EU biodiversity of IAS and alien genotypes prevented or minimised from 2010 onwards.</p> <p>A5.1 TARGET: Impact of IAS on biodiversity in the EU substantially reduced by 2010 and again by 2013.</p>
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A5.1.1: Action: Assess at EU level, gaps in the current legal, policy and economic framework to prevent, control and eradicate IAS and mitigate their impacts on biodiversity and develop a community strategy to address IAS including, where necessary and appropriate, measures to fill gaps (by 2007).
Community level action: Make assessment, propose measures to fill gaps.
MS action: Participate in assessment, adopt any necessary measures to fill gaps in Council.

A5.1.2: Action: Encourage MS to develop national strategies on IAS (by 2007) and to implement them fully (by 2010).
Community level action: Encourage MS.
MS action: Develop national strategy.

A5.1.3: Action: Encourage ratification and implementation by MS of the international Convention for the Control and Management of Ship's Ballast Water and Sediments under the International Maritime Organisation (2006 onwards).
Community level action: Encourage ratification.
MS action: Ratify and implement.

A5.1.4: Action: Establish early warning system for the prompt exchange of information between neighbouring countries on the emergence of IAS and cooperation on control measures across national boundaries (by 2008).
Community level action: Propose early warning system, coordinate implementation at Community level.
MS action: Adopt system in Council, implement system at national level.

A5.2 TARGET: Impact of alien genotypes on biodiversity in the EU significantly reduced by 2010 and again by 2013.

A5.2.1: Action: Fully apply the Cartagena Protocol on Biosafety to ensure an adequate level of protection of biodiversity (and human health) in the field of safe handling use and transfer of genetically modified organisms (2006 onwards).
Community level action: Apply as appropriate at Community level.
MS action: Apply as appropriate at MS level.

A5.2.2: Ensure protection of biodiversity as part of measures to protect human health and environment in relation to the deliberate release into the environment of genetically modified organisms (2006 onwards).
Community level action: Ensure in GMO authorisation procedure.
MS action: Ensure at national level in line with requirements of the authorisation.

References to IAS remain missing from some other key Community policies that may have substantial impact on the spread of IAS both within and outside Community territory. For example, the issue is not mentioned in the Strategy on renewable energy (COM(97) 599) (within the broader framework on climate change policy), or in the EU's biomass action plan (COM (2005)628 proposal). This is relevant in the context of IAS, as some alien biomass/biofuel crops (eg, eucalyptus and *Pennisetum purpureum* (elephant grass)) that are being promoted for fuel production, may have the potential to become invasive. The Council Resolution for a forestry strategy (1999/C 56/01) also lacks reference to IAS, though forest management can also contribute to introductions and the spread of IAS.

With regard to external assistance and development cooperation, the EU Development Policy Statement (2006/C 46/01) and the proposed Thematic Strategy on Environment and Sustainable Management of Natural Resources (COM(2006)20, proposal) provide the possibility of addressing IAS as a part of EU development cooperation activities (under the biodiversity related provisions). Issues related to IAS could also be addressed within the geographical frameworks for cooperation between the EU and third countries (eg Cotonou Agreement, European Neighbourhood Policy (COM(2004)373), EU Strategy for Africa (COM(2005) 489), Strategy for the EU-Latin America partnership (COM(2005)636), EU-Caribbean partnership (COM(2006) 86), Strategic Framework for the EU and Asia and South-East Asia (COM(2001)469

and COM(2003)399)). However, only the EU Strategy for Africa provides a specific reference to supporting work related to IAS.

The programming of EU development cooperation and external assistance is carried out within a framework of Country and Regional Strategy Papers (CSPs/RSPs) and National or Regional Indicative Programmes (NIPs/RIPs) that define the objectives and priority areas for the cooperation between the EU and third countries. In this context, Country Environmental Profiles (CEPs) are used to provide an analysis of the environmental, social and economic situation within a given country/region. Environment is addressed as a crosscutting issue within CSPs/RSPs and several strategy papers also include specific references to aspects of biodiversity. IAS can fall under the scope of several current strategy papers, however, they are not explicitly or systematically addressed. Additionally, although CEPs could provide a useful tool to consider issues related to IAS, conducting them is only a formal requirement, not a legal obligation, within the CSPs/RSPs framework.

6.5.2 Ongoing Research

The DAISIE (Delivering Alien Invasive Species Inventories for Europe) project, funded through the 6th Framework Programme (2005-2008) aims to provide European inventories of IAS and establish the basis for an early warning system. At present, except for the regional NOBANIS portal covering 13 countries, there is no central source of information on IAS in Europe. The DAISIE database could contribute to Europe's ability to detect IAS at an early stage and avoid severe impacts later on. Apart from the IAS inventories, DAISIE is also developing a database of experts in different fields related to biological invasions and attempting to assess and summarise the ecological, economical and health impacts of the most widespread and/or noxious invasive species. The countries taking part on this project are: Austria, the Czech Republic, France, Lithuania, Germany, Greece, Ireland, Italy, Slovenia, Spain, Sweden, Switzerland and the United Kingdom (also Russia and Israel). (See: <http://www.daisie.se>).

The ALARM (Assessing Large-scale Risks for biodiversity with tested Methods) project is also funded through the 6th Framework Programme (2004-2008). Biological invasions are one of four primary risks being addressed by this project. Among other tasks, the project will develop and test robust tools to address the introduction, spread and impact of aquatic and terrestrial non-native species within Europe. If the results of this project are applied, they could form the basis to predict whether restricting imports of more species into the European Community is possible or cost effective. However, changes to current legislation would be needed to bring such a system into force. The countries taking part in the invasion studies in this project are: the Czech Republic, France, Germany, Ireland, Lithuania, Poland, Spain, Slovenia, Switzerland and the United Kingdom (also Russia, Chile, Argentina). (See: <http://www.alarmproject.net>).

DAISIE and ALARM do not carry funding beyond the term of the research contracts involved, so if they are to continue, additional funding would be necessary, either with Community support, or from Member States.

SEBI2010 (Streamlining European 2010 Biodiversity Indicators), funded by European Environment Agency) (2004-2009) is developing a set of indicators to measure progress towards the 2010 goal of halting biodiversity loss. One indicator will relate directly to IAS. This should assist in raising awareness of the issue within and between Member States, and also in encouraging collection of data on IAS.

The EPIDEMIE project (Exotic Plant Invasions: Deleterious Effects on Mediterranean Island Ecosystems) (2001-2004) was a research project supported by the European Commission under the 5th Framework Programme, contributing to the implementation of Key Action 2.2.1 (Ecosystem Vulnerability) within the Energy, Environment and Sustainable Development thematic programme. The countries that took part in this project were France, Greece, Italy, Spain, Sweden, and the United Kingdom. (See <http://science.ceh.ac.uk/epidemie>).

The North European and Baltic Network on Invasive Alien Species (NOBANIS), funded by the Nordic Council of Ministers and the government of Germany, is a network for cooperation between competent authorities of the North European and Baltic region and it contributes to implementation of recent CBD and Bern Convention recommendations. The participating countries are Denmark, Estonia, Finland, the Faroe Islands, Germany, Greenland, Iceland, Latvia, Lithuania, Norway, Poland, the Russian Federation and Sweden. One of the goals of NOBANIS is to provide administrative tools for making the precautionary approach operational in preventing the unintentional dispersal of IAS. NOBANIS also establishes regional cooperation to assist participating countries in prevention, early detection, eradication, control and mitigation of the ecological impacts of IAS. This goal is achieved, through a publicly accessible internet portal with a searchable database holding information on c5000 alien species recorded within the region, with data on their introduction, distribution, invasiveness, and control. Detailed fact sheets are available for around 60 of the most invasive alien species. (See www.nobanis.org).

6.6 Summary: Community Framework

The existing Community legal and policy framework related to IAS appears to be well established and implemented in relation to certain limited categories of potential IAS, and lacking in relation to other categories. In particular, robust and well-established legislation and operational systems are in place in respect of:

- animal pathogens;
- pests of plants; and
- genetically modified organisms.

For aquaculture organisms, specific legislation and systems in relation to diseases of aquaculture species is already in place, and a new regulation on the use of alien and locally absent species in aquaculture has been developed (COM(2006)154). Four invasive alien animal species are currently listed under the Wildlife Trade Regulations and cannot be imported into EC territory¹³.

¹³ Species listed are the red-eared slider (*Trachemys scripta elegans*); the American bullfrog (*Rana catesbeiana*); the painted turtle (*Chrysemys picta*); and the American ruddy duck (*Oxyura jamaicensis*).

However, in relation to organisms that fall into other categories (non-genetically modified plants, animals or invertebrates that are not pests of plants, plants and animals that have not been designated as ecological threat species under the Wildlife Trade Regulations), there are generally no Community-backed controls on import or export into or out of EC territory. There are also very few restrictions on intra-EC trade, possession, or introduction of IAS, except with regard to the three above-mentioned categories of organisms.

The habitats and birds Directives contain non-species-specific restrictions on deliberate introductions of alien species to the wild, but Member States retain a high degree of discretion with regard to their implementation (variation amongst MS is discussed in the next Chapter). There are no legal requirements for risk assessment prior to introductions of alien species.

With regard to requirements for control and eradication of IAS within the EC, the habitats, birds and water framework Directives impose obligations on the Member States. These relate to maintaining favourable conservation status and avoiding deterioration of site condition in relation to Natura 2000 sites, avoiding disturbance of species under both the birds and habitats Directives, and reaching or maintaining good environmental status under the water framework Directive (where Member States include IAS as an indicator of good environmental status). It appears that the proposed marine strategy Directive may impose similar obligations for marine waters when it comes into force.

Although the key European policy documents related to biodiversity have recognised IAS as a driver of biodiversity loss and a significant issue for the Community, the actions that have been suggested tend to be general and most have not been completed in a timely manner. IAS are not mentioned in many relevant policies, indicating that the cross-cutting nature of the issue has not been recognised.

In particular, the issue of IAS is not prominent in policies related to development cooperation, external assistance, Community trade, and overseas territories. This is a significant omission, as it is important to recognise the potential for Community actions to introduce IAS to vulnerable third countries or from third countries to the EU.

7 REVIEW OF MEMBER STATES'¹⁴ LEGAL FRAMEWORKS WITH REGARD TO IAS

7.1 Introduction

As all of the EU Member States are parties to the CBD, they all have individual obligations to implement Article 8(h), and to put provisions in place to protect their indigenous biodiversity from the impacts of IAS. Nevertheless, the approach of individual countries to regulation of IAS varies substantially, and individual MS/regional definitions of IAS may also vary (eg the definition of IAS in some countries is limited to species that have arrived after a certain date).

A review of legal provisions in the 'old' EU Member States was carried out in 2002 (de Groot and Gerrits). This chapter expands the information in that review to include the 'new' Member States that joined the EU in 2004 and the two Accession Countries (Bulgaria and Romania) and to cover developments since 2002. Details of the provisions in place in the countries examined can be found in Annex 3. Internet links to legal provisions are included in the Annex where possible.

Information was obtained from published sources such as country reports to the CBD and the Council of Europe. In addition, information was sought from individuals registered on the DAISIE database of experts, as well as CBD/Bern Convention contact points in relation to specific countries. Despite this, for some countries (eg Greece), very little information was found. The review does not include analysis of specific MS legislation relating to GMOs, as this was outside the core subject matter of this report. In addition, it is likely that some MS legislation relating to sanitary and phytosanitary arrangements has not been identified due to the tendency of analysts to treat this legislation as separate from legislation dealing with IAS affecting biodiversity.

Table 7 sets out a summary of the results of the analysis of MS legal and policy provisions in relation to:

- import/export of IAS;
- domestic possession/trade of IAS;
- introduction of IAS to the wild; and
- control/eradication of IAS (categories after de Groot and Gerrits 2002).

In addition, where a Member State has adopted or is developing a specific strategy for IAS, this is noted.

Table 7: Summary of Member States' existing legal and policy provisions relating to IAS

Country	Import/ export	Possession/ trade	Introduction	Control/ eradication	IAS Strategy
Austria	Not found	Not found	Yes	Not found	Action Plan
Belgium	Yes	Not found	Yes	Yes	In Plan for Sustainable Development
Bulgaria	Yes	Not found	Yes	Not found	Under development

¹⁴ Countries reviewed include the 25 EU Member States, together with Bulgaria and Romania, the current Accession Countries.

Cyprus	Yes	Yes	Yes	Not found	Not found
Czech Republic	Yes	Not found	Yes	Yes	In Biodiversity Strategy
Denmark	Not found	Not found	Yes	Yes	Not found
Estonia	Yes	Not found	Yes	Not found	Not found
Finland	Yes	Not found	Yes	Yes	Not found
France	Yes	Yes	Yes	Yes	Not found
Germany	Not found	Yes	Yes	Yes	In Biodiversity Strategy/ Under development
Greece	Not found	Not found	Not found	Yes	Not found
Hungary	Not found ¹⁵	Not found	Yes	Yes	Not found
Ireland	Yes	Yes	Yes	Not found	Not found
Italy	Yes	Yes	Yes	Not found	Not found
Latvia	Yes	Not found	Yes	Yes	In Biodiversity Strategy
Lithuania	Yes	Yes	Yes	Yes	Action Plan
Luxembourg	Not found	Yes	Yes	Being developed	Being developed
Malta	Yes	Yes	Yes	Yes	Being developed
The Netherlands	Yes	Yes	Yes	Yes	Not found
Poland	Yes	Not found	Yes	Yes	Partly developed
Portugal	Yes ¹⁶	Yes	Yes	Yes	In Biodiversity Strategy
Romania	Yes	Not found	Yes	Yes	Not found
Slovakia	Not found	Yes	Yes	Yes	Being developed
Slovenia	Not found ¹⁷	Yes	Yes	Not found	To be developed
Spain	Yes	Yes	Yes	Yes	Yes
Sweden	Not found	Not found	Yes	Not found	In Environmental Objectives
UK	Not found	Yes	Yes	Not found	Full national IAS review conducted over 2-3 yr period

7.2 Import/export of IAS

Of the 27 countries examined, ten do not have legal provisions in place, outside plant and animal health or GMO-related legislation, to regulate the import or export of IAS. However sixteen countries were found to have some provisions in place to restrict import of at least some new species that could be potential IAS. The only country where restrictions on *export* of potential IAS were found was Belgium, which has restrictions related to the export of exotic bird species. Two of the new Member States (Hungary and Slovenia) noted that they had had comprehensive systems in place for restricting IAS imports prior to EU membership, but had stopped their border control operations after becoming EU members in 2004.

Import restrictions in place in MS are usually limited to specific groups of organisms (eg only aquatic organisms, birds etc). Malta apparently limits its import restrictions to third countries (non-EU Member States), and Italy has specific phytosanitary

¹⁵ Were in place prior to EU membership.

¹⁶ Specific restrictions in relation to Madeira.

¹⁷ Were in place prior to EU membership.

restrictions in place in relation to imports of some plants from Japan. In Portugal, the island territory of Madeira has specific laws in place to control imports of new species. In Spain, specific restrictions exist in relation to the Canary Islands. These island restrictions are also considered in the section on possession/trade below.

Further detail of the Member State provisions in place is set out in Table 8.

Table 8: Member State provisions in relation to import/export of potential IAS

<i>Belgium</i>	Restrictions are in place in relation to import, export and transit of non-indigenous wild bird species.
<i>Bulgaria</i>	Import of alien plant and animal species for the purpose of breeding and raising shall not be permitted if this is detrimental to habitats and species.
<i>Cyprus</i>	Import of aquatic species is prohibited without a written permit.
<i>Czech Republic</i>	Game species have special controls on import, and the phytosanitary list includes some agricultural weed species that are prohibited imports.
<i>Estonia</i>	19 animal species and two plant species are listed as prohibited imports. This is an open list that is regularly updated, and new species are added according to new data.
<i>Finland</i>	Import of wild birds or mammals is prohibited without permission from the Minister of Agriculture and Forestry.
<i>France</i>	Import of game birds is prohibited without permit, with six species excepted.
<i>Ireland</i>	The importation of wild animals and birds is subject to licence.
<i>Italy</i>	Specific phytosanitary conditions are in place for the import of certain plant species from Japan.
<i>Latvia</i>	The plant protection law states regulations for the import/export of plants (likely to be only for commercial pests of plants, but not clear).
<i>Lithuania</i>	Imported species should be put under quarantine to make sure there are no accidental invasives among them. Potential IAS that are known to cause harm elsewhere should be treated as dangerous (import prohibited, etc). A permit is required for the import of live alien animals into the country.
<i>Malta</i>	The Competent Authority can prohibit the importation of any species of flora and fauna that may endanger native biodiversity (applies only to imports from non-EU countries). Certain listed plant species are prohibited for import.
<i>The Netherlands</i>	The import of two species into the Netherlands is prohibited (<i>Muntingia calabura</i> and <i>Hydrocotyle ranunculoides</i>).
<i>Poland</i>	Obtaining consent from the Minister for the Environment is necessary for importing alien species whose introduction into the environment could pose a threat to native biodiversity. However, the criteria for recognizing alien species as a threat have not yet been specified.
<i>Portugal</i>	Imports and dissemination of new exotic fauna into Madeira are controlled.
<i>Romania</i>	Import of alien animal and plant species can be done only with the approval of the Romanian government and the Romanian Academy of Sciences.
<i>Spain</i>	Import of game (hunting and fishing) species requires authorisation. In addition, some specific phytosanitary requirements apply to imports into the Canary Islands.

It is unclear whether all of the Member State provisions that restrict imports or exports of potential IAS are in compliance with the EC Treaty's requirements for the Single Market, as Articles 28 and 29 of the Treaty prohibit quantitative restrictions on imports and exports. Article 30 allows for some exceptions, but only if restrictions are justified on grounds such as public security and protection of human, animal or plant health. Any determination of compliance would therefore depend on a case-by-case analysis of the basis for which the restrictions have been adopted.

Article 30 has been examined by the European Court of Justice in two cases with relevance to IAS. The first, in 1994, concerned imports of live freshwater crayfish to Germany (case C-131/93). In that case, the European Commission sued the Federal Republic of Germany for initiating a ban on live crayfish imports. The ban was a response to the fungal disease (*Aphanomyces astaci*), the crayfish plague, which was being spread mainly by the introduction of alien species of crayfish. The German law required an import licence to be obtained for the import of live crayfish into Germany. Even with such a licence, crayfish could be imported only for research and teaching purposes. This ban affected around ten German firms that were engaged in the import and distribution of live crayfish. A conditional exemption was provided to allow the import of crayfish for a limited time. The exemption required that the precise quantity, the country of origin and species name be specified. The Commission argued that such restrictions were in violation of the EC Treaty because they established import bans against Member States.

The ECJ found in favour of the Commission, as it considered that the reduction in risks from the crayfish plague could have been achieved through measures that were less restrictive on intra-Community trade. Alternatives to a ban could have included requirements for health certification for the crayfish, or by regulating the marketing and management of crayfish within Germany.

The second case was the ‘Danish bees case’ (case C-67/97). Danish law prohibited the keeping of any non-indigenous species of nectar-gathering bee on the island of Læsø, the only species permitted being the brown bee indigenous to that island. When the Danish government pursued a prosecution against an individual who was breaching this rule, he claimed that the law constituted a quantitative restriction on imports and was therefore contrary to Article 28 of the EC Treaty. The Court found that the law was indeed a restriction, but that it was justified under Article 30 of the Treaty, for the protection of the health and life of animals.

This limited amount of jurisprudence in relation to article 30 has left a state of uncertainty amongst MS on what types of restrictions they may put in place to protect their biodiversity without breaching provisions of the Treaty.

In summary:

- import/export restrictions for known or potential IAS do not exist in all Member States;
- restrictions vary widely in terms of scope and purpose eg groups of organisms covered, countries of origin for species to be imported, scientific and procedural safeguards applicable etc.);
- there are no mechanisms to support harmonisation or basic consistency of approach between neighbouring countries or countries in the same sub-region;
- fragmented measures of this kind are unlikely to make a substantial contribution to lowering the risks posed by IAS to European ecosystems;
- there is too little ECJ case law to provide individual MS with legal certainty about the kinds of IAS import/export restrictions that may be compatible with European law; and
- measures already in place in some MS are not sufficient in their current form to provide a foundation for wider application as part of a future EU framework on IAS.

7.3 Possession /trade

Almost half of the countries included in the analysis (13 of the 27) have some legal restrictions in place applying to possession and/or domestic trade in invasive alien species. These restrictions are usually limited to certain listed species, which vary between the countries examined. In some countries, although there is provision in legislation to impose controls on possession or trade in certain species, it is unclear if these controls are actually being applied.

Detail of the provisions found to be in place are set out in Table 9 below.

Table 9: Member State provisions in relation to possession and/or trade of potential IAS

<i>Cyprus</i>	Only Mediterranean species may be used for aquaculture.
<i>France</i>	There are particular statutes restricting trade in two species (<i>Trachemys scripta elegans</i> , and <i>Rana catesbeiana</i>).
<i>Germany</i>	Possession and trade in four species is banned at Federal level (<i>Castor canadensis</i> , <i>Chelydra serpentina</i> , <i>Macrolempys temminckii</i> , and <i>Sciurus carolinensis</i>).
<i>Ireland</i>	The Minister may issue regulations prohibiting possession of any species of wild bird, animal or flora.
<i>Italy</i>	There are rules applicable to keeping, breeding, marketing and trade in exotic animals (listed species).
<i>Lithuania</i>	Legislation contains provisions to control trade in IAS.
<i>Luxembourg</i>	Legislation contains provisions to control the trade and possession of IAS.
<i>Malta</i>	The propagation, sowing, and sale of certain listed plant species is prohibited.
<i>The Netherlands</i>	Commercial activities are currently prohibited in relation to two species: (<i>Muntingia reevesii</i> and <i>Hydrocotyle ranunculoides</i>).
<i>Portugal</i>	Sale, cultivation, possession, or detention of certain named species is prohibited. Use as ornamentals or pets is prohibited. There are specific restrictions in place relating to the imports and dissemination of exotic fauna in Madeira.
<i>Slovakia</i>	Legislation includes regulations dealing with trade in IAS, though it is unclear how these are being implemented.
<i>Slovenia</i>	Legislation includes measures relating to captive breeding of alien species, but it is unclear how these are being applied.
<i>Spain</i>	There are specific procedures in place relating to exports to the Canary Islands.
<i>United Kingdom</i>	Keeping of certain fish species is prohibited, and a permit system operates for some other species.

Two MS have recorded specific restrictions in relation to internal movement of potential IAS into some parts of their territory (Spain and Portugal). The Danish bees case showed that domestic restrictions such as this can be quantitative restrictions on trade, but may also be justified in some circumstances. It is unclear whether the restrictions currently in place in Spain and Portugal would constitute quantitative restrictions or not, and if so, whether they are justified.

Restrictions in place are not consistent between MS. For example, the Netherlands has restrictions in place in relation to *Muntingia reevesii* and *Hydrocotyle ranunculoides*, Germany has restrictions in relation to four different species (*Castor canadensis*, *Chelydra serpentina*, *Macrolempys temminckii*, and *Sciurus carolinensis*), and Belgium which borders both countries was not found to have any restrictions in place.

This inconsistency is likely to limit the utility of such measures where trans-border spread can occur.

An example of good practice in relation to restrictions on possession and trade in potential IAS is available from the UK. A scientific risk analysis of ornamental fish species was undertaken, following which a comprehensive permit system was implemented requiring authorisation to hold and trade in the most high-risk species. This system is thought to have reduced the risk of invasive fish being released in UK waters (G. Copp, pers. comm.; Copp et al 2005).

In summary:

- restrictions on possession and trade in known or potential IAS do not exist in all Member States;
- where restrictions do exist, they vary widely in terms of scope and purpose eg taxonomic groups affected, scientific analysis undertaken, scale of implementation etc.);
- there are no mechanisms in place to support harmonisation or basic consistency of approach between neighbouring countries or countries in the same sub-region;
- fragmented measures of this kind are unlikely to make a substantial contribution to lowering the risks posed by IAS to European ecosystems;
- there is too little ECJ case law to provide individual MS with legal certainty about the kinds of restrictions on internal movements of IAS that may be compatible with European law; and
- the measures that are already in place in some MS are not sufficient in their current form to provide a foundation for wider application as part of a future EU framework on IAS, although there is some good practice occurring.

7.4 Introduction of IAS

The vast majority of countries examined have some legal restrictions in place with regard to introduction of alien species into the wild. The habitats and birds Directives contain a European-level requirement for such restrictions (see discussion in chapter 6), but it appears that the transposition of the relevant Articles of the Directives varies a lot between MS.

The provisions in place are summarised in Table 10. The only country where the existence of restrictions on introductions was not found was Greece.

Table 10: Summary of Member State Provisions Relating to Introduction of Potential IAS

Country	Prohibition Order	Introduction of:
Austria	At federal state (Länder) level	Alien plants and animals
Belgium	Federal, also Regional (Flanders, Walloon, Brussels)	Varies between regions: marine organisms, fish, plants, animals, birds
Bulgaria	Biological Diversity Act (2002)	Exotic species
Cyprus	Aquaculture Law	Exotic aquaculture organisms
Czech Republic	Act No. 114/1992 Coll. on the Nature and Landscape Protection (partly Act No. 326/2004 Coll. "on	Alien animals and plants (incl. plant pathogens and weeds, aquatic organisms, game species)

	plant health”, Act No. 254/2001 Coll. “the Water act”, Act No 449/2001. Coll. “on game-keeping”)	
Denmark	Protection of Nature Act; Fishing Act	Exotic animals; exotic plants
Estonia	Nature Conservation Act	Alien species
Finland	Nature Conservation Act	Alien species
France	Code Rural, Loi Barrier	Alien species
Germany	Federal Nature Conservation Act	Alien species (only newly imported species)
Greece	Not found	
Hungary	Nature Conservation Act	New organisms
Ireland	Wildlife Act, Wildlife (Amendment) Act	Animals and plants
Italy	Decree of the President of the Republic DPR 357/1997	Alien species
Latvia	Law ‘on Protection of Species and Habitats’	Wild species not native to the territory of Latvia
Lithuania	Various	Plants and animals
Luxembourg	Act on the Protection of Nature and Natural Resources	Alien species
Malta	Environmental Protection Act; Trees and Woodland Protection Regulations	Listed species
The Netherlands	Flora and Fauna Act	Animals and plants
Poland	Nature Conservation Act, Inland Fisheries Act, Fisheries Act	Alien species
Portugal	Decree-Law nr 565/99	Listed species
Romania	Various – see Annex	Alien species, with specific provisions for fish and hunting species
Slovakia	Act on Nature and Landscape Protection	Alien species
Slovenia	Nature Conservation Act	Alien species
Spain	Law 4/1989	Alien species
Sweden	Ordinance on Hunting; Ordinance on Fishing, Aquaculture and Fishing Industry	Mammals, birds, fish
UK	Various (Scotland, England, Wales, Northern Ireland)	Alien species

The level of restriction varies between countries, but often consists of a ban on introductions without a permit. The main areas of variation between counties are:

- existence of exceptions to the permit requirements for introductions related to agriculture, fisheries and forestry;
- differing levels of restriction for aquatic and terrestrial species;
- scope of restrictions limited to certain groups of organisms;
- ‘blanket’ restriction on introduction of all alien species or only restriction for introduction of listed species; and
- existence of restrictions on introductions to the marine environment.

The national legislation surveyed relates mainly to restrictions on intentional introductions rather than introductions through negligence or accident. Accidental and negligent introductions still remain largely unregulated, though some countries include the possibility of penalties for such introductions (eg UK, Portugal, Ireland; see: de Groot and Gerrits 2002).

In some countries (eg UK, Belgium, Portugal, France) educational campaigns have been undertaken in order to reduce the risks from members of the public introducing invasive plants and animals into the wild. In the UK, the competent ministry (Defra) has worked with the horticulture industry to develop a code of practice for invasive plants.

In summary:

- there is no coordination/consultation between MS with regard to what species introductions are actually regulated (ie one country may undermine a neighbour's efforts if no equivalent measures are in place);
- although MS are required to control introductions of potential IAS where these may affect habitats and species (under the birds and habitats Directives), in some cases there are exceptions for commercial introductions of species which could still be harmful and/or invasive;
- in some countries with Federal systems, there is not even consistency in control of introductions at the national level;
- translocations of species out of their native range within one country are rarely regarded as introductions; and
- accidental and negligent introductions remain largely unregulated.

No information was obtained on the enforcement and monitoring of MS provisions related to introduction of IAS. In some countries it was noted that the penalties available for illegal introductions were low, and that the issue of IAS remained a low priority for politicians.

7.5 Control/eradication

Statutory measures in relation to control and eradication of IAS were found in the majority of the countries surveyed (17 of the 27), and are being developed in one other (Luxembourg). As with the other areas assessed, there is wide variation in the measures in place in different countries. Some of the measures require control of certain listed species, while others provide relevant authorities with the ability to carry out compulsory controls on private land, or to nominate species for control as and when necessary. In some cases, as in the other areas, although powers exist at a Ministerial level, it is unclear whether these are being applied.

Further details of the control/eradication provisions are set out in Table 11.

Table 11: Summary of Member State Provisions Relating to Introduction of Potential IAS

<i>Belgium</i>	The Flemish region has specific legal provisions to enable measures to control and eradicate alien species.
<i>Czech Republic</i>	Legislation contains specific provision for management of IAS in protected areas.
<i>Denmark</i>	Hunting of some (specified) animal species is allowed year-round for control purposes. Authorities may require the eradication of plants on private land if an official eradication plan has been adopted in the area.
<i>Finland</i>	Regulations may be made to prevent the spread of alien species. Some animal species are controlled through regulated hunting.
<i>France</i>	The regional authorities must make an annual list of animal species for which hunting is allowed year-round for control.

<i>Greece</i>	Under Greek law, the Sanitary Committee may decide to control introduced animal species.
<i>Germany</i>	In Germany the plant protection act contains mandatory control of those IAS that are declared pests of plants and grants authorities right of access to private land for this purpose.
<i>Hungary</i>	There are measures to control alien animal species through hunting. An inter-ministerial committee has been established to deal with legal and financial aspects of the control of <i>Ambrosia artemisiifolia</i> .
<i>Latvia</i>	There are specific controls in place in relation to <i>Heracleum sosnowskyi</i> .
<i>Lithuania</i>	Lithuania has a specific Order on 'Control and Eradication of Invasive Species Organisms'. However, there are currently no management plans for control of invasive alien species in Lithuania.
<i>Luxembourg</i>	Hunting legislation is being developed to enable control of alien animal species by hunting if necessary.
<i>Malta</i>	Legislation states that 'any species known to be invasive should be declared and rules should be established for its control.'
<i>The Netherlands</i>	Regulations enable control of specific alien mammal and bird species.
<i>Poland</i>	The numbers of alien game species is controlled following the Ordinance of the Minister of the Environment on the list of game species and close seasons for those animals. Two alien species of crayfish and three alien species of fish are subject to control according to the Ordinance of the Ministry of Agriculture and Rural Development of 2001 on fishing and conditions for raising, breeding and catching other organisms living in water.
<i>Portugal</i>	Portuguese legislation foresees the development of a national action plan for IAS where control or eradication efforts are necessary. This plan is yet to be elaborated. The Azores regional government has published a plan for eradication of some invasive plant species in sensitive areas.
<i>Romania</i>	There is provision in Romanian law for control of IAS, but no indication that the provisions are being used.
<i>Slovakia</i>	A compulsory order for eradication is in place in relation to seven plant species.
<i>Spain</i>	Statutory measures are in place for eradication and control of <i>Rhynchophorus ferrugineus</i> . Law relating to national parks encourages eradication of IAS.

In several MS, the legal basis for control of invasive animal species is contained in hunting-related laws, which simply open the season for year-round hunting of some 'pest' species (eg Poland (some areas only), Luxembourg, France). There have been some attempts to coordinate control of IAS and share information, eg the Giant Aliens project¹⁸, but these are uncommon.

Aside from the control requirements set out in legislation, most countries surveyed also have non-statutory programmes underway in relation to control of certain problematic species (eg Estonia for *Heracleum sp.*). Some MS where no statutory control measures were found to be in place are still undertaking widespread control of a variety of IAS, sometimes with support from European funds such as LIFE (eg the UK). For further information on the control programmes underway, see the details of country provisions in Annex 3.

In summary:

¹⁸ See http://www.giant-alien.dk/project_summary.html.

- species being controlled vary between countries. Control of widespread species is unlikely to be effective when it ceases at national borders and this will undermine attempts at eradication, and this is a key problem;
- there is little or no coordination/consultation between MS with regard to the species being controlled or subject to eradication efforts (ie one country may undermine a neighbour's efforts if there are no equivalent measures in place), although some regions (eg BENELUX) do consult with regard to which species should be hunted; and
- few MS have achieved successful eradications of IAS.

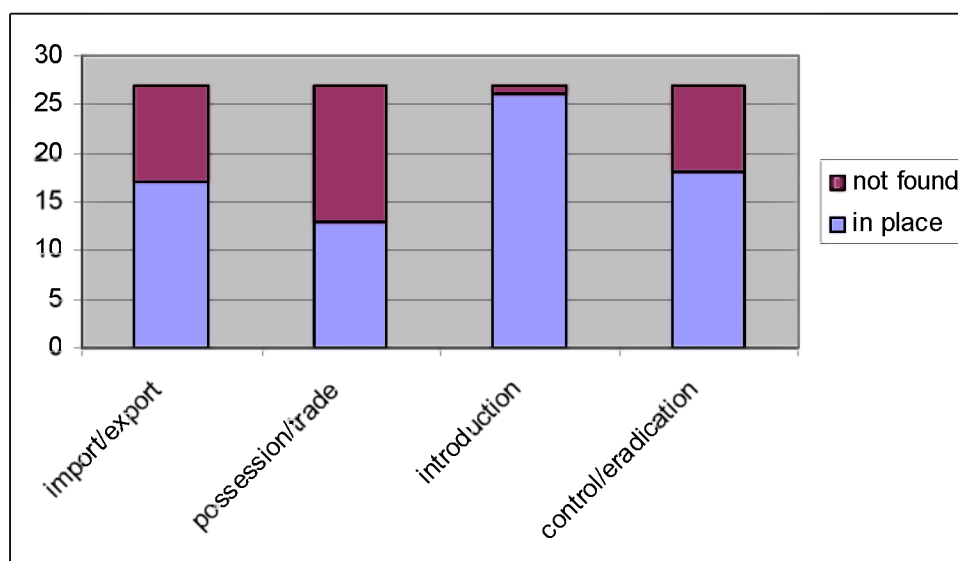
7.6 Member State provisions: summary

Of the 27 countries assessed:

- seventeen have some provisions in place in relation to import/export of IAS;
- thirteen have some provisions in relation to possession/trade of IAS;
- twenty-six control introduction of some IAS within their borders; and
- eighteen have some provisions for statutory control and/or eradication of IAS.

This information is summarised in Figure 1.

Figure 1: Chart summarising Member States provisions in relation to IAS



The major findings of this analysis of Member State IAS provisions are as follows (based on the summaries of the preceding sections 7.2-7.5):

- none of the policy areas is well-regulated in all MS, although most MS have some regulations in place relating to IAS;
- MS provisions in all areas vary widely in terms of scope and purpose (eg groups of organisms covered, countries of origin for species to be imported, scientific and procedural safeguards applicable etc.);
- there are no mechanisms to support harmonisation or basic consistency of approach between neighbouring countries or countries in the same sub-region;
- fragmented measures of this kind are unlikely to make a substantial contribution to lowering the risks posed by IAS to European ecosystems;

- there is too little ECJ case law to provide individual MS with legal certainty with regard to whether making laws that limit movement of IAS will be judged to be unjustified restrictions on the operation of the Single Market;
- good practice is in relation to policies and legislation relating to IAS is occurring in some areas, but is scattered;
- measures already in place in some MS are not sufficient in their current form to provide a foundation for wider application as part of a future EU framework on IAS.
- although MS are required to control introductions of potential IAS where these may affect native habitats and species (under the birds and habitats Directives), in some cases MS legislation contains exceptions to permit requirements in the case of introductions for commercial purposes (eg for agriculture and forestry) of species which could still be invasive;
- in some countries with Federal systems, there is not even consistency in regulation related to IAS at the national level; and
- accidental and negligent introductions remain largely unregulated at MS level.

8 IDENTIFYING AREAS OF RELEVANCE TO COMMUNITY COMPETENCE IN THE CBD'S GUIDING PRINCIPLES ON IAS AND THE EUROPEAN STRATEGY ON INVASIVE ALIEN SPECIES ADOPTED BY THE PARTIES TO THE BERN CONVENTION

8.1 Introduction

The CBD Guiding Principles (GPs) and European Strategy on IAS (European IAS Strategy) are introduced in chapter 5 of this Report. The full text of each GP is set out in the corresponding section below.

Due to the cross-cutting nature of IAS issues, the GPs and the European IAS Strategy need to be addressed through policies and legislation in numerous areas of the European Community's operations (eg trade, environment, fisheries, agriculture, impact analysis, etc) and this situation is mirrored in Member States.

The Treaty on European Union is based on the principle of subsidiarity¹⁹. Exclusive competence is assigned to the Community in some specific areas of operation (eg fisheries policy, operation of the Single Market). In other areas (such as development policy) competence is shared between the Community and the Member States, and for some others (eg landuse planning), Member States have sole competence²⁰. The

¹⁹ Subsidiarity is based on the idea that, in democracy, the problems must be treated closest to the citizens. In practice, it means that every problem must be treated at the most efficient or appropriate level (EU, national, regional or local level). According to the principle of subsidiarity, action should only be taken at Community level if this is justified: the Union should not treat an issue (except in the areas which fall within its exclusive competence) unless it is more effective at treating this problem than the national, regional or local level. The basic principles underlying subsidiarity were laid down in the Edinburgh European Council (December 1992) which enshrines subsidiarity in the EU Treaty. The Treaty of Amsterdam followed by adopting a Protocol on the application of subsidiarity. (Definition from www.euroactiv.com.)

²⁰ Although in these areas there may be some limited Community competence, eg for landuse planning, the Community has some jurisdiction in relation to protected areas as a result of Community legislation.

question of the level at which competence is held is important in determining who has responsibility and jurisdiction to act.

The discussion below considers where competence lies in relation to each of the Guiding Principles in turn, and touches on key activities that have already been carried out at Community and Member State level in relation to each of the GPs. Table 12 sets out the sections of the European IAS Strategy that correspond to each of the GPs (also discussed in the text below).

Table 12: Comparison between European Strategy on IAS and CBD GPs on IAS, and assessment of Community or MS competence

CBD Guiding Principle	European IAS Strategy reference
1. Precautionary approach	Parts 3, 5, 7
2. Three-stage hierarchical approach	Parts 3, 5, 6, 7
3. Ecosystem approach	Parts 3, 4, 5, 8
4. The role of States	Part 2, 4
5. Research and monitoring	Part 2
6. Education and public awareness	Parts 1, 7
7. Border control and quarantine measures	Part 5
8. Exchange of information	Parts 2, 4
9. Cooperation, including capacity-building	Parts 2, 4, 5
10. Intentional introduction	Part 5
11. Unintentional introductions	Part 5
12. Mitigation of impacts	Parts 6, 7
13. Eradication	Part 7
14. Containment	Part 7
15. Control	Part 7

8.2 Consideration of competence in relation to the Guiding Principles

8.2.1 GPI: Precautionary approach

Given the unpredictability of the pathways and impacts on biological diversity of invasive alien species, efforts to identify and prevent unintentional introductions as well as decisions concerning intentional introductions should be based on the precautionary approach, in particular with reference to risk analysis, in accordance with the guiding principles below. The precautionary approach is that set forth in principle 15 of the 1992 Rio Declaration on Environment and Development and in the preamble of the Convention on Biological Diversity.

The precautionary approach should also be applied when considering eradication, containment and control measures in relation to alien species that have become established. Lack of scientific certainty about the various implications of an invasion should not be used as a reason for postponing or failing to take appropriate eradication, containment and control measures.

The precautionary approach is considered in the European IAS Strategy in the context of Strengthening national policy, legal and institutional frameworks (Part 3); Prevention (Part 5); and Mitigation of impacts (Part 7).

The Community has exclusive competence in relation to the free movement of goods within Community territory (Treaty on European Union). MS cannot impose quantitative restrictions on imports or exports (between MS) (Articles 28 and 29). Article 30 does provide grounds for potential exceptions:

'The provisions of Articles 28 and 29 shall not preclude prohibitions or restrictions on imports, exports or goods in transit justified on grounds of public morality, public policy or public security; the protection of health and life of humans, animals or plants; the protection of national treasures possessing artistic, historic or archaeological value; or the protection of industrial and commercial property. Such prohibitions or restrictions shall not, however, constitute a means of arbitrary discrimination or a disguised restriction on trade between Member States.'

However, the precautionary approach is not mentioned in Article 30, and in the absence of robust evidence, MS may be concerned that any restrictions that they impose will be treated as 'disguised restrictions on trade' and will be challenged in the European Court of Justice.

Article 174 of the Treaty of Europe specifically states that

'Community policy on the environment shall [...] be based on the precautionary principle [...]

However, it is not clear that this has ever been interpreted to extend to MS having the ability to restrict imports of potential IAS from other MS. There is no evidence that any MS is currently enforcing any restrictions of this sort, although some MS do have legislation including such restrictions (eg the Netherlands).

The Environmental Impact Assessment (EIA) and Strategic Environmental Assessment (SEA) Directives require the consideration of environmental consequences that could include the impacts of IAS. There is no indication, however, that such impacts are regularly considered in practice. It is also possible to include IAS in the Sustainability Impact Assessments connected with international development activities, but again, no evidence of any existing practice in this area.

MS are required to apply the precautionary principle in relation to domestic decisions on introduction, eradication, containment and control of IAS – such decisions are within MS, rather than EC, competence. Therefore giving effect to GP1 will require commitment and actions from both the EC and MS.

NB: The European Commission has released a Communication on the precautionary principle (COM(2000)1). This aimed to establish Commission guidelines for use of the principle. The Communication does not explicitly discuss the use of the precautionary principle in relation to IAS, but does discuss its use in the context of the World Trade Organisation (WTO) and the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement).

8.2.2 GP2: Three-stage hierarchical approach

1. Prevention is generally far more cost-effective and environmentally desirable than measures taken following introduction and establishment of an invasive alien species.
2. Priority should be given to preventing the introduction of invasive alien species, between and within States. If an invasive alien species has been introduced, early detection and rapid action are crucial to prevent its establishment. The preferred response is often to eradicate the organisms as soon as possible (principle 13). In the event that eradication is not feasible or resources are not available for its eradication, containment (principle 14) and long-term control measures (principle 15) should be implemented. Any examination of benefits and costs (environmental, economic and social) should be done on a long-term basis.

The three-stage approach is also addressed in the European IAS Strategy in the Parts dealing with Strengthening national policy, legal and institutional frameworks (Part 3); Prevention (Part 5); Early Detection and Rapid Response (Part 6); and Mitigation of Impacts (Part 7).

As discussed above in relation to GP1, the Community has competence in relation to the Single Market, and accordingly in relation to preventing introduction of invasive alien species between States and their introduction into the Community as a whole. With regard to introductions within States, and eradication, containment and control, Community-level measures are in place in relation to ‘harmful organisms’ as classified under the Plant Health Directive (2000/29/EC), and for animal diseases as controlled by the species-specific and general Directives containing precautions against animal disease introductions. The proposed new Regulation on the use of alien and locally absent species in aquaculture²¹ would also apply a type of three-stage approach, but its scope is limited to fish stocks regulated under the Common Fisheries Policy. In addition, the three-stage approach is incorporated in the EU Directives and Regulations relating to genetically modified organisms (GMOs).

The habitats and birds Directives contain provisions requiring that MS control introduction of IAS that may affect native habitats and species. MS are also responsible for maintaining the values of protected sites, and this may extend to taking control and eradication actions in relation to IAS if necessary.

8.2.3 GP3: Ecosystem approach

Measures to deal with invasive alien species should, as appropriate, be based on the ecosystem approach, as described in decision V/6 of the Conference of the Parties.

This GP is reflected in the Parts of the European IAS Strategy that deal with Strengthening national policy, legal and institutional frameworks (Part 3), Regional cooperation and responsibility (Part 4), Prevention (Part 5), and Restoration of native biodiversity (Part 8).

²¹ COM (2006) 154 final.

The ecosystem approach is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way. The CBD has recommended application of the ecosystem approach to help reach a balance of its three objectives: conservation; sustainable use; and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources.

The European Community has recognised the value of the ecosystem approach in some areas where it may be applied to environmental problems that include IAS. Specifically, the ecosystem approach is a feature of:

- the Water Framework Directive, and the proposed Marine Strategy Directive, which also include the possibility for MS to address IAS in water bodies and European marine waters; and
- the Sixth Environmental Action Programme which requires application of the ecosystem approach ‘wherever appropriate’ and contains a key action in relation to IAS: ‘developing measures aimed at the prevention and control of invasive alien species including alien genotypes’.

Outside the WFD and MSD, there are no specific Community-level coordinated actions related to IAS that apply the ecosystem approach. MS have competence in relation to design of their own control and monitoring programmes and deciding whether these are based on the ecosystem approach.

8.2.4 GP4: The role of States

1. In the context of invasive alien species, States should recognize the risk that activities within their jurisdiction or control may pose to other States as a potential source of invasive alien species, and should take appropriate individual and cooperative actions to minimize that risk, including the provision of any available information on invasive behaviour or invasive potential of a species.
2. Examples of such activities include:
 - a. The intentional transfer of an invasive alien species to another State (even if it is harmless in the State of origin); and
 - b. The intentional introduction of an alien species into their own State if there is a risk of that species subsequently spreading (with or without a human vector) into another State and becoming invasive;
 - c. Activities that may lead to unintentional introductions, even where the introduced species is harmless in the state of origin.
3. To help States minimize the spread and impact of invasive alien species, States should identify, as far as possible, species that could become invasive and make such information available to other States.

This GP is reflected in the European IAS Strategy in the Parts dealing with the Collecting, managing and sharing information (Part 2), and Regional cooperation and responsibility (Part 4).

Point 2.a refers to the transfer of alien species to other States. Controlling the movement of species between States relates to the operation of the Single Market, and is therefore within EC competence. However, points 2.b, and c, regulating the introduction of IAS within States relate to MS competences (although the habitats and

birds Directives require MS to control introductions where these may have a negative effect on flora, fauna, habitats or species).

Some Community instruments (the Plant Health Directive; the species-specific and general Directives containing precautions against animal disease introductions; the Directives relating to contained use, release and transboundary movements of GMOs; and the proposed Regulation on the use of alien and locally absent species in aquaculture) do contain controls on intentional and non-intentional introductions, but this is limited to certain listed groups of organisms. No legislation restricting the transfer of alien species from/outside the EU to third countries is in place as a part of EU development cooperation activities. Only in the context of dual use items (Regulations EC No 1334/2000 and (EC) No 394/2006) and the transboundary movement of genetically modified organisms (EC No 1946/2003) can the export of (certain) micro-organisms and GMOs be restricted.

8.2.5 GP5: Research and monitoring

In order to develop an adequate knowledge base to address the problem, it is important that States undertake research on and monitoring of invasive alien species, as appropriate. These efforts should attempt to include a baseline taxonomic study of biodiversity. In addition to these data, monitoring is the key to early detection of new invasive alien species. Monitoring should include both targeted and general surveys, and benefit from the involvement of other sectors, including local communities. Research on an invasive alien species should include a thorough identification of the invasive species and should document: (a) the history and ecology of invasion (origin, pathways and time-period); (b) the biological characteristics of the invasive alien species; and (c) the associated impacts at the ecosystem, species and genetic level and also social and economic impacts, and how they change over time.

The European IAS Strategy also includes requirements for research (Part 2).

Research on IAS is currently being undertaken at both MS and Community level. Significant Community-level projects include DAISIE, ALARM, and the work being carried out in relation to SEBI2010. Resources for IAS research at MS level appear to vary significantly.

With regard to monitoring, there appears to be little coordinated activity outside required monitoring for animal diseases and pests of plants. It is unclear how monitoring is addressed in individual MS, but the review of MS measures found little evidence of large-scale coordinated activity. There is no EU-wide alert system or requirement for reporting or monitoring for presence or spread of certain species.

8.2.6 GP6: Education and public awareness

Raising the public's awareness of the invasive alien species is crucial to the successful management of invasive alien species. Therefore, it is important that States should promote education and public awareness of the causes of invasion and the risks associated with the introduction of alien species. When mitigation measures are required, education and public-awareness-oriented programmes should be set in motion so as to engage local communities and appropriate sector groups in support of such measures.

The European IAS Strategy includes key actions in relation to education and public awareness in the Parts dealing with Building awareness and support (Part 1), and Mitigation of impacts (Part 7).

This is an area where both MS and the Community can play an active role. However, although the Commission has produced one publication on IAS (LIFE Focus: Alien species and nature conservation in the EU), the issue does not have high prominence in discussions of nature and biodiversity in Europe. MS vary in the level of activity underway in relation to IAS, some having launched significant awareness initiatives, and others devoting very limited resources to the issue.

8.2.7 GP7: Border control and quarantine measures

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| <ol style="list-style-type: none">1. States should implement border controls and quarantine measures for alien species that are or could become invasive to ensure that:<ol style="list-style-type: none">a. Intentional introductions of alien species are subject to appropriate authorization (principle 10);b. Unintentional or unauthorized introductions of alien species are minimized.2. States should consider putting in place appropriate measures to control introductions of invasive alien species within the State according to national legislation and policies where they exist.3. These measures should be based on a risk analysis of the threats posed by alien species and their potential pathways of entry. Existing appropriate governmental agencies or authorities should be strengthened and broadened as necessary, and staff should be properly trained to implement these measures. Early detection systems and regional and international coordination are essential to prevention. |
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The European IAS Strategy includes similar requirements in the Part dealing with Prevention (Part 5).

It is clear that due to the operation of the European Community's Single Market, that the opportunities for MS to implement individual border control and quarantine measures in relation to IAS are limited. Risk analysis systems as envisaged under this GP do not generally exist in relation to the import of new species from outside the EC, although they are in place for 'harmful organisms' as defined in the Plant Health Directive, and animal diseases through the species-specific and general Directives containing precautions against animal disease introductions. They are also in place in relation to GMOs, and are included in the proposed Regulation on the use of alien and locally absent species in aquaculture.

The only species (outside the groups listed above) that are currently prohibited for import into the EC on the basis of invasiveness are the four that are listed under the Wildlife Trade Regulations. No early warning system for IAS currently exists although work to develop such a system is underway in the ALARM and DAISIE projects, and is one of the recommendations in the recent Biodiversity Communication (COM(2006)216) (see Box 5).

With regard to the introduction of IAS within EU Member States, the assessment of MS legislation and policies that is set out in chapter 7 showed that most MS have

measures in place to control introductions. However, many of the measures in place do not seem to be based on risk analysis. Early detection systems and regional and international coordination are not in place.

8.2.8 GP8: Exchange of information

1. States should assist in the development of an inventory and synthesis of relevant databases, including taxonomic and specimen databases, and the development of information systems and an interoperable distributed network of databases for compilation and dissemination of information on alien species for use in the context of any prevention, introduction, monitoring and mitigation activities. This information should include incident lists, potential threats to neighbouring countries, information on taxonomy, ecology and genetics of invasive alien species and on control methods, whenever available. The wide dissemination of this information, as well as national, regional and international guidelines, procedures and recommendations such as those being compiled by the Global Invasive Species Programme should also be facilitated through, inter alia, the clearing-house mechanism of the Convention on Biological Diversity.
2. The States should provide all relevant information on their specific import requirements for alien species, in particular those that have already been identified as invasive, and make this information available to other States.

Information exchange is considered in the European IAS Strategy in the Parts dealing with Collecting, managing and sharing information (Part 2) and Regional cooperation and responsibility (Part 4).

As with GPs 5 and 6, information exchange is an area where both the Community and MS can act. The research projects discussed in relation to GP5 are relevant here, as is the North European and Baltic Network on Invasive Alien Species (NOBANIS). NOBANIS is a network for cooperation between competent authorities of the region. One of the goals of NOBANIS is to provide administrative tools for making the precautionary approach operational in preventing the unintentional introduction of invasive alien species. Furthermore, NOBANIS establishes a regional cooperation system to aid countries in early detection, eradication, control and mitigation of ecological effects of invasive alien species. The main tool for achieving this goal is an internet portal with a database containing information on c5000 alien species recorded within the region. NOBANIS does not cover all MS.

8.2.9 GP9: Cooperation, including capacity-building

Depending on the situation, a State's response might be purely internal (within the country), or may require a cooperative effort between two or more countries. Such efforts may include:

- a. Programmes developed to share information on invasive alien species, their potential uneasiness and invasion pathways, with a particular emphasis on cooperation among neighbouring countries, between trading partners, and among countries with similar ecosystems and histories of invasion. Particular attention should be paid where trading partners have similar environments;
- b. Agreements between countries, on a bilateral or multilateral basis, should be developed and used to regulate trade in certain alien species, with a focus on particularly damaging invasive species;

- c. Support for capacity-building programmes for States that lack the expertise and resources, including financial, to assess and reduce the risks and to mitigate the effects when introduction and establishment of alien species has taken place. Such capacity-building may involve technology transfer and the development of training programmes;
- d. Cooperative research efforts and funding efforts toward the identification, prevention, early detection, monitoring and control of invasive alien species.

The European IAS Strategy also considers cooperation in the Parts dealing with Collecting, managing and sharing information (Part 2), Regional cooperation and responsibility (Part 4), and Prevention (Part 5).

In relation to point a, MS are free to undertake programmes relating to information-sharing, capacity building and research in cooperation with other MS or with third countries. In relation to point b, agreements to regulate trade in alien species, the operation of the Single Market limits competence to the European Community. No such agreements have been concluded.

In the context of the EU and third countries, both the Community and MS can carry out activities supporting the identification, prevention, early detection, monitoring and control of IAS (eg capacity-building and research) as a part of Community/national development cooperation. Even though IAS are not specifically mentioned in Community development policy (2006/C 46/01), IAS related concerns and issues fall under the general biodiversity/environment related scope of the policy. The same applies to cooperation with ACP countries and Overseas Countries and Territories (OCTs) (see Article 22 of the Cotonou Agreement and 'Overseas Association Decision' (2001/822/EC)). Addressing IAS is also possible under the other geographical frameworks for EU-third country cooperation (see Annex 4). In particular, the EU Strategy for Africa mentions IAS as one of the focal areas for possible cooperation (Chapter 3.1.3.2 of the Strategy (COM(2005)489))

8.2.10 GP10: Intentional introduction

1. No first-time intentional introduction or subsequent introductions of an alien species already invasive or potentially invasive within a country should take place without prior authorization from a competent authority of the recipient State(s). An appropriate risk analysis, which may include an environmental impact assessment, should be carried out as part of the evaluation process before coming to a decision on whether or not to authorize a proposed introduction to the country or to new ecological regions within a country. States should make all efforts to permit only those species that are unlikely to threaten biological diversity. The burden of proof that a proposed introduction is unlikely to threaten biological diversity should be with the proposer of the introduction or be assigned as appropriate by the recipient State. Authorization of an introduction may, where appropriate, be accompanied by conditions (eg, preparation of a mitigation plan, monitoring procedures, payment for assessment and management, or containment requirements).
2. Decisions concerning intentional introductions should be based on the precautionary approach, including within a risk analysis framework, set forth in principle 15 of the 1992 Rio Declaration on Environment and Development, and the preamble of the Convention on Biological Diversity. Where there is a

threat of reduction or loss of biological diversity, lack of sufficient scientific certainty and knowledge regarding an alien species should not prevent a competent authority from taking a decision with regard to the intentional introduction of such alien species to prevent the spread and adverse impact of invasive alien species.

Provisions relating to intentional introduction of alien species are included in the European IAS Strategy in the Part dealing with Prevention (Part 5).

Controlling the introduction of new species within domestic territory is within the jurisdiction of MS, although the provisions of the habitats and birds Directives limit this if such introductions could affect native habitats and species. The proposed Regulation on the use of alien and locally absent species in aquaculture would place controls (including requirements for risk assessment) on the introduction of new aquaculture organisms. Most MS have legislation in place to regulate the intentional introduction of new species, but it seems that this is enforced to varying degrees. In addition, there is no requirement that MS consider the risks to other, neighbouring states when carrying out a risk analysis (where one is required). There is no evidence that decisions on introductions are based on the precautionary approach (also see discussion of GP1).

As regards the introduction of alien species outside the EU, no Community level instruments are at place that would control the introduction of alien species to third countries, for example, as a part of EU development cooperation activities. Only in the case of GMOs that could be IAS, can transboundary movements be controlled (EC No 1946/2003). Similarly, none of the Member States' instruments summarised in this report seem to address this issue. At Community level, the issues related to IAS could be addressed as a part of SEAs that the Community has committed to carry out on a systematic basis as part of its development policy ('European Consensus on Development' (2006/C 46/01). This is not, however, a statutory obligation.

8.2.11 GP11: Unintentional introductions

1. All States should have in place provisions to address unintentional introductions (or intentional introductions that have become established and invasive). These could include statutory and regulatory measures and establishment or strengthening of institutions and agencies with appropriate responsibilities. Operational resources should be sufficient to allow for rapid and effective action.
2. Common pathways leading to unintentional introductions need to be identified and appropriate provisions to minimize such introductions should be in place. Sectoral activities, such as fisheries, agriculture, forestry, horticulture, shipping (including the discharge of ballast waters), ground and air transportation, construction projects, landscaping, aquaculture including ornamental aquaculture, tourism, the pet industry and game-farming, are often pathways for unintentional introductions. Environmental impact assessment of such activities should address the risk of unintentional introduction of invasive alien species. Wherever appropriate, a risk analysis of the unintentional introduction of invasive alien species should be conducted for these pathways.

The European IAS Strategy covers unintentional introductions in the Part dealing with Prevention (5).

Unintentional introductions of IAS are largely regulated in relation to certain categories of organisms (harmful organisms in relation to plants; animal diseases) through the Plant Health Directive, and the species-specific and general Directives containing precautions against animal disease introductions. In addition, there is potential for the impacts from incidental introduction of IAS to be considered in the context of EIAs and SEAs, though there is no evidence that this has been done. MS are not generally free to place restrictions on the passage of goods in order to limit risk from IAS, as this is a function of the operation of the Single Market where the EC has exclusive competence.

The Environmental Liability Directive can cover some unintentional releases of IAS, but only where the person responsible has been negligent or is at fault. In addition, the requirements in relation to causation are so strict that this Directive may not be easy to apply to IAS in practice.

There are few Community instruments that refer to the unintentional introduction of alien species from/by the EU to third countries. On certain occasions, including the Community's development cooperation initiatives, risks related to unintentional introduction of IAS can be addressed in the context of SEAs (see Chapter 8.2.10 above). Additionally, the unintentional transboundary movement of GMOs regarded as IAS can be controlled through Regulation 1946/2003/EC.

MS have competence to take measures such as establishing codes of practice (or legal restrictions) with sectoral organisations (eg horticultural organisations). MS may also establish rapid response capacity. They can also establish programmes for statutory control of species, and improve liability rules in relation to unintentional introductions.

8.2.12 GP12: Mitigation of impacts

Once the establishment of an invasive alien species has been detected, States, individually and cooperatively, should take appropriate steps such as eradication, containment and control, to mitigate adverse effects. Techniques used for eradication, containment or control should be safe to humans, the environment and agriculture as well as ethically acceptable to stakeholders in the areas affected by the invasive alien species. Mitigation measures should take place in the earliest possible stage of invasion, on the basis of the precautionary approach. Consistent with national policy or legislation, an individual or entity responsible for the introduction of invasive alien species should bear the costs of control measures and biological diversity restoration where it is established that they failed to comply with the national laws and regulations. Hence, early detection of new introductions of potentially or known invasive alien species is important, and needs to be combined with the capacity to take rapid follow-up action.

The European IAS Strategy deals with mitigation of impacts in the Parts related to Early detection and rapid response (Part 6) and Mitigation of impacts (Part 7).

Both MS and the EC have competence in relation to mitigation of the effects of IAS, though primary responsibility lies with MS. The Environmental Liability Directive is in line with GP12, but as discussed above, its application to IAS is likely to be difficult in practice. The EC has a role in licensing chemicals and pesticides, some of which could be used for IAS control. The phaseout of some chemical control methods (eg rotenone which can be used for control of freshwater fish) could have implications for the future control of such species.

The habitats and birds Directives require the avoidance of deterioration of habitats and disturbance of species at protected sites. Meeting these requirements could require MS to control or eradicate IAS in some circumstances where IAS are affecting site values.

There has been very little coordination of efforts for mitigation of impacts of IAS on the EC level. Capacity for early detection and rapid response remains limited at EC level, and within most MS.

8.2.13 GP13: Eradication

Where it is feasible, eradication is often the best course of action to deal with the introduction and establishment of invasive alien species. The best opportunity for eradicating invasive alien species is in the early stages of invasion, when populations are small and localized; hence, early detection systems focused on high-risk entry points can be critically useful while post-eradication monitoring may be necessary. Community support is often essential to achieve success in eradication work, and is particularly effective when developed through consultation. Consideration should also be given to secondary effects on biological diversity.

This GP states that where feasible, eradication is often the best course of action to deal with the introduction and establishment of IAS. The European IAS Strategy considers eradication in Part 7.

The habitats and birds Directives require the avoidance of deterioration of habitats and disturbance of species at protected sites, and the water framework Directive requires maintenance of good ecological status in designated water bodies. Meeting these requirements could require MS to eradicate IAS in some circumstances where they are affecting site values. The Plant Health Directive, the species-specific and general Directives containing precautions against animal disease introductions, and the Directives on contained use and release of GMOs may require eradication of certain organisms if detected.

Outside specified sites, and for the categories of organisms discussed, eradication of IAS is within the competence of individual MS. However, if this is not coordinated between MS, reinvasion will often be a continuing problem and may make eradication impossible.

8.2.14 GP14: Containment

When eradication is not appropriate, limiting the spread (containment) of invasive alien species is often an appropriate strategy in cases where the range of the organisms or of a population is small enough to make such efforts feasible. Regular

monitoring is essential and needs to be linked with quick action to eradicate any new outbreaks.

The European IAS Strategy considers containment in the Part dealing with Mitigation of impacts (Part 7).

The habitats and birds Directives require the avoidance of deterioration of habitats and disturbance of species at protected sites. Meeting these requirements could require MS to contain IAS in some circumstances where IAS could affect site values. The Plant Health Directive, the species-specific and general Directives containing precautions against animal disease introductions, and the Directives on contained use and release of GMOs may require containment of certain organisms if detected.

Containment of IAS is clearly within the competence of MS, however, as with eradication, regional coordination will often be necessary in order to maintain containment and prevent spread to other areas.

8.2.15 GP15: Control

Control measures should focus on reducing the damage caused as well as reducing the number of the invasive alien species. Effective control will often rely on a range of integrated management techniques, including mechanical control, chemical control, biological control and habitat management, implemented according to existing national regulations and international codes.

Control is considered in the European IAS Strategy in the Part dealing with Mitigation of impacts (Part 7).

Control of IAS is within the competence of individual MS (outside the requirements for site management that are contained in European legislation), however, it should be noted that some Community instruments (eg in relation to regulation of pesticides and herbicides) can impact on the means of IAS control available to MS. In addition, the habitats and birds Directives require the avoidance of deterioration of habitats and disturbance of species at protected sites. Meeting these requirements could require MS to control IAS in some circumstances where those IAS are affecting site values. The Plant Health Directive, the species-specific and general Directives containing precautions against animal disease introductions, and the Directives on contained use and release of GMOs may require control of certain organisms if they are detected in Community territory. As with the GPs relating to eradication and containment, effective control may require regional coordination in many cases.

8.3 Parts of the European IAS Strategy that are not covered by the Guiding Principles

The European IAS Strategy sets out proposals for action in more detail than that given in the CBD's GPs. As all the EU MS are also parties to the Bern Convention, they are obliged to implement the provisions of the European IAS Strategy. The only area where the European IAS Strategy goes significantly outside the GPs is in relation to its Part 8: 'Restoration of native biodiversity'. This Part discusses restoration of ecosystems that have been affected by IAS, promotion of use of native plants for revegetation and erosion management, and issues related to reintroduction of species.

The habitats and birds Directives and the water framework Directive contain requirements for the maintenance of specified sites, and European waters at a certain good status. MS are required to avoid deterioration in the status of these sites. In some cases, they may be required to improve site status, and this could include restoration of sites that have been affected by IAS. However, at sites outside those covered by these three Directives, the choice of whether to restore sites affected by IAS is one for the national or regional authority responsible, and is outside Community jurisdiction.

8.4 Summary

For the majority of the GPs, MS and the EC share competence. In most cases this is because actions are required in areas related to external borders and therefore involved in operation of the Single Market or external trade in addition to actions within the territory of the MS themselves. In relation to GP7, the EC can be said to have sole competence due to the operation of the Single Market. Table 13 summarises competence in relation to the GPs.

Table 13: Summary of competence in relation to CBD Guiding Principles

CBD Guiding Principle	Competence: EC or MS?
1. Precautionary approach	EC & MS
2. Three-stage hierarchical approach	EC & MS
3. Ecosystem approach	EC & MS
4. The role of States	EC & MS
5. Research and monitoring	EC & MS
6. Education and public awareness	EC & MS
7. Border control and quarantine measures	EC
8. Exchange of information	EC & MS
9. Cooperation, including capacity-building	EC & MS
10. Intentional introduction	EC & MS
11. Unintentional introductions	EC & MS
12. Mitigation of impacts	EC & MS
13. Eradication	EC & MS
14. Containment	EC & MS
15. Control	EC & MS

9 GAPS IN THE EXISTING FRAMEWORK

The results of the preceding analysis indicate that the current international, European Community and Member State framework in relation to IAS is not sufficient to fulfil the Community's obligation to implement Article 8(h) of the CBD through the GPs and through the Bern Convention's European IAS Strategy. It is clear that some of the gaps are in relation to areas where the European Community has competence to act, but most are in areas where competence is shared between the Community and MS (see analysis in chapter 8). A summary of the gaps apparent at different levels in the framework is set out below (section 9.1).

Each of the GPs may require specific legal and policy interventions in order for the MS, and the EC to comply with their obligations. An analysis of the specific gaps in the European framework, and some discussion of activity at MS level is set out in Table 14, and gaps in relation to specific GPs are discussed in section 9.1.

9.1 Summary of gaps in the framework at different levels

9.1.1 International level

In the international context, some work has already been done under the auspices of the CBD Ad Hoc Technical Expert Group to identify gaps in the international regulatory framework (see discussion in section 4.7). This group identified a lack of formal standards for some IAS pathways, but the key issue overall seems to be lack of national capacity for implementation.

9.1.2 European level

Robust and well-established systems exist at the European level for managing the risks associated with some limited categories of potential IAS (animal diseases, pests of plants²², GMOs). For aquaculture organisms, the new proposed Regulation for use of alien and locally absent species in aquaculture will establish a new system for assessment and management of the risks associated with the introduction of new organisms for aquaculture. Four invasive animal species²³ are currently listed under the Wildlife Trade Regulations and cannot be introduced into EU territory.

For organisms outside these categories, there are generally no Community-backed controls on import and export. There are also no restrictions on intra-Community trade and movement of IAS for organisms outside the categories mentioned.

With regard to controls on introduction of alien organisms, the habitats and birds Directives contain restrictions on deliberate introductions of alien species into the wild (MS are required to regulate introductions of alien species to ensure that natural habitats within their natural range or wild native fauna and flora are not prejudiced).

In relation to European level requirements for control and eradication of IAS, the habitats, birds, and water framework Directives may impose some obligations through requirements to maintain the status of certain sites. It appears that the proposed marine strategy Directive may impose similar obligations for marine waters.

Overall, the issue of IAS lacks prominence (or indeed, inclusion) in many relevant European policies and documents, including those related to development cooperation and international aid.

9.1.3 Member State level

Although most MS have legislation in place in relation to some aspects of IAS, few have a comprehensive framework. MS provisions in all areas vary widely in terms of scope and purpose (eg taxonomic groups affected, countries of origin for species to be imported, scientific and procedural safeguards applicable etc.). There are no mechanisms to support harmonisation or basic consistency of approach between

²² Pests of plants, meaning 'harmful organisms' as defined in the Plant Health Directive.

²³ Species listed are the red-eared slider (*Trachemys scripta elegans*); the American bullfrog (*Rana catesbeiana*); the painted turtle (*Chrysemys picta*); and the American ruddy duck (*Oxyura jamaicensis*).

neighbouring countries or countries in the same sub-region, and the fragmented measures that are in place do not appear likely to make a substantial contribution to lowering the risks posed by IAS to European ecosystems. In those countries with Federal systems, consistency in regulation related to IAS is sometimes even lacking at the national level.

There is still a lack of ECJ case law in relation to control of IAS, meaning that MS lack certainty on the controls they can or cannot put in place. Although MS are required to control introductions of potential IAS where these may affect native habitats and species (under the birds and habitats Directives), the measures in place vary significantly. In some cases there are exceptions for introductions of alien species for commercial uses (eg forestry, agriculture) Species introduced for these purposes may still be invasive, and there are no formal requirements for risk analysis. Accidental and negligent introductions remain largely unregulated at MS level.

Table 14: Analysis of Community and MS activities in relation to GPs, and assessment of gaps.

CBD Guiding Principle and competence	Relevant Community instruments²⁴	Comments
<p>1. Precautionary approach</p> <p>Competence: both EC and MS</p>	<p>EC Treaty, Article 174(2)</p> <p>EIA Directive SEA Directive</p> <p>Sustainability Impact Assessment (SIA)</p> <p>Commission Communication on the Precautionary Principle</p>	<p>The EC Treaty states that Community policy on the environment shall be based on the precautionary principle.</p> <p>The EIA and SEA Directives have the possibility of application to IAS, but at present there is no evidence that the potential impacts of IAS are included in assessments under these Directives.</p> <p>As with the EIA and SEA Directives, it appears possible to include the potential risks of IAS in Sustainability Impact Assessments, but there is no evidence of this being done in practice.</p> <p>The Communication on the Precautionary Principle does not mention IAS specifically. Although it is supportive of GP1, it has no binding legal status.</p>
<p>Gap analysis for GP1: There is no evidence that a precautionary approach is in fact being applied to decisions related to the introduction of IAS in the EC. MS are not generally able to impose restrictions on the import of new organisms into their territory, due to the operation of the Single Market, so in this area of application of the precautionary approach the EC has competence. Although it appears possible to include the impacts of IAS in EIAs, SEAs and SIAs, IAS are not specifically mentioned in the relevant Directives and policies, and there is no evidence of IAS being regularly considered in their application. The analysis of MS activities did not show that all MS are using a precautionary approach in their domestic decisions about IAS, although some, such as the UK, do appear to be applying it to some extent. There therefore appears to be a gap relating to the application of GP1 at both Community and MS level.</p>		
<p>2. Three-stage hierarchical approach</p> <p>Competence: both EC and MS</p>	<p>Plant Health Directive</p> <p>Species-specific and general Directives containing precautions against animal disease introductions</p> <p>Proposed Regulation for use of alien and locally absent species in aquaculture</p> <p>Directives on contained use and deliberate release of GMOs, and Regulation on transboundary movement</p>	<p>The Directive supports the three stage approach. However, it applies only to 'harmful organisms' of plants, as defined.</p> <p>As with the Plant Health Directive, but application is limited to animal pathogens.</p> <p>The proposed Regulation supports the three stage approach. However, it applies only to aquaculture organisms.</p> <p>These Directives support the three stage approach, but their application is limited to GMOs.</p>

²⁴ References to the Community instruments referred to are given at the end of the table.

	Wildlife Trade Regulations	The Wildlife Trade Regulations allow for restrictions on imports of IAS into the Community (Article 4(6)), and for restrictions on the holding or movement of IAS (Article 9(6)). However, Article 4(6) has only been used in relation to four species which all already have established populations within Community territory. Article 9(6) has not been used at all. Analysis by Adrados & Griggs (2002) concluded that the Regulations were not adequate to deal with problems related to IAS, and were not preventing ecological impacts from the two species listed under Article 4(6) at the time of the analysis.
	Habitats and birds Directives	The habitats and birds Directives contain provisions relating to introductions of IAS that may affect local flora, fauna, habitats or species. The habitats Directive (Article 22) provides that MS should prohibit such introductions if necessary.
<p>Gap analysis: The three-stage hierarchical approach is currently supported by the Directives on plant health, animal health and GMOs, and by the proposed Regulation for use of alien species in aquaculture. The wildlife trade Regulations also support the approach, but currently only limit imports of four listed species. The habitats and birds Directives support restriction on introductions of potential IAS, but it appears that MS apply these restrictions to varying degrees. Imports of other organisms into the European Community (eg aquatic plants, ornamental fish, garden plants, pets) are not assessed for invasiveness, and therefore the three stage approach cannot be said to be applied. In addition, MS cannot generally impose conditions on the movement of IAS between States, as this is the area of operation of the Single Market. With regard to the introduction of IAS within States, it does not appear that many MS apply the three-stage approach. There are few records of eradication attempts, and containment and long-term control measures are not consistently applied to particular organisms. It is possible that MS authorities consider there is little point in controlling IAS when the constant threat of reinvasion is present.</p>		
<p>3. Ecosystem approach</p> <p>Competence: EC and MS</p>	Water Framework Directive (WFD)	The WFD is based on an ecosystem approach and deals with European water bodies. It requires MS to achieve good status for European waters by 2015. Guidance documents relating to the WFD refer to IAS specifically as a pressure affecting taxonomic composition in water bodies.
	Proposed Marine Strategy Directive	As with the WFD, the proposed MSD is based on an ecosystem approach and deals with European marine waters. The proposed MSD will require the identification of measures to support the achievement of good environmental status, and this could include control of IAS, or prevention of introductions.
	Sixth Environment Action Programme	The 6EAP requires application of the ecosystem approach 'wherever appropriate'.
<p>Gap analysis: The ecosystem approach is currently applied in relation to IAS in European water bodies under the WFD, and may be applied to European marine waters under the proposed MSD. MS have the option of applying the ecosystem approach in their control measures for IAS, but it appears this is not always being done, with a piecemeal approach to IAS control being more common. The 6EAP supports application of the ecosystem approach, but this has not been followed up in actions to-date.</p>		
4. The role of States	EC Treaty	Although this GP relates to the role of States, the limits on their activities

<p>EC and MS</p>	<p>Plant Health Directive Species-specific and general Directives containing precautions against animal disease introductions Proposed Regulation for use of alien and locally absent species in aquaculture Directives on contained use and deliberate release of GMOs, and Regulation on transboundary movement Wildlife Trade Regulations Habitats and birds Directives Sustainability Impact Assessment EIA and SEA Directives</p>	<p>that are imposed by EC legislation have an influence. As the ability of MS to control import and export of organisms is governed by the operation of the Single Market, the role they can play in relation to GP4 is limited to domestic activities. It also appears that the potential impacts of IAS are not commonly considered in EIAs, SEAs, or SIAs (for external EC activities). The EC is taking actions to comply with IPPC and OIE requirements in relation to spread of pests of plants and animal diseases to third countries, but these actions are limited in their scope of application to certain groups of organisms. Some information is being collected and shared at EC level (eg within SEBI2010, European research projects mentioned below).</p> <p>Some MS have begun to gather information on current and potential IAS (eg Austria, Poland, UK), and some are working together to share information and resources (eg within NOBANIS, ALARM, DAISIE). Although most MS have restrictions on introduction of new species to the wild, the enforcement and regulation of restrictions varies between MS, and when considering whether to authorise a release, the potential impact on neighbouring States may not be considered.</p>
<p>Gap analysis: It appears that the EC is not taking actions that would fulfil its responsibilities under this GP (eg to prevent transfer and spreading of IAS, or to prevent unintentional introduction of European species). There is very little European activity underway to restrict unintentional introductions, including to third parties. There is, however, MS and EC activity underway in relation to information collection and sharing.</p>		
<p>5. Research and monitoring EC and MS</p>	<p>Relevant research projects (DAISIE, ALARM, SEBI2010)</p>	<p>Research on IAS is underway at both Community and MS level. Significant projects include DAISIE, ALARM, and the work being led by the EEA on SEBI2010.</p>
<p>Gap analysis: Research on IAS is currently underway at both MS and Community levels, although this subject may not receive the same level of priority in all MS. Projects currently funded by EC will end in 2008 and their future funding is not secured. Monitoring is not underway except in relation to some animal diseases and pests of plants. There is no European early warning system or coherent monitoring system.</p>		
<p>6. Education and public awareness EC and MS</p>	<p>LIFE fund</p>	<p>Education and public awareness is largely a MS responsibility, and any information campaigns will need to be tailored to local conditions. Some MS have been active in this area (eg Austria, Poland, UK). The European Commission has published a report on <i>Alien species and nature conservation in the EU</i>, but the issue of IAS is not generally prominent in the majority of EC communications relating to the environment.</p>
<p>Gap analysis: Education and public awareness activity is underway in many MS, and in some this work is well advanced. In terms of Community-level education and public awareness, this issue has not received a lot of attention.</p>		
<p>7. Border control and quarantine measures EC</p>	<p>EC Treaty</p>	<p>The operation of the Single Market generally limits the opportunity for MS to put border control and quarantine measures in place in relation to IAS. MS may be afraid that such measures would constitute a breach of the EC Treaty and lead to legal action. However, it seems that some measures could be justifiable under Article 30 of the Treaty (see 'Danish bees' case)</p>

	<p>Plant Health Directive Species-specific and general Directives containing precautions against animal disease introductions</p> <p>Wildlife Trade Regulations</p> <p>DAISIE and NOBANIS projects</p> <p>Biodiversity Communication</p>	<p>The Plant Health and Species-specific and general Directives containing precautions against animal disease introductions include provisions for border control, quarantine and monitoring. However, they are limited in their scope to only particular types of organisms (pests of plants, animal pathogens).</p> <p>Four species are currently banned from import into the EC under the Wildlife Trade Regulations.</p> <p>One of the objectives of the DAISIE and NOBANIS projects is using distribution data and the experiences of individual MS as a framework for considering indicators for early warning.</p> <p>The Action Plan accompanying the Communication includes the following priority action: 'establish early warning system for the prompt exchange of information between neighbouring countries on the emergence of IAS and cooperation on control measures across national boundaries.'</p>
<p>Gap analysis: Border control and quarantine measures are in place for GMOs, and the organisms covered under the Plant Health Directive, the Species-specific and general Directives containing precautions against animal disease introductions and the Wildlife Trade Regulations. A coordinated early warning system for IAS is planned. Border control and quarantine measures do not currently apply to species outside the instruments listed. This means that many potential IAS are not subject to restrictions on import. No risk analysis system is in place at Community level for groups of organisms not covered by the Directives and Regulations discussed. Most MS have restrictions in place in relation to introduction of alien species into the wild, but these vary in coverage, and in enforcement and impact 'on the ground'. There are no instruments in place to cover situations relating to movement of species whose native range covers part of the EC, but which in other areas could be IAS.</p>		
<p>8. Exchange of information</p> <p>EC & MS</p>	<p>Plant Health Directive Species-specific and general Directives containing precautions against animal disease introductions</p> <p>SEBI2010</p> <p>DAISIE</p> <p>NOBANIS</p>	<p>These instruments include data management and rapid alert systems which are available to all MS, and also to neighbouring countries.</p> <p>The expert group working on the alien species indicator is developing a list of the 100 worst invasive species threatening biodiversity in Europe.</p> <p>The DAISIE research project is aiming to create an inventory of invasive species that threaten European terrestrial, freshwater and marine environments.</p> <p>NOBANIS operates a portal providing data on approx. 5000 alien species in 13 countries of northern Europe and Baltic region.</p>
<p>Gap analysis: Work under DAISIE, NOBANIS and SEBI2010 will be valuable in promoting information exchange in relation to European IAS. However, it is clear that the robust rapid alert systems in place to deal with pests of plants and animal pathogens currently have no equivalent in relation to IAS that threaten biodiversity.</p>		

<p>9. Cooperation, including capacity-building</p> <p>EC & MS</p>	<p>Relevant research and network projects</p> <p>EC Treaty, Arts 28, 29, 30</p> <p>Community development policy and relevant instruments for its delivery Cotonou Agreement (Article 22) Overseas Association Decision Geographical strategies for partnership and cooperation (eg with Africa, Latin America, Asia and the Caribbean)</p>	<p>DAISIE and ALARM include consortia with representatives from many MS. NOBANIS is another regional network that deals with IAS.</p> <p>Point b suggests the development of agreements between countries, used to regulate trade in certain alien species, with a focus on particularly damaging invasive alien species. The ability of MS to implement such agreements appears to be limited by the provisions of the EC Treaty, though it is possible that they could be justified under Art 30 in some circumstances.</p> <p>In the context of the EU and third countries, both the Community and MS can carry out activities supporting the identification, prevention, early detection, monitoring and control of IAS (eg capacity-building and research) as a part of Community/national development cooperation.</p>
<p>Gap analysis: There appears to be a lack of Community-level activity on capacity building, with consideration of IAS absent from instruments dealing with development. However, in some specific aid programmes, the EC has supported control of IAS, and there has also been support for IAS projects through the LIFE fund. Cooperation between MS is underway in some areas (eg NOBANIS) but appears lacking in others (eg Southern MS). ALARM and DAISIE will make valuable contributions in this area. The ability of MS to make agreements relating to trade in certain IAS appears restricted by the operation of the Single Market (no such agreements were found to be in place).</p>		
<p>10. Intentional introduction</p> <p>EC & MS</p>	<p>Habitats Directive</p> <p>Birds Directive</p> <p>Wildlife Trade Regulations</p>	<p>The habitats Directive requires that MS ensure that deliberate introduction of alien species is regulated so as to avoid prejudice to native flora and fauna, and if necessary to prohibit such introductions (Article 22). Analysis of MS legal provisions shows that most have some provisions in place regulating the introduction of new species, however, these provisions are likely to receive a varying amount of enforcement and political support. This Article was not well reported in the Article 17 reports under the Habitats Directive.</p> <p>Article 11 provides that MS shall see that introductions of alien birds shall not prejudice the local flora and fauna.</p> <p>The Wildlife Trade Regulations allow for restrictions on imports of IAS into the Community (Article 4(6)), and for restrictions on the holding or movement of IAS (Article 9(6)). However, Article 4(6) has only been used in relation to four species which all already have established populations within Community territory. Article 9(6) has not been used at all.</p>

	<p>Directives on contained use and deliberate release of GMOs, and Regulation on transboundary movement</p> <p>Proposed Regulation for use of alien and locally absent species in aquaculture</p>	<p>These instruments contain controls related to the intentional introduction of GMOs</p> <p>The Regulation will apply to translocations and introductions of new aquaculture organisms. It provides for risk analysis, monitoring, and pilot releases.</p>
<p>Gap analysis: There are a number of European provisions in place dealing with the intentional introduction of IAS (or potential IAS). Most MS have legal provisions in place to regulate introduction of some or all alien species into the wild. However, there is variation in taxonomic coverage of these provisions, and in application in practice. No Community level instruments are in place to manage the risks of the introduction of alien species to third countries, apart from the Regulation on transboundary movement of GMOs. Similarly, none of the Member States instruments summarised in this report seem to address this issue. IAS could be addressed as a part of SEAs that the Community has committed to carry out on a systematic basis as part of its development policy. This is not, however, a statutory obligation.</p>		
<p>11. Unintentional introductions</p> <p>EC & MS</p>	<p>EIA Directive SEA Directive Sustainability Impact Assessment</p> <p>Plant Health Directive Species-specific and general Directives containing precautions against animal disease introductions Directives on contained use and deliberate release of GMOs</p>	<p>The EIA and SEA Directives, and SIA have the possibility of being applied to cover the possibility of IAS introduction as an unintended side-effect of projects or plans, but at present there is no evidence that the potential impacts of IAS are included in assessments under these Directives.</p> <p>These Directives are focused on preventing the unintentional introduction and spread of certain categories of organisms ('harmful organisms' and animal pathogens, and GMOs).</p>
<p>Gap analysis: Unintentional introductions of IAS are well regulated in relation to GMOs, and the organisms considered under the animal health and Plant Health Directives. There appears to be a significant gap in relation to regulation of unintentional introduction of other groups of organisms (eg hitchhiker organisms such as spiders) within the EC.</p>		
<p>12. Mitigation of impacts</p> <p>EC & MS</p>	<p>Environmental Liability Directive</p> <p>Habitats and birds Directives</p>	<p>The definitions in the EL Directive are broad enough to include IAS (<i>release to the environment... of organisms</i>), however, the requirements for its application mean that it is unlikely to be an effective tool for regulation of IAS.</p> <p>The habitats and birds Directives require the avoidance of deterioration of habitats and disturbance of species at protected sites. Meeting these requirements could require MS to control or eradicate IAS in some circumstances where IAS are affecting site values.</p>
<p>Gap analysis: There has been very little coordination of efforts for mitigation of impacts of IAS on the EC level. Capacity for early detection and rapid response remains limited at EC level, and within most MS. The EC also has a role in regulating the use of chemicals and pesticides, and restrictions on these may impact on the ability of MS to control IAS in some situations.</p>		
<p>13. Eradication</p>	<p>Water Framework Directive & Guidance</p>	<p>Requirements in the WFD to achieve good ecological status may lead to</p>

<p>EC & MS</p>	<p>Proposed Marine Strategy Directive</p> <p>Habitats and birds Directives</p> <p>Plant Health Directive Animal Health Directives Directives on contained use and deliberate release of GMOs</p>	<p>MS being obliged to eradicate IAS from water bodies in some cases.</p> <p>Requirement under the proposed MSD to achieve good environmental status may lead to MS being obliged to eradicate IAS from some European marine waters.</p> <p>The requirement to take steps to avoid deterioration of natural habitats and disturbance of species (habitats Directive, Article 6(2)) could oblige MS to eradicate IAS in some cases (eg to eradicate predatory introduced animals where these are affecting vulnerable wildlife, such as feral cats on islands with seabirds breeding). This obligation will generally apply only at Natura 2000 sites. The birds Directive contains similar obligations.</p> <p>All of these Directives contain obligations to eradicate specific organisms if detected.</p>
<p>Gap analysis: MS obligations in relation to IAS eradication currently cover only aquatic environments and protected sites. However, IAS may need to be addressed outside protected sites in order to prevent spread into such sites. Many MS do not have domestic legislation for compulsory eradication of IAS other than those covered in the Plant Health, animal health and GMO Directives.</p>		
<p>14. Containment</p> <p>MS</p>	<p>Water Framework Directive & Guidance</p> <p>Proposed Marine Strategy Directive</p> <p>Habitats and birds Directives</p> <p>Plant Health Directive Species-specific and general Directives containing precautions against animal disease introductions Directives on contained use and deliberate release of GMOs</p>	<p>Requirements in the WFD to achieve good ecological status may lead to MS being obliged to contain IAS in water bodies in some cases.</p> <p>Requirement under the proposed MSD to achieve good environmental status may lead to MS being obliged to contain IAS in relation to some European marine waters.</p> <p>The requirement to take steps to avoid deterioration of natural habitats and disturbance of species (habitats Directive, Article 6(2)) could oblige MS to contain IAS in some cases (eg to contain invasive plants where these could causing damage to a sensitive ecosystem). This obligation will generally apply only at Natura 2000 sites. The birds Directive contains similar obligations.</p> <p>All of these Directives contain obligations to contain specific organisms if detected.</p>

Gap analysis: As with eradication, MS obligations in relation to containment of IAS currently cover only aquatic environments and protected sites. However, IAS may need to be addressed outside protected sites in order to prevent spread into such sites. Many MS do not have domestic legislation for compulsory containment of IAS other than those covered in the Plant Health, animal health and GMO Directives.		
15. Control MS	<p>Water Framework Directive & Guidance</p> <p>Proposed Marine Strategy Directive</p> <p>Habitats and birds Directives</p> <p>Plant Health Directive Species-specific and general Directives containing precautions against animal disease introductions Directives on contained use and deliberate release of GMOs</p>	<p>Requirements in the WFD to achieve good ecological status may lead to MS being obliged to control IAS in water bodies in some cases.</p> <p>Requirement under the proposed MSD to achieve good environmental status may lead to MS being obliged to contain IAS in relation to some European marine waters.</p> <p>The requirement to take steps to avoid deterioration of natural habitats and disturbance of species (habitats Directive, Article 6(2)) could oblige MS to contain IAS in some cases (eg to control introduced herbivores where they are damaging sensitive vegetation). This obligation will generally apply only at Natura 2000 sites. The birds Directive contains similar obligations.</p> <p>All of these Directives contain obligations to control specific organisms if detected, and if eradication or containment fail.</p>
Gap analysis: As with eradication, MS obligations in relation to control of IAS currently cover only aquatic environments and protected sites. However, IAS may need to be addressed outside protected sites in order to prevent spread into such sites. Many MS do not have domestic legislation for compulsory control of IAS other than those covered in the Plant Health, animal health and GMO Directives.		

References for the EU Documents referred to in Table 14:

- Birds Directive (79/409/EEC)
- Commission Communication on the Precautionary Principle (COM(2000)1)
- Community development policy (2006/C 46/01)
- Cotonou Agreement (Article 22)
- Directives on contained use and deliberate release of GMOs (90/219/EC and 2001/18/EC), and Regulation on transboundary movement ('946/2003/EC)
- EIA Directive: (85/337/EEC)
- Environmental Liability Directive (2004/35/CE)
- EU-Caribbean partnership (COM(2006) 86)
- EU Strategy for Africa (COM(2005)489)
- Habitats Directive (92/43/EEC)
- New partnership with South-East Asia (COM(2003)399)
- Overseas Association Decision (2001/822/EC)
- Plant Health Directive (2000/29/EC)

Proposed Regulation for use of alien and locally absent species in aquaculture (COM(2006)154)
SEA Directive (2001/42/EC)
Species-specific and general Directives containing precautions against animal disease introductions (91/67/EEC, 82/894/EEC, 92/65/EEC, etc)
Strategic Framework for the EU and Asia (COM(2001)469)
Strategy for the EU-Latin America partnership (COM(2005)636)
Water Framework Directive (2000/60/EC)
Wildlife Trade Regulations (Council Regulation 338/97/EC and Commission Regulation 1808/2001/EC)

9.2 Summary of gaps in relation to specific Guiding Principles

There is considerable overlap in the subject matter of the GPs and the European IAS Strategy, and also between the GPs themselves. Table 14 contains an analysis of coverage of the current European legal and policy framework in relation to each of the GPs, along with comment on MS activities in relation to each of the GPs, and the gaps in relation to each GP.

Key gaps in relation to specific GPs include:

- GP1:** there is no evidence that a precautionary approach is being applied in the consideration of IAS issues at Community level (for imports of new potential IAS), or by MS in implementation of Community legislation (EIA, SEA, SIA). It does not appear that all MS are applying a precautionary approach in relation to decisions about managing IAS domestically.
- GP2:** the three-stage hierarchical approach is supported by Community legislation in relation to the import of some groups of organisms into EU territory (ie GMOs, pests of plants, animal pathogens, aquaculture organisms) but for a wide range of other high risk groups (eg aquatic plants, ornamental fish, species in the pet and fur trades) it is not being applied. There is little evidence that MS are applying the three-stage approach to decisions about managing IAS domestically.
- GP3:** the WFD and proposed MSD encourage application of an ecosystem approach, including for IAS control, and it is included in the 6EAP. However, there is little evidence of this approach being applied by MS in relation to IAS issues, with regional coordination uncommon.
- GP4:** the operation of the Single Market appears to limit (or at least is perceived to limit) MS capability to act in relation to controlling import and export of IAS or potential IAS from their territory to other MS or third countries. MS do not appear to consider the possible impact of new species to be introduced on other States (including third countries), and there is no coordination or particular information sharing in this regard, although some data collection and sharing initiatives are underway.
- GP5:** there is a gap in relation to monitoring – there appears to be little monitoring of IAS in MS, and no coordinated activity at Community level.
- GP6:** the IAS issue has a low level of visibility at Community level, and in some MS.
- GP7:** the operation of the Single Market limits (or is perceived to limit) the ability of MS to implement border control measures. The groups of organisms for which effective external quarantine measures are in place are those discussed in relation to GP2. Some effort in relation to developing a coordinated early warning system is underway (DAISIE, Biodiversity Communication); but such a system is not yet in place. There is little evidence of MS using risk analysis systems in relation to import of potential IAS.
- GP8:** information exchange is being promoted in the context of European research projects and networking activities such as NOBANIS (and on the global level, eg, GISP, ISSG, GISIN). However, at this point there is no single clear and coordinated source for information on IAS in Europe.

- GP9:** references to IAS are absent from all but one of the Community documents relating to development and international aid, and capacity-building activities seem limited. Opportunities for MS to conclude agreements relating to trade in specific IAS seem restricted by the operation of the Single Market. Coordination of efforts is most prominent in the northern MS (eg NOBANIS) and not as common in the southern MS.
- GP10:** the birds and habitats Directives require MS to ensure that natural habitats within their natural range or wild native fauna and flora are not prejudiced. Accordingly, most MS have legislation in place to regulate the intentional introduction of new species (only in Greece was this not found), but it appears that enforcement and penalties vary significantly. In addition, there is no requirement that MS consider potential risks to other, neighbouring states (including third countries) when carrying out any risk analysis (where this is required). There is no evidence that decisions related to introductions are based on a precautionary approach.
- GP11:** unintentional introductions are generally well regulated for the categories of organisms previously mentioned (ie GMOs, pests of plants, animal pathogens). For other groups there is limited control. Although the EIA and SEA Directives and SIA process are broad enough to consider risks of inadvertent introduction of IAS, there is no evidence that this is done in practice. The Environmental Liability Directive appears applicable to IAS issues, but due to the stringent requirements for its application, it is unlikely to be widely applied in practice.
- GP12:** the Environmental Liability Directive could be applicable, but its application to IAS is likely to be difficult in practice (discussed above). The habitats and birds Directives require the avoidance of deterioration of habitats and disturbance of species, but at protected sites only. There has been very little coordination of efforts for mitigation of impacts of IAS at European level. Capacity for early detection and rapid response remains limited.
- GP13, 14, 15:** the European obligations in relation to these GPs are limited to the categories of organisms already mentioned (ie GMOs, pests of plants, animal pathogens, aquaculture organisms), and to activities at specific sites (including Natura 2000 sites, water bodies under the WFD, and European marine waters under the proposed MSD).

9.3 Conclusions: summary of gaps

Throughout the analysis, gaps in some areas recurred. These issues often arose in respect of more than one of the GPs, as well as at both Community and MS level in the earlier chapters. The key gaps in the European legal and policy framework (as apparent from this analysis) are:

- varying coverage in relation to different groups of organisms;
- lack of coordination between MS, especially in relation to neighbouring MS;
- operation of the Single Market is (or is perceived to be) a barrier to MS actions in relation to IAS;
- no early warning system for IAS threatening biodiversity;
- low awareness/political attention/resourcing;
- lack of attention to IAS issues when dealing with third countries;

- insufficient MS implementation/understanding of existing Community instruments; and
- definitions of IAS used by MS are not always consistent.

Each of these is discussed in turn below.

9.3.1 Varying coverage in relation to different groups of organisms

In relation to several of the GPs, and at Community, and often MS level, the framework applies only to certain specified groups of organisms. Generally, the groups that are well covered (or are covered by proposed legislation) are:

- pests of plants ('harmful organisms' as defined in the Plant Health Directive);
- animal pathogens (as covered by in the Species-specific and general Directives containing precautions against animal disease introductions);
- aquaculture organisms (considered in the proposed Regulation for use of alien and locally absent species in aquaculture); and
- genetically modified organisms (covered in the Directives on contained use and deliberate release of GMOs).

In relation to other groups of organisms there are few provisions in place to address potential IAS, although MS address these to varying extents through their domestic controls on introductions. This leaves a gap in the framework in relation to several groups of organisms that are well known to be high-risk in terms of potential invasiveness (eg plants imported for horticulture, ornamental fishes and aquatic plants for the aquarium and garden pond trade, pets).

The current situation also means that there is a distinction in the treatment of genetically modified organisms compared with new organisms that are not modified. For example, if a MS wished to release a genetically modified species of forest plantation tree it would need to comply with the strict requirements of the Directives on contained use and deliberate release of GMOs. If introducing a new forest plantation tree species which is not genetically modified but still alien to Europe, no risk analysis is required under European law, and in some MS, there are even exemptions from permit requirements for introduction of species used in forestry and agriculture so the new species could be introduced without any risk assessment or official approval needed.

In addition to the groups of organisms set out above, four animal species are banned from import into the European Community under the Wildlife Trade Regulations on the grounds that they 'present an ecological threat to wild species of fauna and flora indigenous to the Community' (Article 4(6)). This provision has been used on a very limited basis to-date, and Article 9(6) which provides the possibility of establishing restrictions on the holding or movement of live specimens of species listed under Article 4(6) has not been used at all. It is clear that some additions to the current framework are needed to address the risk from potential IAS that fall outside the groups of organisms currently listed.

9.3.2 *Lack of coordination between MS*

MS actions in relation to IAS are not consistent or coordinated, and as such are not achieving an adequate level of protection for European biodiversity. In addition, there appears to be some confusion in MS as to what they are legally able to do in relation to IAS. In some cases, comments received from MS contacts during this project indicated that MS authorities may be waiting for Community action rather than pursuing their own initiatives. Aside from the NOBANIS initiative, and several European research projects (and LIFE projects) there is very little evidence of regional MS coordination in relation to IAS issues.

Especially in relation to control, containment and eradication of IAS, lack of coordination amongst MS (especially neighbouring MS) limits the possibility of success, and may dissuade MS from undertaking actions when they fear these will fail due to reinvasion from across borders. There is no central organisation of information on IAS in Europe, and no common public awareness programmes. Due to varying levels of political commitment to this issue, it will be difficult for MS to achieve coordination without some European-level support.

Without coordination of MS activities in relation to IAS, it is unlikely that the EC will achieve its commitment under Article 8(h) of the CBD, and it is also unlikely that MS will achieve their own individual commitments under the same Article.

9.3.3 *Operation of the Single Market is (or is perceived as) a barrier to dealing with IAS*

The Single Market is based on the principle of free movement of goods within the European Community. MS are not permitted to impose quantitative restrictions on imports or exports (Articles 28 and 29, EC Treaty), but this 'shall not preclude prohibitions or restrictions on imports, exports or goods in transit justified on grounds of [...] the protection of health and life of humans, animals or plants [...]. Such prohibitions or restrictions shall not, however, constitute a means of arbitrary discrimination or a disguised restriction on trade between Member States' (Article 30).

At least some Member States perceive the operation of the Single Market as a barrier to their taking actions in respect of IAS. Several of the experts from the new Member States commented that prior to EU membership their countries had robust border control systems, but these were not left in place when their countries joined the EU. One representative commented that since joining the EU, a number of new IAS had been recorded in his country due to the lack of border controls.

Although there is some case law from the European Court of Justice in relation to Article 30 – what constitutes a justifiable restriction on trade – this remains very limited, and MS may still be reluctant to put restrictions in place if these are likely to face legal challenges.

9.3.4 No early warning system for IAS threatening biodiversity

Under the Plant Health Directive and the Species-specific and general Directives containing precautions against animal disease introductions, rapid alert systems are in place to deal with outbreaks of organisms harmful to horticulture and agriculture. There is no corresponding system in place to alert MS of the arrival of new IAS that could potentially harm European biodiversity. Early warning systems are required to undertake mitigation efforts, such as eradication programmes. Without early warning new introduced species may establish themselves and consequently eradication may be impossible.

9.3.5 Awareness, resourcing, and political attention for IAS is low

Many MS highlighted low awareness, resourcing and low political interest in IAS as a barrier to action. The issue has not received a high level of attention at EU level, although DG Environment's LIFE unit has published one document covering the issue. Although European funds may be available to IAS projects (and IAS projects have been funded through LIFE (European Commission (2004)), specific references to IAS are absent from the fund Regulation proposals for 2007-2013.

As references to IAS are not included in many of the potentially relevant pieces of legislation (eg EIA and SEA Directives, Environmental Liability Directive, proposed MSD), and in others, although mentioned are not prominent (eg WFD, habitats and birds Directives), awareness and political will are very important in ensuring action. Direction must come from European level.

Raised awareness may also result in improved regional cooperation between MS with the aim to jointly undertake mitigation measures. Consequently, duplication of effort and waste of resources may be minimised and at the same time management options, such as eradication programmes, will be more efficient.

9.3.6 Lack of attention to and awareness in IAS issues when dealing with third countries

No Community level instruments are in place that would control the intentional or unintentional introduction of alien species to third countries, for example, as a part of the EU trade, external assistance and development cooperation activities. Similarly, none of the Member States instruments summarised in this report seem to address this issue. At the Community level, these issues can be, in principle, considered in the context of general environment/biodiversity related provisions provided by different instruments, eg European Consensus on Development, Cotonou agreement, Overseas Association Decision and other geographical frameworks for cooperation with third countries. IAS can also be considered as a part of SEAs and SIAs that the Community has committed to carry out as part of its development policy (SEAs) and trade agreement negotiations (SIAs). None of the instruments, however, pay particular attention to possible risks posed by IAS.

Both the Community and MS can carry out activities supporting the identification, prevention, early detection, monitoring and control of IAS (eg capacity-building and research) as a part of Community/national development cooperation. Similarly to above, only one Community instrument, namely the EU Strategy for Africa, explicitly mentions IAS as one of the focal areas for cooperation activities.

9.3.7 *Insufficient MS implementation/understanding of existing Community instruments*

Although actions in relation to IAS are already required under several Community instruments, the review of MS measures indicated that implementation of these requirements varies significantly between MS. No information is available, however, on whether these variations have resulted in negative impacts from IAS in some MS.

An example of the inconsistencies can be seen in relation to the MS obligations to restrict introductions of alien species under the habitats and birds Directives (where these might threaten native habitats and species). In the review of MS measures, it was apparent that some MS have few legislative controls or systems in place in relation to introduction of potential IAS. Monitoring systems are also lacking, so reporting on new introductions or the impacts of these is likely to be poor.

The WFD also provides a platform for MS to establish measures for control of IAS in relation to reaching and maintaining the good ecological status of water bodies. It is not apparent that all MS will include assessment of IAS in their characterisation of water bodies (although there is specific reference to IAS in relevant guidance documents).

9.3.8 *Definitions of IAS used are not always consistent; protection given to some IAS*

The definition of IAS used throughout this report is the one included in the CBD Guiding Principles and the European Strategy on IAS: an alien species whose introduction and/or spread threatens biological diversity. This definition is not, however, consistently applied in MS. For example, in some cases IAS are defined as only species that have arrived after a certain date (eg Germany, Flanders). In some MS legislation, definitions of ‘alien species’ are also absent.

In addition, some IAS appear to receive unnecessary protection through European Directives and Conventions, and sometimes through MS legislation which can hamper control efforts. For example, some species alien to the whole of Europe are protected by the European framework; eg. Canada goose *Branta canadensis*, is included in Annex II/1 of the birds Directive (and Annex III of the Bern Convention), although it is known to be an IAS; some habitats characterised under the habitats Directive include IAS, eg habitat 3150 Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation includes mention of *Azolla*²⁵. The annexes to the nature Directives also include some species that, while native in parts of Europe, are potential IAS elsewhere. This situation

²⁵ EU Habitats Interpretation manual, available at http://europa.eu.int/comm/environment/nature/nature_conservation/eu_enlargement/2004/pdf/habitats_im_en.pdf

may hamper control of these species outside their native range if this is needed in other parts of Europe.

10 RECOMMENDATIONS AND WAY FORWARD

This section sets out a range of recommendations for the Commission to assess. These include actions to address the specific gaps identified above, but also address broader areas such as strategic as well as operational levels, for the Community, and for Member States. Some of these actions can be undertaken in the short term, but others will be achievable only in the medium to long-term.

10.1 Develop and promote an EU Vision and Strategy to take forward the IAS agenda

10.1.1 Vision and strategy documents

There is a need for a single document that clearly sets out the Community position and objectives for IAS in a user-friendly way. The Commission's recent Biodiversity Communication (COM2006(216)final) includes an action to *develop a Community strategy to address IAS*. An initial step could be the development of a Communication setting out an agreed vision, and providing for longer-term development of a strategy and/or action plan, which could be aligned, as appropriate with the European IAS Strategy.

In New Zealand, the development of a *Biosecurity Strategy* provided the opportunity for stakeholders to be involved in decisions on the future priorities and systems for IAS management. This has resulted in widespread buy-in to the New Zealand system from all sectors of the community, including environmental groups, industry stakeholders, and other government agencies (see box 2). Developing a Community vision and strategy could provide a similar opportunity in the European context.

10.1.2 Profile-raising on IAS issues

IAS issues do not have a high profile at European Community level, although some species are known to be problematic for biodiversity throughout Community territory, and others are known to have caused economic losses. CBD COP 9, which will be held in 2008 in Germany, will have a major focus on IAS issues. The COP will provide the opportunity to raise the profile of IAS issues within the Community. The Commission could sponsor an event related to IAS, timed in order to receive global attention associated with the COP and the 2010 goal of halting biodiversity loss. Any such event should not have attendees limited to those from environmental agencies, but should include representatives from animal and plant health organisations, agriculture and fisheries ministries, and other sectoral organisations, to reflect the cross-cutting nature of the IAS issue.

Other options for improving awareness of IAS issues in the Community context include:

- promoting awareness of the IAS issue at European level (eg through publications, DG-Environment's website, supporting further research projects in this area,

- funding of a coordinated and focused awareness campaign, through synergies with Countdown 2010 programme etc);
- promoting awareness in MS about opportunities to fund activities related to control of IAS through European funds (provide guidance, workshops – refer to project ENV.B.2/SER/2005/0020);
 - providing guidance to MS in relation to the inclusion of potential impacts from IAS in impact assessments (EIA, SEA, SIA);
 - requiring detailed reporting in relation to the relevant Articles of the habitats and birds Directives, and ensure that MS have transposed these and are implementing them effectively: challenge those MS who are not doing this in the ECJ; and/or
 - ensuring that IAS are taken into account in the implementation of the WFD and MSD through analysis of MS plans.

10.2 Build institutional linkages and improve coordination

10.2.1 Within the Commission

The IAS issue is recognised as being cross-cutting, and dealing with IAS issues in the future will require coordination amongst many different policy agencies. The Commission has already developed an informal inter-DG working group on IAS, and a contact point on IAS has been nominated within DG-Environment. The working group should be encouraged to continue to function, and permanent focal points could be nominated within each DG to enable and facilitate future coordination of work in this area.

10.2.2 Between the Commission and Member States

Member State representatives would benefit from a single source of information and advice in relation to IAS. This would assist in ensuring coordination between MS (especially neighbouring MS) in relation to efforts for control and eradication; lists of high risk species to be subject to restrictions on import/export, possession, sale and introduction; and development of sub-regional strategies if required. The Commission's representative in DG-Environment could play this coordination role, but may need support from a technical expert or group of such experts. It is possible that this expert group could comprise the same members as the Bern Convention IAS Expert Group (see discussion below).

10.2.3 Between the Commission and the Council of Europe

The European IAS Strategy sets out actions and priorities for the Member Countries in relation to IAS. All of the EU MS are also signatories to the Bern Convention, and as such, they are obliged to implement the IAS Strategy. The Bern Convention has also established an IAS Expert Group which meets regularly, and has been responsible for providing advice to many countries that are developing systems, strategies and capacity in relation to IAS.

To avoid duplication of effort, and to facilitate wise use of Community resources, it will be advisable to improve communication between the Commission and the relevant contacts at the Bern Convention Secretariat. There may also be an opportunity for the IAS Expert Group to play a similar role in the EU context.

10.2.4 Between the Commission and other regional institutions

Other regional institutions (eg EPPO) are taking an increasing role in dealing with IAS issues in Europe. The Commission will need to engage with these institutions in relation to IAS, as well as dealing with them on other issues. In particular, it may be relevant to consider European Environmental Agency's role in addressing IAS issues in the future.

10.3 Foster partnerships and improve accountability

The recently released Biodiversity Communication (COM(2006)216) recognises that building partnerships will be necessary in order to reach the goal of halting biodiversity loss by 2010. The same approach will be necessary in order to make progress in dealing with the issue of IAS at Community level.

10.3.1 European Stakeholder forum

A stakeholder forum could be organised as part of the development of the EU Vision and Strategy documents, or as part of the suggested event in association with COP 9. Any such forum should include representatives from the main European groups that are affected by IAS issues, and could be organised jointly with the Bern Convention, EPPO, and/or other regional organisations.

10.3.2 Promote innovation and voluntary partnerships

The Biodiversity Communication (COM(2006)216) suggests the development of partnerships with interests in farming, forestry, planning, business, and the financial sector (see actions B3.1.1-3.1.7). In addition, the Communication suggests the establishment of a Biodiversity and Climate Change Adaptation Task Force (action B3.1.4). These partnerships could address IAS as well as other aspects of biodiversity. This is especially relevant in relation to climate change, as variations in climate are predicted to cause ecosystem disruptions that will increase the susceptibility of ecosystems to the negative impacts of IAS.

Some MS have already begun to promote voluntary actions in relation to IAS – eg the UK has promoted a code of practice for the horticultural industry. Community-level actions could build on such MS actions to achieve wider coordinated programmes.

10.3.3 Education and public awareness

Some MS have developed education and public awareness programmes in relation to IAS, but Community-level coordination would improve the efficiency of such programmes. Awareness related to avian influenza has been addressed at Community

level, with coordinated publicity material in place at external borders to the Community. Such an approach to those IAS that could affect European biodiversity would foster a feeling that dealing with the impacts of IAS is a Community issue in its own right, and could assist in building a sense of responsibility amongst European citizens with regard to imports and exports of potential IAS, both to and from third countries, and in intra-Community trade.

10.3.4 Subregional and transboundary initiatives

Subregional cooperation is already foreseen in Europe with regard to implementation of the water framework and proposed marine strategy Directives, and in relation to regional advisory councils for fisheries. In addition, all Natura 2000 sites are included in one of seven biogeographic regions. To effectively address IAS issues, a transboundary approach will often be necessary, and a formal system for subregional cooperation may be needed.

Options to improve MS coordination on IAS could include:

- establishing a central fund and systems to deal with coordinated IAS control throughout European territory (this could be similar to the systems dealing with pests of plants and animal pathogens);
- promoting (or requiring through new legislation) the development of sub-regional plans for control of IAS based on an ecosystem approach – these could be analogous to the plans required under the WFD and proposed MSD for achieving good environmental status in water bodies;
- promoting dialogue between MS and third countries in relation to IAS (eg by hosting/sponsoring regular meetings on issues related to IAS in Europe, developing a specific expert advice group under the Habitats Committee or other forum); and/or
- requiring more detailed reporting on Article 8(h) of the habitats Directive in the next reporting period: ensuring that all MS have transposed the Article effectively and are taking actions that adhere to the ‘spirit’ of the Directive.

10.4 Streamline and strengthen the Community policy/legislative framework and tools

10.4.1 Adjustment of existing measures

When existing Community legislation is being reviewed (eg when the birds and habitats Directive Annexes are reviewed in 2007/08), IAS should be considered. In particular, reference to IAS should be added to legislation and policy documents where relevant.

Current Directives (eg the Plant Health Directive, the Species-specific and general Directives containing precautions against animal disease introductions) could be amended in order to broaden their scope to include some/all of the groups of species that are currently not considered. Similar suggestions were made by the Ad Hoc Technical Expert Group established by the CBD to address gaps in the international regulatory

framework for IAS (see discussion in section 4.7). In that context, the Group suggested expanding the mandate of the OIE beyond its limited application to animal diseases.

The current application of the Wildlife Trade Regulations should be examined in the context of this and previous reviews (eg Adrados and Griggs 2002), which have found them ineffective in relation to IAS. It is possible that a broader ‘black list’ of species prohibited for import into the EC should be established. In addition, controls on the holding and movement of such species under Article 9(6) should be implemented in order to prevent spread within Community territory.

10.4.2 Adoption of new measures where necessary

In some areas, new legislative instruments may be necessary. This could include the adoption of a specific Directive on invasive species, to cover those groups of organisms that are not currently well addressed (ie organisms that are not pests of plants, animal diseases, GMOs or aquaculture organisms). In the context of new legislation having been recently proposed to deal with the risks from aquaculture organisms that may become IAS, it would be consistent to develop measures to deal with other high-risk groups of organisms.

10.4.3 Review of species lists

A review of the species currently listed as prohibited for import into EC territory under the Wildlife Trade Regulations should be carried out. In particular, consideration should be given to listing species that carry a high risk of being invasive and causing negative impacts on biodiversity. Use of reg 9(6) should also be reviewed, and species should be listed under this provision if it is considered that this would reduce risk of further spread or establishment in Community territory.

10.4.4 Tackling priority pathway gaps

At the international level, gaps in the international framework were identified in relation to certain IAS pathways: Other major gaps in the binding international regulatory framework relate to known pathways like hull fouling and civil air transport. Specific gaps and inconsistencies have been identified for several IAS pathways, including aquaculture/mariculture; military activities; emergency relief, aid and response; international development assistance; scientific research; tourism; pets, aquarium and garden pond species, live bait and live food; biocontrol agents; ex-situ animal breeding programmes; incentive schemes linked to reforestation (eg carbon credits); inter-basin water transfer and canals; unintended protection of IAS as a part of national nature conservation legislation and international conventions and other agreements; and inconsistency in terminology and lack of clear guidelines on the interpretation of relevant legislation.

The analysis for this report highlighted a particular gap with regard to the IAS risk related to European development work. Possible options to improve the attention given to IAS in the context of third countries could include:

- addressing (when relevant) the risks related to the transfer and introduction of IAS as a part of the instruments and policies for cooperation with third countries;
- including a specific reference to IAS as one of the themes for Community and Member States cooperation in all relevant instruments;
- raising awareness in IAS in the context of cooperation with third countries, eg including reference to IAS in relevant guidance documents; and/or
- developing more detailed guidance to actively address IAS in the context of development cooperation, eg develop a list of priority areas where IAS related issues should be in particular addressed.

10.4.5 Implementation of early warning and information exchange systems

The development of an early-warning system is included in the Action Plan annexed to the Biodiversity Communication (COM(2006)216) (action 5.1.4). This system should facilitate the prompt exchange of information between neighbouring countries on the emergence of IAS and cooperation on control measures across national boundaries, and should be in place by 2008. Any early warning system should include the establishment of a central database of information on IAS in Europe, including an ‘inventory’ of IAS in Europe, a database on control measures, and an alert system for new arrivals.

10.5 Develop a practical toolkit for Member States aligned with Community rules

It is clear that MS have a key role in preventing negative effects of IAS on biodiversity. However, the Commission and other Community institutions have a role in supporting MS, and encouraging them to treat this issue as a priority. Developing practical tools to assist MS could be an effective way to use limited Community resources to get results ‘on the ground’.

10.5.1 Design of IAS measures affecting trade

MS remain unclear about the sorts of measures they may justifiably put in place to protect their biodiversity from impacts related to IAS without breaching the EC Treaty.

Possible options to clarify the situation and assist MS in taking action include:

- producing guidance on Article 30 of the EC Treaty, in relation to what sort of restrictions can legally be put in place by MS (including at ‘external’ borders to the Community, and in relation to internal movement of potential IAS into sensitive areas, eg to islands) – this guidance could take the form of ‘design principles for MS measures’; and/or
- producing information on good practice where IAS are being addressed by MS within the current legal framework (eg through effective restrictions on introductions, permit systems for possession, etc).

In addition, the Commission could encourage MS to ratify and implement the International Convention for the Control and Management of Ships' Ballast Water and Sediments – this is already an action in the Commission’s recent Biodiversity Communication (COM(2006)216).

10.5.2 Establishing Community-wide consistency in definitions

The European Community has a role in ensuring that MS share an understanding in relation to IAS. Options for this include:

- producing a guidance document on the application of the CBD definitions of alien species, invasive alien species, introduction and other relevant terms; and/or
- promoting use of the standard CBD definition of IAS at Community and MS level through fora such as the Habitats Committee, Ornis Committee and Biodiversity Expert Group, and in future Community guidance and policy documents.

In addition, conducting a scientific audit of the birds and habitats Directives, as well as the Bern Convention, and related guidance documents to assess adequacy inclusion of current or potential IAS would be worthwhile. Some of the information received during the process of producing this report indicated that some IAS are receiving incidental protection through the action of Community and Member State legislation.

10.5.3 Improving implementation of existing instruments in relation to IAS

The results of the analysis carried out for this report indicate that existing Community legislation could be used to better address IAS issues if MS were implementing all existing provisions effectively. Options to improve MS implementation and understanding of existing Community instruments include:

- requiring detailed reporting in relation to the relevant Articles of the habitats and birds Directives, and ensuring that MS have transposed these and are implementing them effectively: challenging those MS who are not doing this in the ECJ;
- assessing the information on water bodies provided to the Commission under the WFD to establish whether IAS have been included in the assessments; and/or
- providing guidance on best practice for implementation of the relevant Articles of the habitats and birds Directives.

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ANNEXES

ANNEX 1: BINDING INTERNATIONAL INSTRUMENTS

Instrument	Date of Entry into Force	Relevant Provisions	Relevant COP Decision(s)	Relevant Work Programme(s) (ongoing)	Relevance to the EU	Main scope of instrument (provisions applicable to Contracting Parties)
<p>1. Convention on Biological Diversity (Rio de Janeiro, 1992)</p> <p>http://www.biodiv.org</p>	29.12.1993	<p>Article 8 In-situ Conservation: Each Contracting Party shall, as far as possible and as appropriate:</p> <p>(g) Establish or maintain means to regulate, manage or control the risks associated with the use and release of living modified organisms resulting from biotechnology which are likely to have adverse environmental impacts that could affect the conservation and sustainable use of biological diversity, taking also into account the risks to human health; (h) Prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species.</p> <p>Also relevant:</p> <p>Article 14. Impact Assessment and Minimizing Adverse Impacts</p>	<p>Decisions on ‘Alien species that threaten ecosystems, habitats and species’:</p> <ul style="list-style-type: none"> Decision IV/1 C – Requests the SBSTTA (Subsidiary Body on Scientific, Technical and Technological Advice) to develop guiding principles for the prevention, introduction and mitigation of impacts of alien species. Decision V/8 Decision VI/23 –including the adoption of Guiding principles for the prevention, introduction and mitigation of impacts of alien species that threaten ecosystems, habitats or species. Decision VII/13 Decision VIII/27 – further consideration of gaps and inconsistencies in the international regulatory framework. <p>Other relevant decisions: As a CBD cross-cutting issue, aspects of invasive alien species (introduction, mitigation and eradication) are, when appropriate, addressed by Decisions on other thematic programmes of work/cross-</p>	<p>Decision VII/13 established an Ad Hoc Technical Expert Group on Gaps and Inconsistencies in the International Regulatory Frameworks on Invasive Alien Species. Report of Group’s first meeting in 2005(UNEP/CBD/SBSTTA/11/INF/4) formed basis for SBSTTA-11 recommendation currently under consideration at COP8.</p> <p>Decision VI/23: supports use of GISP-developed Toolkit of Best Prevention and Management Practice for Invasive Alien Species</p> <p>Aspects of IAS (introduction, mitigation and eradication) are, when appropriate, addressed as a part of other CBD thematic programmes of work/cross-cutting issues. For example, IAS are addressed through CBD Marine and Coastal</p>	Contracting Party	<p>General: CBD provides general international provisions to prevent the introduction of, and control or eradication of IAS that threaten ecosystems, habitats or species.</p> <p>Taxonomic/functional group coverage: covers all taxonomic groups and applies to species, subspecies and lower taxa, but does not include taxon/functional group-specific guidance. CBD Global Strategy for Plant Conservation specifically addresses IAS that threaten plants, plant communities and associated habitats and ecosystems</p> <p>Ecosystem/biome coverage: aspects of IAS (introduction, mitigation and eradication) are, when appropriate, addressed as a part of other CBD thematic programmes of work/cross-cutting issues, eg dry and sub-humid lands (within Joint Work Programme between CBD and UNCCD), marine and coastal biological diversity, inland water ecosystems, forest biological diversity, mountain biological diversity, climate change and biological diversity</p> <p>Pathway coverage: Decision VI/23 urges stronger action on evaluation and management of pathways for IAS introductions. Different pathways addressed under relevant thematic programmes of work/cross-cutting issues, eg biological</p>

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			thematic programmes of work/cross-cutting issues.	Programme. In this context a joint workshop with UNEP Regional Seas Programme and GISP was held Montreal, June 2005.		<p>diversity and tourism.</p> <p>Application of instruments in prevention, eradication and containment: Guiding Principle 2 provides for a three-stage hierarchical approach including prevention, eradication and containment.</p> <p>Risk analysis: The Guiding Principles support decision-making based on the precautionary approach. Also the CBD Article 14 and related COP Decisions support the application of environmental impact assessments as an integral part of the CBD work, eg IAS.</p> <p>Transboundary aspects/international cooperation: Decision VI/23 supports collaboration with trading partners and neighbouring countries to address threats from IAS to biodiversity in ecosystems that cross international boundaries.</p>
<p>2. Cartagena Protocol on Biosafety to the CBD (Montreal, 2000)</p> <p>http://www.biodiv.org/biosafety/default.asp</p>	11.9. 2003	Objective is to contribute to ensuring an adequate level of protection in the field of the safe transfer, handling and use of living modified organisms resulting from modern biotechnology that may have adverse effects on the conservation and sustainable use of biological diversity, taking also into account risks to human health, and specifically focusing on	<p>Decision BS-I/6 and Decision BS-II/10: Handling, transport, packaging and identification of living modified organisms</p> <p>Decision BS-I/8 and Decision BS-II/11: Establishment of an Open-Ended Ad Hoc Working Group of legal and technical experts on liability and redress in the context of the Protocol</p> <p>Decision BS-I/12: Medium-term</p>	<p>Ad Hoc Working Group of legal and technical experts on liability and redress</p> <p>Ad Hoc Technical Expert Group on Risk Assessment</p>	Contracting Party	<p>General: aims to ensure an adequate level of protection in the field of the safe transfer, handling and use of living modified organisms.</p> <p>Taxonomic/functional group coverage: living modified organisms (LMO)</p> <p>Pathway coverage: provision on the transport of LMOs (eg importation, transport and packaging)</p> <p>Risk analysis: provisions on LMO risk</p>

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		<p>transboundary movements.</p> <p>Article 18: addresses the issue of handling, transport, packaging and identification of living modified organisms (LMOs).</p> <p>Article 27. Liability and Redress for damage resulting from transboundary movements of living modified organisms</p> <p>Articles 15 and 16. Risk Assessment</p>	<p>programme of work for the Conference of the Parties serving as the meeting of the Parties to the Biosafety Protocol (from the second to the fifth meetings).</p> <p>Decision BS-II/9: Risk assessment and risk management, eg establishing an Ad Hoc Technical Expert Group on Risk Assessment</p>			<p>assessment and risk management</p> <p>Responsibility, liability and redress: provisions for liability and redress for damage resulting from transboundary LMO movements</p>
<p>3. United Nations Convention on the Law of the Sea (Montego Bay, 1982)</p> <p>http://www.un.org/Depts/los/losconv1.htm</p>	<p>16.11.1994</p>	<p>Article 196 States shall take all measures necessary to prevent, reduce and control pollution of the marine environment resulting from the use of technologies under their jurisdiction or control, or the intentional or accidental introduction of species, alien or new, to a particular part of the marine environment, which may cause significant and harmful changes.</p>			<p>Contracting Party</p>	<p>Ecosystem/biome coverage: marine environments</p>
<p>4. Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar, 1971)</p>	<p>21.12.1975</p>	<p>The convention contains no explicit provision on alien invasive species.</p> <p>However, IAS are addressed as a relevant, cross-cutting</p>	<p>COP 7 – Resolution VII 14 on Invasive Species and Wetlands: Contracting Parties urged that steps be taken to identify, eradicate and control invasive species in their jurisdictions; to review and as</p>	<p>Guidelines for international cooperation under the Ramsar Convention (Ramsar Handbook for the wise use of wetlands 9); addressing</p>	<p>Contracting Party</p>	<p>Ecosystem/biome coverage: wetland ecosystems</p> <p>Taxonomic/functional group coverage: Resolution IX.23 on avian influenza</p>

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http://www.ramsar.org		<p>issues under several Ramsar Resolutions and guidelines. Ramsar also considers that the CBD Guiding principles for the prevention, introduction and mitigation of impacts of alien species that threaten ecosystems, habitats or species should be applied also to wetland ecosystems.</p>	<p>necessary adopt legislation and programmes to prevent the introduction and movement or trade of new and environmentally dangerous alien species into or within their jurisdictions; to develop capacity to facilitate identification and awareness of alien and invasive species; and to share information and experience, including on best practice management</p> <p>COP 8 - Resolution VIII 18 on Invasive Species and Wetlands: including addressing the aspects of IAS in wetland risk assessments and urging international cooperation in crossborder wetland management.</p> <p>COP 9 - Resolution IX.23: Highly pathogenic avian influenza and its consequences for wetland and waterbird conservation and wise use</p> <p>Also: Resolution VII 10: adopting the Wetland Risk Assessment Framework, also addressing the negative effects of IAS.</p>	<p>the international cooperation in the prevention, early warning in transboundary wetlands, eradication and control of invasive species.</p> <p>Guidelines for reviewing laws and institutions to promote the conservation and wise use of wetlands (Ramsar Handbook for the wise use of wetlands 3): including the framework on IAS.</p> <p>The AEWA-CMS-Ramsar Work Programme (2002-2003) identifies pilot projects for invasive alien species. AEWA and Ramsar are cooperating on the UNEP-GEF African-Eurasian Flyway Project through which Wetland International will demonstrate good practice management for invasive alien species, build capacity and transfer experience throughout the regional wetland network.</p>		<p>Pathway coverage: Ramsar Resolution VII.14 urges to adopt programmes to prevent the introduction of IAS and the movement and trade of such species.</p> <p>Monitoring and early warning: Resolution VIII.18 urges Parties to identify the presence of IAS in Ramsar sites and other wetlands, the threats they pose to these sites' ecological character (including the risk of invasions by species not yet present within each site) and the actions underway or planned for prevention/mitigation.</p> <p>Risk assessment: Resolution VIII.18 urges Parties to undertake a risk analysis of alien species which may pose a threat to the ecological character of wetlands, taking into account the potential changes to ecosystems from the effects of global climate change, and applying the guidance available in Ramsar's Risk Assessment Framework.</p> <p>Environmental impact assessment (EIA) and strategic environmental assessment (SEA): Resolution VIII.18 Parties, prior to moving water between river basins, to examine carefully the potential environmental impacts due to invasive species</p> <p>Transboundary aspects/international cooperation: Resolution VIII.18 urges Parties with shared wetlands, river systems, and coastal/marine zones to cooperate fully in the prevention, early warning in</p>

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						transboundary wetlands, eradication and control of invasive species, applying the Guidelines for international cooperation under the Ramsar Convention.
<p>5. Convention on the Conservation of Migratory Species of Wild Animals (CMS) (Bonn, 1979)</p> <p>http://www.wcmc.org.uk/cms</p>	01.11.1983	<p>Article III (4) (c) Range State Parties of a migratory species listed in Appendix 1 shall endeavour: to the extent feasible and appropriate, to prevent, reduce or control factors that are endangering or are likely to further endanger the species, including strictly controlling the introduction of, or controlling or eliminating, already introduced exotic species.</p> <p>Article V (5) (e) Where appropriate and feasible, each agreement (for Annex II) should provide for, but not be limited to protection of such habitats from disturbances, including strict control of the introduction of, or control of already introduced, exotic species detrimental to the migratory species.</p>	Resolution 8.27 Migratory Species and Highly Pathogenic Avian Influenza	See also Ramsar Convention above and AEWA below	Contracting Party	<p>Taxonomic/functional group coverage: Article III (4) (c) include provisions for IAS that endanger migratory species and wild animals; Resolution 8.27 provisions regarding Migratory Species and Highly Pathogenic Avian Influenza</p> <p>Ecosystem/biome coverage: Article V (5) (e) included provisions for IAS that threaten migratory species habitats</p>

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<p>6. Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA) (The Hague, 1995)</p> <p>http://www.unep-aewa.org/documents/index.html</p>	01.11.1999	<p>Article III(2)(g) Parties shall prohibit the deliberate introduction of alien waterbird species into the environment and take all appropriate measures to prevent the unintentional release of such species if this introduction or release would prejudice the conservation status of wild fauna and flora; when non-native waterbird species have already been introduced, the Parties shall take all appropriate measures to prevent these species from becoming a potential threat to indigenous species.</p> <p>Annex 3 Action Plan 2.5 Parties shall, if they consider it necessary, prohibit the introduction of non-native species of animals and plants which may be detrimental to the populations listed in Table1. Parties shall, if they consider it necessary, require the taking of appropriate precautions to avoid the accidental escape of captive birds belonging to non-native species. Parties shall take measures to the extent feasible and appropriate, including taking, to ensure that when</p>	<p>Resolution 2.3 on the conservation guidelines on national legislation for migratory waterbirds and on the conservation guideline on avoidance of introductions of non-native migratory waterbird species</p> <p>Resolution 3.18 on avian influenza</p>	AEWA Conservation Guideline on Avoidance of introduction of Non-native Species (adopted by Resolution 2.3)	Contracting Party	<p>Taxonomic/functional group coverage: migratory species, also Resolution 3.18 on avian influenza</p> <p>Monitoring and early warning: AEWA Guidelines urge countries to put monitoring systems in place to regularly assess the status of alien species, including in waterbird collections, and provide essential data for risk evaluation: alien species should also be covered in regular waterbird inventories.</p> <p>Risk assessment: AEWA Guidelines urge that the Parties develop or adopt a standard risk analysis methodology for particular species in the context of the regional landscape.</p>

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		non-native species or hybrids thereof have already been introduced into their territory, those species or their hybrids do not pose a potential hazard to the populations listed in Table1.				
7. Convention on the Law of the Non-navigational Uses of International Watercourses (New	Date of Adoption 21.05.1997 (not yet	Article 22: Watercourse States shall take all measures necessary to prevent the introduction of species, alien or new, into an international			The EU not a member of the Convention, however the	Ecosystem/biome coverage: aquatic ecosystems Transboundary aspects/international cooperation: international watercourses

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York, 1997) http://www.internationalwaterlaw.org/IntlDocs/Watercourse_Conv.htm	entered into force)	watercourse, which may have effects detrimental to the ecosystem of the watercourse resulting in significant harm to other watercourse States.			Convention applies to some of the EU Member States	
8. Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (Washington, 1973) http://www.cites.org	01.07.1975	<p>Permits and certificates granted under the provisions of Article III, IV and V are required for the trade in specimens of species included in Appendix I, II and III.</p> <p>Represents alternate model for regulating invasive species not already covered by the IPPC or other agreements. Convention intended to prevent harm in exporting country; however, can only be applied when species is endangered in exporting country and considered an invasive in importing country. Regulates only intentional movements.</p>	<p>Resolution 13.10 of the 13th Conference of the Parties on trade in alien invasive species recommends that the Parties</p> <p>a) consider the problems of invasive species when developing national legislation and regulations that deal with the trade in live animals or plants;</p> <p>b) consult with the Management Authority of a proposed country of import, when possible and when applicable, when considering exports of potentially invasive species, to determine whether there are domestic measures regulating such imports; and</p> <p>c) consider the opportunities for synergy between CITES and the Convention on Biological Diversity (CBD) and explore appropriate cooperation and collaboration between the two Conventions on the issue of introductions of alien species that are potentially invasive</p>		Contracting Party	<p>Taxonomic/functional group coverage: endangered species (used in trade)</p> <p>Pathway coverage: export, re-export, import and introduction from the sea</p> <p>Application of instruments in prevention, eradication and containment: Decision 13.10 urges Parties considering exports of potentially invasive species to consult with the country of import's Management Authority to determine whether domestic measures regulate such imports</p> <p>Transboundary aspects/international cooperation: Decision 13.10 urges Parties to recognize that species in commercial trade are likely to be introduced to new habitat as a result of international trade and to consider invasive alien species problems when developing national legislation and regulations on trade in live animals or plants. Supports cooperation between the CITES Secretariat, in conjunction with the Animals and Plants Committees, and the CBD Secretariat and the IUCN/SSC Invasive Species Specialist Group on IAS.</p>

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<p>9. United Nations Framework Convention on Climate Change (UNFCCC) (New-York, 1992)</p> <p>http://www.unfccc.de</p>	21.03.1994	<p>Article 2 Objective The ultimate objective stabilisation of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Strives to stabilise (and eventually reduce) greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system [changes in temperature and rainfall patterns can induce new invasions and exacerbate existing invasions].</p>	<p>Decision 19/CP.9 on ‘Modalities and procedures for afforestation and reforestation project activities under the clean development mechanism in the first commitment period of the Kyoto Protocol’ recognises that Parties evaluate risks associated with the use of potentially invasive alien species by afforestation and reforestation project activities.</p> <p>Decision 11/CP.7 which recommends that the Conference of the Parties to the Convention on Climate Change serving as the meeting of the Parties to the Kyoto Protocol affirm that the implementation of land use, land-use change and forestry activities contributes to the conservation of biodiversity and sustainable use of natural resources.</p>	<p>In general, the interlinkages between climate change and biodiversity are addressed under the CBD cross-cutting initiative on climate change and biodiversity that links closely to the UNFCCC.</p>	Contracting Party	<p>UNFCCC does not include specific provisions for reducing the risks posed by IAS. However, IAS issues can be addressed through the joint liaison group composed of UNFCCC, CBD, UNCCD and the Collaborative Partnership on Forests.</p>

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10. United Nations Convention to Combat Desertification (UNCCD) www.unccd.int	26.12.1996	The UNCCD aims to combat desertification and mitigate the effects of drought in countries experiencing serious drought and/or desertification, particularly in Africa, through effective actions at all levels, supported by international co-operation and partnership arrangements, in the framework of an integrated approach which is consistent with Agenda 21, with a view to contributing to the achievements of sustainable development in affected areas.		In general, the interlinkages between desertification and biodiversity are addressed under the CBD thematic programme of work on dry and sub-humid lands biodiversity that links closely to the UNFCCC.	Contracting Party	UNCCD does not include specific provisions for reducing the risks posed by IAS. However, IAS issues can be addressed through the joint liaison group composed of UNCCD, CBD, UNFCCC and the Collaborative Partnership on Forests.
11. Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction (Washington, London and Moscow 1972) http://disarmament2.un.org/wmd/bwc/index.html	26.03.1975	<p>Article I prohibits parties from developing, producing, stockpiling, acquiring or retaining microbial or other biological agents which are not justified by exclusively peaceful purpose.</p> <p>Article II requires parties to destroy or divert to peaceful purpose all such agents within 9 months of entry into force of the Convention.</p>			Contracting Party	<p>Taxonomic/functional group coverage: microbial or other biological agents or toxins</p>

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<p>12. International Plant Protection Convention (IPPC) (Rome, 1951, Revised in 1997 by the FAO Conference)</p> <p>http://www.ippc.int/servelet/CDSServlet?status=ND0xMzI5MiY2PWVuJmZPSomMzc9a29z</p>	<p>2.10.2005 (revised Convention)</p>	<p>IPPC applies primarily to quarantine plant pests in international trade. Creates an international regime to prevent spread and introduction of pests of plants and plant products through the use of sanitary and phytosanitary measures. Parties have established national plant protection organisations with authority in relation to quarantine control, risk analysis and other measures required to prevent the establishment and spread of pests that, directly or indirectly, are pests of plants and plant products or that impact unmanaged systems.</p>	<p>International Standards for Phytosanitary Measures (ISPM):</p> <ul style="list-style-type: none"> • Principles of Plant Quarantine as Related to International Trade • Guidelines for Pest Risk Analysis • Code of Conduct for the Import and Release of Exotic Biological Control Agents • Requirements for the Establishment of Pest Free Areas • Glossary of Phytosanitary Terms • Guidelines for Surveillance • Export Certification System • Determination of Pest Status in an Area • Guidelines for Pest Eradication Programmes • Requirements For The Establishment Of Pest Free Places Of Production And Pest Free Production Sites • Pest Risk Analysis For Quarantine Pests • Guidelines For Phytosanitary Certificates • Guidelines For The Notification Of Non-Compliance And Emergency Action • The Use Of Integrated Measures In A Systems 	<p>Memorandum of cooperation signed February 2004 formalises cooperation between secretariats of IPPC, CBD and Cartagena Protocol on Biosafety. Joint work plan subsequently developed. CBD report on IAS activities submitted to First Session of IPPC's Commission on Phytosanitary Measures (April 2006: CPM 2006/INF/7). Next tripartite meeting scheduled May 2006, following CPM-1, COP-8, and COP/MOP-3.</p>	<p>Contracting Party</p>	<p>Taxonomic/functional group coverage: Invasive alien species that qualify as pests of plants or plant products, including taxa that impact unmanaged systems.</p> <p>Ecosystem/biome coverage: agricultural and forestry ecosystems</p> <p>Pathway coverage: provisions regarding the import, export and quarantine of pests of plants. Eg. Party may prohibit or restrict the movement of biological control agents and other organisms of phytosanitary concern claimed to be beneficial into their territories (Art.VII.1.d., IPPC). Party may take import measures against further arrivals of pests established domestically if these are subject to official control' at the domestic level.</p> <p>Risk assessment: provisions regarding pest risk analysis and risk management</p> <p>Monitoring and early warning: guidelines for surveillance</p> <p>Transboundary aspects/international cooperation: provisions for international cooperation (Art 8)</p>

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			<p>Approach For Pest Risk Management</p> <ul style="list-style-type: none"> • Guidelines For Regulating Wood Packaging Material In International Trade • Regulated Non-Quarantine Pests: Concept And Application • Pest Reporting • Guidelines For The Use Of Irradiation As A Phytosanitary Measure • Guidelines On Lists Of Regulated Pests 			
<p>13. Convention for the Establishment of the European and Mediterranean Plant Protection Organisation (EPPO) (Paris, 1951)</p> <p>http://www.eppo.org/</p>	<p>01.11.1953</p>	<p>Under the International Plant Protection Convention (IPPC), EPPO is the regional plant protection organization (RPPO) for Europe. EPPO is an intergovernmental organization responsible for European cooperation in plant protection in the European and Mediterranean region.</p>	<p>EPPO has developed several standards on plant protection products and phytosanitary measures, including:</p> <ul style="list-style-type: none"> • Efficacy Evaluation of Plant Protection Products • Good Plant Protection Practice • Environmental Risk Assessment of Plant Protection Products • General Phytosanitary Measures • Pest-specific Phytosanitary Measures • Phytosanitary Procedures • Production of Healthy Plants for Planting • Pest Risk Analysis • Safe use of Biological Control 	<p>EPPO, in the framework of the IPPC and of the Bern Convention's European Strategy on Invasive Alien Species, is developing a cooperative European strategy for protection against IAS. Species. Scientific Officer for Invasive Alien Plants appointed September 2005.</p> <p>EPPO Ad hoc Panel on Invasive Alien Species has developed a list of plants identified to pose an important threat to plant health, environment and biodiversity in the EPPO</p>	<p>The EU not a member of EPPO, however several of the EU Member States are</p>	<p>Taxonomic/functional group coverage: Invasive alien species that qualify as pests of plants or plant products, including taxa that impact unmanaged systems.</p> <p>Ecosystem/biome coverage: agricultural and forestry ecosystems</p> <p>Pathway coverage: provisions regarding the import, export and quarantine of pests of plants. Eg. Party may prohibit or restrict the movement of biological control agents and other organisms of phytosanitary concern claimed to be beneficial into their territories (Art.VII.1.d., IPPC). Party may take import measures against further arrivals of pests established domestically if these are subject to official control' at the domestic level.</p> <p>Risk assessment: provisions regarding pest</p>

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			<ul style="list-style-type: none"> • Diagnostic Protocols for regulated pests • Commodity-specific Phytosanitary Measures • National Regulatory Control Systems 	<p>region and recommends that countries endangered by these species take measures to prevent their further introduction and spread or manage unwanted populations (e.g. publicity, restriction on sale and planting, control).</p> <p>EPPO Panel on Safe Use of Biological Control</p>		<p>risk analysis and risk management</p> <p>Monitoring and early warning: guidelines for surveillance</p> <p>Transboundary aspects/international cooperation: provisions for international cooperation (Art 8)</p>
<p>14. Agreement concerning Co-operation in the Quarantine of Plants and their Protection against Pests and Diseases (Sofia, 1959)</p> <p>http://sedac.ciesin.org/entri/texts/quarantine_of_plants.1959.html</p>	<p>19.10.1960</p>	<p>Article VI: Parties undertake to apply measures to prevent the introduction from one country into another, in exported consignments of goods or by any other means, of quarantinable plant pests and diseases and weeds specified in lists to be drawn up by agreement between the parties concerned.</p> <p>Annex - List of the Principal Quarantinable Pests, Diseases and Noxious Weeds</p>			<p>The EU not a member of the Convention, however the Convention applies to some of the EU Member States</p>	<p>Taxonomic/functional group coverage: plant pest and diseases</p> <p>Pathway coverage: imports and packaging materials</p>
<p>15. The WTO Agreement on the Application of Sanitary and Phytosanitary Measures (Marrakech, 1995)</p>	<p>01.01.1995</p>	<p>A supplementary agreement to the World Trade Organisation Agreement. Provides a uniform framework for measures governing sanitary/phytosanitary measures for human, plant and</p>		<p>WTO and World Bank co-founded the Standards and Trade Development Facility (STDF) - a global programme in capacity-building and technical assistance to developing</p>	<p>Contracting Party (of the WTO)</p>	<p>Taxonomic/functional group coverage: Pests, diseases, disease-carrying organisms, or disease-causing organisms</p> <p>Pathway coverage: imports</p>

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http://www.wto.org/english/tratop_e/sps_e/spsagr.htm		<p>animal life or health. Sanitary and phytosanitary measures are defined as any measure applied a) to protect human, animal or plant life or health (within the Member's Territory) from the entry, establishment or spread of pests, diseases, disease carrying organisms; b) to prevent or limit other damage (within the Member's Territory) from the entry, establishment or spread of pests.</p> <p>WTO does not itself develop standards under the SPS Agreement. The Agreement encourages countries to use international standards, guidelines and recommendations where they exist, eg those developed by IPPC and OIE.</p>		<p>countries in trade and standards. http://www.standardsfacility.org/</p>		

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<p>16. International Convention for the Control and Management of Ships' Ballast Water and Sediments</p> <p>http://www.imo.org/home.asp</p> <p>See also International Maritime Organisation (Table 2: Non-binding instruments)</p>	<p>Adopted 13.02.2004 (not yet entered into force)</p>	<p>Under Article 2 General Obligations Parties undertake to give full and complete effect to the provisions of the Convention and the Annex in order to prevent, minimize and ultimately eliminate the transfer of harmful aquatic organisms and pathogens through the control and management of ships' ballast water and sediments.</p>		<p>Following completion of Phase 1 of the GEF/UNDP/IMO Global Ballast Water Management Programme (GloBallast: http://globallast.imo.org), the GloBallast Partnerships project (Building Partnerships to Assist Developing Countries to Reduce the Transfer of Harmful Aquatic Organisms in Ships' Ballast Water) will become operational in 2006/2007 to assist particularly vulnerable countries and/or regions to enact legal and policy reforms to meet the Convention's objectives.</p>	<p>The EU not a member of the Convention, however the Convention applies to some of the EU Member States</p>	<p>Taxonomic/functional group coverage: harmful aquatic organisms</p> <p>Pathway coverage: ballast water transport and sediment discharge</p> <p>Transboundary aspects/international cooperation: Cooperation in the transfer of technology in respect to the control and management of ballast water</p>
<p>17. International Health Regulations (IHR)</p> <p>Initially adopted by the 22nd World Health Assembly in 1969. Latest amended IHR (IHR2005) adopted by the World Health Assembly on 23.05.2005)</p>	<p>Adopted 23.05.2005 (scheduled to enter into force in June 2007)</p>	<p>The purpose and scope of the IHR(2005) are to prevent, protect against, control and provide a public health response to the international spread of disease and which avoid unnecessary interference with international traffic and trade.</p>			<p>The EU is a member of WHO. All Member States of WHO will become States Parties to the IHR(2005) except for any that reject the</p>	<p>Taxonomic/functional group coverage: diseases</p> <p>Pathway coverage: provisions for public health measures at points of entry (eg special provisions for travellers, goods, containers and container loading areas).</p> <p>Application of instruments in prevention, eradication and containment: States Parties to the IHR(2005) are to provide a public health response to the international spread of disease.</p>

Instrument	Date of Entry into Force	Relevant Provisions	Relevant COP Decision(s)	Relevant Work Programme(s) (ongoing)	Relevance to the EU	Main scope of instrument (provisions applicable to Contracting Parties)
http://www.who.int/csr/ihr/					Regulations before 15 Dec 2006.	<p>Monitoring and early warning: States Parties to the IHR(2005) are required to develop, strengthen and maintain core surveillance and response capacities to detect, assess, notify and report public health events to WHO and respond to public health risks and public health emergencies.</p> <p>Transboundary aspects/international cooperation: IHR(2005) aims particularly prevent the international spread of disease, ie the international aspects are in the core of the Regulation.</p>
18. Convention on the Protection of the Marine Environment of the Baltic (HELCOM) http://www.helcom.fi/	17.01.2000	<p>HELCOM works to protect the marine environment of the Baltic Sea from all sources of pollution through intergovernmental co-operation.</p> <p>The Convention uses a definition of pollution that enables it also to deal with alien species: 'Pollution means introduction by man, directly or indirectly, of substances or energy into the sea, including estuaries, which are liable to create hazards to human health, to harm living resources and marine ecosystems, to cause hindrance to legitimate uses of the sea including fishing, to</p>	Baltic Sea Action Plan (goals and objectives based on ecosystem approach) approved 9.3.2006 and Task Force created to identify detailed actions to meet priority objectives, including halting habitat destruction and decline in biodiversity.	<p>Baltic Sea Action Plan will provide pilot project in the subregion for implementation of the EU Marine Strategy</p> <p>Baltic Sea Alien Species Database http://www.ku.lt/nemo/maimemo.html</p>	Contracting party	<p>Taxonomic/functional group coverage: (harmful) aquatic/marine organisms</p> <p>Ecosystem/biome coverage: Baltic Sea ecosystem</p> <p>Pathway coverage: provisions for prevention of pollution from ships</p> <p>Risk assessment: provisions for environmental impact assessments</p> <p>Application of instruments in prevention, eradication and containment: provisions regarding response to pollution incidents</p> <p>Transboundary aspects/international cooperation: provisions for Baltic cooperation in combating pollution</p>

Instrument	Date of Entry into Force	Relevant Provisions	Relevant COP Decision(s)	Relevant Work Programme(s) (ongoing)	Relevance to the EU	Main scope of instrument (provisions applicable to Contracting Parties)
		impair the quality for use of sea water, and to lead to a reduction of amenities’.				
19. Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention)	25.03.1998	<p>2003 Strategy of the OSPAR Commission for the ‘Protection of the Marine Environment of the North-East Atlantic’: Alien species is listed as one of the candidates of human activities for further analysis as regards actual or potential adverse effect on species and habitats or on ecological processes.</p> <p>The Convention uses a definition of pollution, that enables the OSPAR to also deal with alien species: ‘Pollution means the introduction by man, directly or indirectly, of substances or energy into the maritime area which results, or is likely to result, in hazards to human health, harm to living resources and marine ecosystems, damage to amenities or interference with other legitimate uses of the sea.’</p>			Contracting party	<p>Taxonomic/functional group coverage: (harmful) aquatic/marine organisms</p> <p>Ecosystem/biome coverage: North Sea ecosystem</p> <p>Pathway coverage: provisions for prevention and elimination of pollution from different sources</p> <p>Application of instruments in prevention, eradication and containment: provisions regarding prevention and elimination of pollution, eg interns of protection and conservation of the ecosystems and biological diversity of the maritime area.</p> <p>Transboundary aspects/international cooperation: provisions for North Sea cooperation in combating pollution</p>

Instrument	Date of Entry into Force	Relevant Provisions	Relevant COP Decision(s)	Relevant Work Programme(s) (ongoing)	Relevance to the EU	Main scope of instrument (provisions applicable to Contracting Parties)
20. Convention Concerning Fishing in the Waters of the Danube (Bucharest 1958)	20.12.1958	Annex Part V Article 10 The acclimatization and breeding of new species of fish and other animals and of aquatic plants in the waters of the Danube to which this Convention applies may not be carried out save with the consent of the Commission.			The EU not a member of the Convention, however the Convention applies to some of the EU Member States	Taxonomic/functional group coverage: aquatic species (eg fish, plants, other animals) Ecosystem/biome coverage: Danube river ecosystems
21. Convention on the Conservation of European Wildlife and Natural Habitats (Bern, 1979) http://www.coe.fr/eng/le_galtxt/104e.htm	01.06.1982	Article 11(2)(b) Each Contracting Party undertakes: to strictly control the introduction of non-native species.	Committee of Ministers of the Council of Europe Recommendations: <ul style="list-style-type: none"> • Recommendation No. 18 (1989) on the protection of indigenous crayfish in Europe • Recommendation No. 45 (1995) on controlling proliferation of <i>Caulerpa taxifolia</i> in the Mediterranean • Recommendation No. 61 (1997) on the conservation of the White-headed Duck (<i>Oxyura leucocephala</i>) • Recommendation No. 78 (1999) on the conservation of the Red squirrel (<i>Sciurus vulgaris</i>) in Italy • Recommendation No. 57 (1997) on the Introduction of Organisms belonging to Non-Native Species into the Environment • Recommendation No. 77 (1999) on the eradication of 	Group of Experts on Invasive Alien Species (six meetings to date) Report on trade-related aspects of IAS commissioned in 2006, to be considered at 26 th meeting of Standing Committee Sponsors national workshops on IAS (e.g. Croatia, May 2006)	Contracting party	General: European Strategy on IAS provides general provisions to prevent the introduction of, and control or eradication of IAS that threaten ecosystems, habitats or species in Europe. Taxonomic/functional group coverage: European Strategy on IAS covers all taxonomic groups, including viruses, prions, bacteria, feral animals of domestic species (cats, dogs, goats, etc.) and alien biological control agents. and applies to species, subspecies and lower taxa. It does not apply to genetically modified organisms. Additionally, some Council of Europe Recommendations are species specific (See Relevant COP Decisions) Ecosystem/biome coverage: European Strategy on IAS covers all terrestrial, freshwater and marine environments under the sovereignty or jurisdiction of Bern Convention Parties.

Instrument	Date of Entry into Force	Relevant Provisions	Relevant COP Decision(s)	Relevant Work Programme(s) (ongoing)	Relevance to the EU	Main scope of instrument (provisions applicable to Contracting Parties)
			<p>non-native terrestrial vertebrates</p> <ul style="list-style-type: none"> • Recommendation No. 91 (2002) on Invasive Alien Species that threaten biological diversity in Islands and geographically and evolutionarily isolated ecosystems • Recommendation No. 99 (2003) on the European Strategy on Invasive Alien Species, which recommends that Contracting Parties: draw up and implement national strategies on invasive alien species taking into account the European Strategy on Invasive Alien Species. And co-operate, as appropriate, with other Contracting Parties and Observer States in prevention, mitigation and eradication or containment of aliens species • Recommendation No. 114 (2005) on the control of the Grey squirrel (<i>Sciurus carolinensis</i>) and other alien squirrels in Europe 			<p>Pathway coverage: European Strategy on IAS addresses all intentional and unintentional pathways of IAS introduction</p> <p>Application of instruments in prevention, eradication and containment: European Strategy on IAS provides provisions for prevention and mitigation of IAS, and restoration of IAS impacts.</p> <p>Risk analysis: European Strategy on IAS provides provisions for the application of risk assessment/analysis</p> <p>Monitoring and early warning: European Strategy on IAS provides provisions on early detection and rapid response</p> <p>Transboundary aspects/international cooperation: European Strategy on IAS includes provisions for regional policy and responsibility.</p>
22. Benelux Convention on Nature Conservation and Landscape Protection (Brussels, 1982)	01.10.1983	Article 1 The present Convention aims at regulate the concentration and the cooperation between the three Governments in the field of the conservation, the	Benelux Council of Ministers Decision 17.10.83. Parties to the 1982 Benelux Convention are required to prohibit the introduction of non-native animal species into the wild without authorisation from the		EU not a member but some the Member States are Contracting	<p>Ecosystem/biome coverage: covers all ecosystems within the jurisdiction of the Parties.</p> <p>Risk analysis: introduction requires an authorisation from the competent national</p>

Instrument	Date of Entry into Force	Relevant Provisions	Relevant COP Decision(s)	Relevant Work Programme(s) (ongoing)	Relevance to the EU	Main scope of instrument (provisions applicable to Contracting Parties)
http://sedac.ciesin.columbia.edu/entri/texts/benelux.landscape.protection.1982.html		management and the restoration of nature and landscapes.	competent national authority; pre-introduction assessment required; communications between parties about planned introductions.		Parties to the Convention	authority and a pre-introduction assessment Transboundary aspects/international cooperation: communications between parties about planned introductions required
23. Protocol for the Implementation of the Alpine Convention in the Field of Nature Protection and Landscape Conservation (Chambery, 1994) http://www.convenzionedellealpi.org/page1_fr.htm	18.12..2002 (entered into force in the European Community on 04.04.1998)	Article 17 The Parties, having regard to the objectives pursued and taking into account the characteristics of each protected area, shall, in conformity with the rules of international law, progressively take the measures required, which may include the prohibition of the destruction of plant life or animals and of the introduction of exotic species; the regulation of any act likely to harm or disturb the fauna or flora, including the introduction of indigenous zoological or botanical species.			Contracting party	Ecosystem/biome coverage: alpine ecosystems (protected areas)
24. Protocol Concerning Specially Protected Areas and Biological Diversity in the Mediterranean (under the Barcelona Convention) (Barcelona, 1995) http://www.unep.org/regionalseas/Program	12.12.1999	The Protocol calls for the establishment of a list of Specially Protected Areas of Mediterranean Importance (SPAMI) in order to conserve biodiversity and to contain specific Mediterranean ecosystems. Article 6 The Parties, in conformity with international	Action Plan Concerning Species Introductions And Invasive Species In The Mediterranean Sea adopted at 13 th Meeting of the Contracting Parties to the Barcelona Convention (Catania, November 2003).		EU is a Contracting party to the Convention Contracting Member States include Cyprus, France, Italy, Malta,	Taxonomic/functional group coverage: non-indigenous or genetically modified aquatic species/organisms Ecosystem/biome coverage: Mediterranean marine protected areas Pathway coverage: covers all intentional and unintentional pathways of IAS introduction

Instrument	Date of Entry into Force	Relevant Provisions	Relevant COP Decision(s)	Relevant Work Programme(s) (ongoing)	Relevance to the EU	Main scope of instrument (provisions applicable to Contracting Parties)
mes/UNEP_Administered_Programmes/Mediterranean_Region/default2.asp		<p>law and taking into account the characteristics of each specially protected area, shall take the protection measures required, in particular: the regulation of the introduction of any species not indigenous to the specially protected area in question, or of genetically modified species, as well as the introduction or reintroduction of species which are or have been present in the specially protected area.</p> <p>Article 13 The Parties shall take all appropriate measures to regulate the intentional or accidental introduction of non-indigenous or genetically modified species to the wild and prohibit those that may have harmful impacts on the ecosystems, habitats or species in the area to which this Protocol applies. The Parties shall endeavour to implement all possible measures to eradicate species that have already been introduced when, after scientific assessment, it appears that such species cause or are likely to cause damage to ecosystems, habitats or species in the area to which this Protocol applies.</p>			Slovenia and Spain	<p>Application of instruments in prevention, eradication and containment: : Article 13 provides provisions for prevention and eradication of IAS</p>

Instrument	Date of Entry into Force	Relevant Provisions	Relevant COP Decision(s)	Relevant Work Programme(s) (ongoing)	Relevance to the EU	Main scope of instrument (provisions applicable to Contracting Parties)
25. Framework Convention on the Protection and Sustainable Development of the Carpathians http://www.carpathianconvention.org/index.htm	01.01.2006	Article 4.3 states that the Parties shall pursue policies aiming at the prevention of introduction of IAS and release of genetically modified organisms threatening ecosystems, habitats or species, their control or eradication.			EU not a member but some the Member States are Contracting Parties to the Convention (eg Czech Republic, Hungary, Poland and Slovakia)	Taxonomic/functional group coverage: IAS and genetically modified organisms Ecosystem/biome coverage: Carpathian region Application of instruments in prevention, eradication and containment: supports preventions of IAS introduction, and control and eradication of IAS and GMOs threatening ecosystems, habitats or species

ANNEX 2: INTERNATIONAL INSTRUMENTS (NON-BINDING)

Institution/Programme	Instrument	Purpose	Main scope(s) of instrument(s)	Other relevant work programmes / projects (ongoing)
1. IUCN - The World Conservation Union http://www.iucn.org	<p>IUCN Guidelines for the Prevention of Biodiversity Loss Caused by Alien Invasive Species (2000)</p> <p>Guidelines for Re-introductions (1995)</p> <p>IUCN Position Statement on Translocation of Living Organisms: Introductions, Reintroductions, and Re-stocking (1987)</p> <p>Shine C., Gündling L. and Williams, N.. 2000. A Guide to Designing Legal and Institutional Frameworks on Alien Invasive Species. (IUCN Environmental Policy & Law Paper no.40)</p>	<p>Guidelines are designed to increase awareness and understanding of the impact of alien species. Provides guidelines for: prevention, eradication, control and re-introduction</p> <p>Guidelines on the introduction of endangered species. Mentions non-indigenous species as a threat to reintroduction, but also recognizes potential dangers of re-introduction itself.</p> <p>This IUCN statement describes the advantageous uses of translocations and the work and precautions needed to avoid the consequences of poorly planned translocations.</p>	<p>Taxonomic/functional group coverage all taxonomic groups, eg, endangered re-introduced species</p> <p>Application of instruments in prevention, eradication and containment: guidance for prevention, eradication and control of IAS, eg, reintroduction of endangered species</p> <p>Risk assessment: IUCN Guiding Principles support the applications of environmental impact assessments and risk analysis</p> <p>Transboundary aspects/international cooperation: IUCN Guiding Principles give guidance to the cooperation between countries to secure the conditions necessary to prevent or minimise the risks from IAS</p>	<p>IUCN Invasive Species Specialist Group working under the IUCN Species Survival Commission IUCN Re-introduction Specialist Group</p> <p>Global Invasive Species Database http://www.issg.org/database/welcome/</p> <p>The Cooperative Initiative on Invasive Alien Species on Islands (Cooperative Islands Initiative or CII) http://www.issg.org/cii/</p> <p>Mediterranean Island Plant Specialist Group www.iucn.org/themes/ssc/sgs/mipsg/index.htm</p> <p>Information Platform on Invasive Alien Species in the Mediterranean developed by IUCN Centre for Mediterranean Cooperation: http://iucn.org/places/medoffice/invasive_species/index_en.html</p>
2. Global Invasive Species Programme (GISP) http://www.gisp.org/index.asp	<p>GISP Constitution adopted April 2005. Founding members are IUCN, CAB International, The Nature Conservancy and the South African National Biodiversity Institute.</p>	<p>The GISP mission is to conserve biodiversity and sustain human livelihoods by minimizing the spread and impact of invasive alien species.</p> <p>GISP seeks to</p> <ul style="list-style-type: none"> • improve the scientific basis for decision-making on invasive species • develop capacities to employ early warning 	n/a	<p>GISP-developed guidance and tool kits include:</p> <p>Wittenberg R. & Cock M.J.W. 2001 (eds) Invasive Alien Species: A Toolkit for Best Prevention and Management Practices http://www.gisp.org/publications/toolkit/index.asp</p> <p>10 reports on regional IAS workshops around the</p>

Institution/Programme	Instrument	Purpose	Main scope(s) of instrument(s)	Other relevant work programmes / projects (ongoing)
		<p>and rapid assessment and response systems</p> <ul style="list-style-type: none"> • enhance the ability to manage invasive species • reduce the economic impacts of invasive species and control methods • develop better risk assessment methods, and • strengthen international agreements • develop public education about invasive species • improve understanding of the ecology of invasive species • examine legal and institutional frameworks for controlling invasive species • develop new codes of conduct for the movement of species, and • design new tools for quantifying the impact of invasive species. 		<p>world, plus summary document: “Tackling Biological Invasions around the World – Regional Responses to the Invasive Alien Species Threat”</p> <p>Hilliard R. 2005 Best Practice for the Management of Introduced Marine Pests - A Review</p> <p>Mooney H., Mack R., McNeely J., Neville L., Schei P. and Waage J. , 2005. Invasive Alien Species – A New Synthesis (final report of GISP Phase 1 1997-2000) Island Press ISBN : 1-55963-362-X.</p> <p>GISP has also supported the following recent publications:</p> <p>Burgiel, S., Foote, G., Orellana, M. and Perrault, A. 2006. Invasive Alien Species and Trade: Integrating Prevention Measures and International Trade Rules. A publication by the Centre for International Environmental Law (CIEL) and Defenders of Wildlife with support from GISP and the Nature Conservancy.</p> <p>Young, T. R., 2006. National and Regional Legislation for Promotion and Support to the Prevention, control and Eradication of Invasive Species. World Bank Paper No. 108. A paper prepared by the IUCN Environmental Law Centre and published as a contribution to GISP.</p> <p>DIVERSITAS – an international programme of biodiversity science is also a member of GISP (http://www.diversitas-international.org/cross_invasive.html)</p>
<p>3. Global Invasive Species Information Network</p> <p>http://www.gisnetwork.org/</p>	n/a	<p>The Mission of the Global Invasive Species Information Network:</p> <ul style="list-style-type: none"> • To provide a platform for sharing invasive species information at a global level, via the Internet and other digital means. • To offer a central place for the reporting and 	n/a	n/a

Institution/Programme	Instrument	Purpose	Main scope(s) of instrument(s)	Other relevant work programmes / projects (ongoing)
		<p>tracking of new alien species sightings via email listserv.</p> <ul style="list-style-type: none"> • To develop and share electronic information management tools to better identify, map, and predict the spread of invasive species at regional and global levels. • To build the capacity of network members in the development and use of information tools to integrate IAS databases. 		
<p>4. International Maritime Organisation</p> <p>http://www.imo.org</p> <p>See also International Convention for the Control and Management of Ships' Ballast Water and Sediments (Table 1: Binding instruments)</p>	<p>IMO's Marine Environment Protection Committee (MEPC) resolution 50(31) (1991)- Guidelines for Preventing the Introduction of Unwanted Organisms and Pathogens from Ships' Ballast Water and Sediment Discharges.</p> <p>IMO Assembly resolution A.774(18) (1993) - Guidelines for Preventing the Introduction of Unwanted Organisms and Pathogens from Ships' Ballast Water and Sediment Discharges,</p> <p>IMO Assembly resolution A.868(20) (1997) - Guidelines for the control and management of ships' ballast water to minimize the transfer of harmful aquatic organisms and pathogens. Appendix 2 : Guidance on safety Aspects of Ballast Water Exchange at Sea.</p>	<p>All Member State Governments, ship operators, other appropriate authorities and interested parties are requested to apply these Guidelines. They provide guidance and strategies to minimise risk of unwanted organisms and pathogens from ballast water and sediment discharge.</p>	<p>Taxonomic/functional group coverage: harmful aquatic organisms</p> <p>Pathway coverage: ballast water transport and sediment discharge</p> <p>Transboundary aspects/international cooperation: Cooperation in the transfer of technology in respect to the control and management of ballast water</p>	<p>IMO is implementing the GEF/UNDP/IMO Global Ballast Water Management Programme (GloBallast: http://globallast.imo.org) in order to address the introduction of invasive marine species into new environments through ballast water, hull-fouling and other vectors.</p>
<p>5. United Nations Conference on Environment</p>	<p>Non-Legally binding Authoritative Statement of</p>	<p>Principles 2(b) Take appropriate measures to protect forests against harmful effects of pests and</p>	<p>Taxonomic/functional group coverage: all groups, eg particularly forest pest and diseases, tree species,</p>	

Institution/Programme	Instrument	Purpose	Main scope(s) of instrument(s)	Other relevant work programmes / projects (ongoing)
and Development (UNCED)	<p>Principles for a Global Consensus on the Management Conservation and Sustainable Development of all types of Forests. (UNCED 1992)</p> <p>Agenda 21 (UNCED, 1992)</p>	<p>diseases and 6(a) Recognise the potential contribution of indigenous and introduced species to provide wood for fuel and industrial uses.</p> <p>Recommendations on IAS in relation to</p> <ul style="list-style-type: none"> • Chapter 11.13(g) on Deforestation: Combating Deforestation by increase protection of forests from pests and diseases and from the uncontrolled introduction of exotic plant and animal species • Chapters 12 .18(b) and 12.19(b) on Managing Fragile Ecosystems: Accelerate afforestation and reforestation using drought-resistant, fast- growing species, in particular native ones. Develop, test and introduce, with due regard to environmental security considerations, drought resistant fast growing and productive plant. • Chapters 15.3 and 15.4 on Conservation of Biological Diversity: Acknowledgement that the inappropriate introduction of foreign plants and animals has contributed to the loss of the world's biological diversity and continues; also encouragement to implement mechanisms for the improvement, generation, development and sustainable use of biotechnology and its safe transfer. • Chapter 16.23(f), 16.23(h) and 16.32 on Environmentally Sound Management of Biotechnology: Develop processes to increase the availability of planting materials, particularly indigenous varieties, for use in afforestation and reforestation and to improve sustainable yields from forests; Promote the use of integrated pest management based on the judicious use of bio-control agents: Internationally agreed principles on risk assessment and management needed for all aspects of biotechnology 	<p>aquatic species/organisms, biological control agents</p> <p>Ecosystem/biome coverage: all ecosystems, eg forests and marine ecosystems</p> <p>Pathway coverage: deliberate introduction, ballast water transport</p> <p>Risk assessment: support to risk assessment and management on biotechnology</p>	

Institution/Programme	Instrument	Purpose	Main scope(s) of instrument(s)	Other relevant work programmes / projects (ongoing)
	<p>Johannesburg Summit (UNCED 2002)</p> <p>World Summit (New York 2005)</p>	<p>aspects of biotechnology.</p> <ul style="list-style-type: none"> • Chapter 17.30, 17.79 and 17.83 on Protection of Oceans/Seas: ballast water and maricultural/aquacultural issues are mentioned. States are encouraged to cooperate and to develop legal and regulatory frameworks and safeguard against introduction of alien species. • In Chapter 18.4.e (iv) on Protection of the Quality and Supply of Fresh Water: States are encouraged to: "<i>Control of noxious aquatic species that may destroy some other water species;</i>" <p>Recommendations on IAS in relation to</p> <ul style="list-style-type: none"> • Chapter 34(b) Maritime safety and protection of the marine environment from pollution, eg IAS. • Chapter 44(i): Biodiversity conservation, IAS control. <p>No specific recommendation on IAS, however the Summit reiterated its support the Implementation of the Convention on Biological Diversity and the Johannesburg commitment for a significant reduction in the rate of loss of biodiversity by 2010.</p>		
<p>6. Small Island Developing States Network</p> <p>http://www.sidsnet.org/</p>	<p>Programme of Action for the Sustainable Development of Small Island Developing States (Barbados Programme of Action) (1994)</p>	<p>Paragraph 41 Introduction of certain non-indigenous species noted as one of a number of significant causes of biodiversity loss.</p> <p>Paragraph 45 (A)(i) Formulate integrated strategies at national level for conservation and sustainable use of marine and terrestrial biodiversity including protection from certain non-indigenous species.</p>	<p>Taxonomic/functional group coverage: all groups</p> <p>Ecosystem/biome coverage: island ecosystems</p> <p>Pathway coverage: all pathways, eg quarantine measures for imports</p> <p>Transboundary aspects/international cooperation: encouraging international cooperation in design and enforce effective quarantine systems</p>	

Institution/Programme	Instrument	Purpose	Main scope(s) of instrument(s)	Other relevant work programmes / projects (ongoing)
	Mauritius Strategy for further implementation of the Barbados Programme of Action (2005)	<p>Paragraph 45(B)(i) At regional level encourage countries to give priority to sites of biological significance; strengthen community support for their protection, including their protection from non-indigenous species introduction.</p> <p>Paragraph 55(A)(iii) Address quarantine problems at national level and requirements stemming from changing transport situations and longer-term climate change.</p> <p>Paragraph 55(B)(ii) Regionally develop effective quarantine services; upgrade existing plant protection and related programmes.</p> <p>Paragraph 55(C)(ii) Internationally co-operate with national and regional bodies to design and enforce effective quarantine systems.</p> <p>Paragraph 99 Undertake study of effects of trade liberalisation and globalisation on SIDs sustainable development.</p> <p>Paragraph 49 (f). To achieve those targets in the agreed time frames, the following actions are required by small island developing States, with necessary support from the international Community by controlling major pathways for potential alien invasive species in small island developing States</p>		
7. International Council for the Exploration of the Sea (ICES) and the European Inland Fisheries Advisory Commission (EIFAC) http://www.ices.dk/indexfla.asp	Code of Practice on the Introductions and Transfers of Marine Organisms (2005)	Recommends practices and procedures to diminish risks of detrimental effects from marine organism introduction and transfer, including GMOs. Drafted in co-operation with the FAO European Inland Fisheries Advisory Commission (EIFAC) and also applicable to freshwater organisms. Requires ICES members to submit a prospectus to regulators, including a detailed analysis of potential environmental impacts to the aquatic ecosystem	<p>Taxonomic/functional group coverage: marine organisms</p> <p>Ecosystem/biome coverage: marine ecosystem</p>	<p>Working Group on Introductions and Transfers of Marine Organisms (ongoing tasks include developing guidelines for rapid response and control options) http://www.ices.dk/iceswork/wgdetail.asp?wg=WGITMO</p> <p>Working Group on Ballast and Other Ship Vectors http://www.ices.dk/iceswork/wgdetail.asp?wg=WGBOSV</p>
8. Food and Agriculture Organisation of the United	Code of Conduct for Responsible Fisheries	Article 9.3.2 States should co-operate in the elaboration, adoption and implementation of	Taxonomic/functional group coverage: aquatic organisms, particularly fish species	FAO Working Group on Biosafety.

Institution/Programme	Instrument	Purpose	Main scope(s) of instrument(s)	Other relevant work programmes / projects (ongoing)
Nations (FAO)	<p>(1995) http://www.fao.org/figis/ser/vlet/static?dom=org&xml=CCRF_prog.xml</p> <p>Code of Conduct for the Import and Release of Exotic Biological Control Agents (1995)</p>	<p>international codes of practice and procedures for introductions and transfers of aquatic organisms.</p> <p>Article 9.3.3 States should, in order to minimize risks of disease transfer and other adverse effects on wild and cultured stocks, encourage adoption of appropriate practices in the genetic improvement of broodstocks, the introduction of non-native species, and in the production, sale and transport of eggs, larvae or fry, broodstock or other live materials. States should facilitate the preparation and implementation of appropriate national codes of practice and procedures to this effect.</p> <p>The Code aims to facilitate the safe import, export and release of exotic biological control agents by introducing procedures of an international level for all public and private entities involved, particularly where national legislation to regulate their use does not exist or is inadequate. Standards are described that promote the safe use of biological control agents for the improvement of agriculture, and human, animal and plant health.</p>	<p>Ecosystem/biome coverage: aquatic ecosystems</p> <p>Pathway coverage: introduction</p> <p>Transboundary aspects/international cooperation: elaboration, adoption and implementation of international codes of practice and procedures for introductions</p> <p>Taxonomic/functional group coverage: biocontrol agents</p> <p>Risk assessment: standards to promote the safe use of biological control agents</p>	<p>FAO draft Code of Conduct on Biotechnology as it relates to Genetic Resources for Food and Agriculture (to be discussed in Tenth Regular Session of the Commission on Genetic Resources for Food and Agriculture in 2006)</p> <p>FAO online database and website on invasive species introduced from foreign ecosystems which can negatively impact forests as a tool to help foresters deal with this growing problem (eg Invasive tree species database) http://www.fao.org/forestry/foris/webview/forestry2/index.jsp?siteId=6750&sitetreeId=27082&langId=1&geoId=0</p> <p>Moore, B. 2005. Alien Invasive Species: Impacts on Forests and Forestry - A Review. Forest Health and Biosecurity Working Paper FBS/8E, FAO 2005.</p> <p>FAO Database on Introductions of Aquatic Species (DIAS), covers freshwater fish, molluscs, crustaceans and marine fish http://www.fao.org/figis/servlet/static?dom=collection&xml=dias.xml</p> <p>Implementation of Global Early Warning System for Animal Diseases including Zoonoses (GLEWS) by FAO, OIE and WHO was initiated in 2003.</p>
9. United Nations Environment Programme (UNEP)	<p>Global Programme of Action for the Protection of the Marine Environment from Land-based Activities V- Recommended Approaches by Source Category (1995)</p> <p>http://www.gpa.unep.org/bin/php/home/index.php</p> <p>Technical Guidelines for Safety in Biotechnology</p>	<p>Paragraph 149 : Introduction of alien species acknowledged to have serious effects upon marine ecosystem integrity</p> <p>Used as interim mechanism during the development of the Biosafety Protocol; now used</p>	<p>Taxonomic/functional group coverage: marine organisms</p> <p>Ecosystem/biome coverage: marine ecosystem</p> <p>Taxonomic/functional group coverage: living modified organisms (LMOs)</p>	<p>UNEP Synergy Project - Issues-based Modules for the coherent implementation of biodiversity related Conventions: IAS one of the issues addressed http://www.svs-unepibmdb.net/</p>

Institution/Programme	Instrument	Purpose	Main scope(s) of instrument(s)	Other relevant work programmes / projects (ongoing)
		<p>for ‘ purposes of facilitating the development of national capacities to assess and manage risks, establish adequate information systems and develop expert human resources in biotechnology.’</p> <p>Paragraph 26 An organism with novel traits which is considered to be harmless in one region might be potentially harmful in another region which offers different environmental conditions. Therefore, there is a need for the exchange and supply of scientific information in cases where organisms with novel traits are intended to be released into new environments and when transfer of such organisms across national boundaries is being considered.</p> <p>Paragraph 42 The potentially affected country should be given notice of the intended use and the opportunity to state whether particular measures will be needed to protect its interests, in particular its biodiversity; (and) should be informed immediately in the event of an adverse effect of the use of a organism with novel traits which could affect it.</p> <p>Annex 3 Potentially relevant information for introductions</p>	<p>Pathway coverage: provision on the transport of LMOs</p> <p>Risk analysis: provisions on LMO risk assessment and risk management</p> <p>Transboundary aspects/international cooperation: guidelines for transboundary transfer of information on LMO effects</p>	
<p>10. Agreement creating the Office International des Epizooties (OIE)</p> <p>http://www.oie.int/eng/en_in dex.htm</p>	<p>OIE Terrestrial Animal Health Code and the Aquatic Animal Health Code</p>	<p>Codes developed by the OIE focus on agreed diseases of concern with regard to trade in animals. They do not address animals that are potentially invasive in their own right. The OIE may consider risks to wild animals associated with disease transmission to or from livestock.</p> <p>OIE Terrestrial Animal Health Code and the Aquatic Animal Health Code contain standards, guidelines and recommendations designed to prevent the introduction of infectious agents and diseases pathogenic to animals and humans into the importing country during trade in animals, animal genetic material and animal products. They do this</p>	<p>Taxonomic/functional group coverage: animal diseases and zoonosis</p> <p>Pathway coverage: animal transportation, eg aquaculture and restocking for fisheries</p>	<p>Series of international meetings on avian influenza, including meeting jointly organised with FAO, WHO and World Bank (Geneva, November 2005).</p> <p>Implementation of Global Early Warning System for Animal Diseases including Zoonoses (GLEWS) by FAO, OIE and WHO was initiated in 2003.</p>

Institution/Programme	Instrument	Purpose	Main scope(s) of instrument(s)	Other relevant work programmes / projects (ongoing)
		<p>through detailed recommendations on sanitary measures to be used by OIE Member Countries.</p> <p>OIE is identified in the WTO SPS Agreement (see Annex 1) as the reference body for international standards on animal health.</p>		
11. International Civil Aviation Organization (ICAO) http://www.icao.int	ICAO resolutions (A32-9, A33-18, A35-19) on preventing the introduction of invasive alien species	The Resolutions urge Contracting States to support one another's efforts to reduce the risk of introducing, through civil air transportation, potentially invasive alien species to areas outside their natural range.	Pathway coverage: introduction via civilian avian transport	
12. The Pan-European Biological and Landscape Diversity Strategy (PEBLDS) http://www.strategyguide.org/	n/a	<p>The Strategy is a proactive approach to stop and reverse the degradation of biological and landscape diversity values in Europe.</p> <p>The strategy utilizes the "Principle of Avoidance" on IAS: Introduction into the natural environment of exotic species should require environmental impact assessment if likely to have significant adverse effects on biological and landscape diversity.</p> <p>PEBLDS supports the implementation of the European Strategy on Invasive Alien species (Table 1: Binding instruments)</p>	Risk analysis: support the application of environmental impact assessment	
13. Environment for Europe Ministerial Conference	The Kyiv Resolution on Biodiversity	<p>The Resolution includes a specific action point related to invasive species policy:</p> <p><i>'By 2008, the pan European Strategy on Invasive Alien Species developed under the Bern Convention, fully compatible with the Guiding Principles of the Convention on Biological Diversity, will be implemented by at least half of the countries of the pan European region through their respective Biodiversity Strategies and Action Plans.'</i></p>	See Bern Convention Table 1: Binding instruments	
14. Nordic Council of Ministers	North European and Baltic Network on Invasive Alien Species (NOBANIS) http://www.nobanis.org/default.asp	<p>NOBANIS is a gateway to information on alien and invasive species in North and Central Europe</p> <p>NOBANIS covers marine, freshwater and terrestrial environments and provides</p>	n/a	Also: Baltic Sea Alien Species Database http://www.ku.lt/nemo/mainnemo.html (not part of the NEOBANIS)

Institution/Programme	Instrument	Purpose	Main scope(s) of instrument(s)	Other relevant work programmes / projects (ongoing)
		<ul style="list-style-type: none"> • integrated database on introduced species in the region • catalogue of the regulation relevant to invasive species in participating countries • literature database • connects to regional and global networks and projects of invasive aliens species 		
<p>15. Common Wadden Sea Secretariat (CWSS) established in 1987 to support cooperation between The Netherlands, Denmark and Germany.</p> <p>Trilateral Governmental Conferences (every 3 - 4 years) act as decision making body within framework of this collaboration.</p>		<p>Protection and conservation of the Wadden Sea (management, monitoring, research, policy).</p> <p>IAS threats addressed (briefly) in Policy Assessment Report (2005) presented to Tenth Trilateral Governmental Conference on the Protection of the Wadden Sea (Schiermonnikoog, November 3, 2005)</p>	<p>Ecosystem/biome coverage: marine ecosystem</p>	

ANNEX 3: MEMBER STATE PROVISIONS IN RELATION TO IAS

1. AUSTRIA

Legislation: There is no Federal legislation in place in relation to IAS and the issue is under regional federal states (Länder) jurisdiction (Lebministerium (Austria) 2005). The introduction of alien plants is restricted in eight of nine federal states, introduction of animals is restricted in all nine federal states. In some federal states, there is an exception for species introduced for fisheries, agricultural and forestry purposes.

Policy: Austria has published a National Action Plan on IAS (2004) ('Aktionsplan Neobiota'). It is structured in four thematic fields, which cover 1) education and awareness rising, 2) capacity building, 3) research and monitoring, and 4) legal and organisational implementation. In each thematic field, actors, objectives, and measures have been addressed and prioritised. This Action plan is part of the revised Austrian national biodiversity strategy.

Research: Some research projects (eg inventory on IAS in Austria, ecological and economic impact of selected species) research on IAS under climate change in Austria) have been financed by governmental and research bodies. Austria is participating in the DAISIE and ALARM projects.

Eradication/control programmes: Not found.

Challenges/limitations: The main constraints to addressing IAS issues identified in Austria are lack of sufficient funding and the decentralised political and governmental structure, influencing cooperation on IAS at national and supranational level (Lebensministerium (Austria) 2005). One of the important things would be the establishing a permanent national monitoring system for alien plant species. From the knowledge point of view, the information about alien species differs widely between different taxonomic groups.

2. BELGIUM

Legislation: On the **Federal** level, there are legal measures in place related to import, export and transit of non-indigenous wild bird species (26/10/01 – Arrêté royal portant des mesures relatives à a'importation et au transit de certaines espèces d'oiseaux sauvages non indigènes: Art 3 §1) excepted if the birds were bred in captivity. In addition, the Belgian Law of 20.01.1999 on the protection of the marine environment in marine areas under Belgian jurisdiction forbids the intentional introduction of non-indigenous species in the marine environment without special license (Art. 11, §1). The unintentional introduction of non-indigenous species via ballast water of ships can be prohibited by Royal Decree (Art. 11, §2), but is not currently addressed. Measures can also be taken (by Royal Decree and after scientific consultation) for the extermination of non-indigenous nuisance species (Art. 11, §3).

The Law also prohibits the intentional introduction of genetically modified organisms into marine areas (Art. 11, §4).

Most activity in relation to IAS in Belgium is focused at the level of the three regions.

- In the **Flemish Region**, it is prohibited to introduce animals and plants without a permit (Forest Decree) in both public forests and forest reserves. The introduction of alien animal species is prohibited, and there is a legal base for measures to control and eradicate alien species. Measures can also be taken to control or prohibit the transport of animal species and their carcasses (Decree on nature conservation). A Decision describes what species of fish can be used as fish bait (only native fish species are allowed).
- In the **Walloon Region**: the introduction of non-indigenous species or indigenous species of non-indigenous origin in nature is forbidden except for species used for agriculture and forestry.
- In the **Brussels Capital Region**: it is forbidden to introduce non-indigenous species of birds into the wild.

Control of IAS to protect dikes:

The Belgian regions are trying to eradicate both the muskrat and coypu, mainly to protect dikes. For this purpose, two international projects have been set up to address muskrat control: one between East- and West-Flanders and Zeeland (NL), another between West-Flanders, the North of France and the Walloon Region. A third project, aimed at coypu control, is now being established and will involve the Belgian and Dutch provinces of Limburg, and Germany.

Policy: Action 18 of the 2nd Belgian Federal Plan for Sustainable Development is devoted to biodiversity and focuses on sectoral integration of biodiversity in key Federal sectors (transport, economy, development cooperation, scientific policy). One of the proposed actions for the integration of biodiversity considerations into the transport sector is the development of a national warning system for IAS. It is planned that the National Biodiversity Strategy (in preparation) will address the threats IAS pose to the components of biodiversity in Belgium.

The ‘Belgian Forum on Invasive Alien Species (BFIS)’¹ acts as the Belgian node of the IUCN Invasive Species Specialist Group. It aims to provide and gather scientific knowledge about invasive alien species in order to reduce threats to natural ecosystems and to build action plans for preventing or controlling these organisms.

Research: Several significant research projects relating to IAS have been undertaken in Belgium. These include (amongst others): ‘Invasive plants in Belgium: patterns, processes and monitoring’ (INPLANBEL)²; alien crustaceans and molluscs in Belgium, ongoing, 1996-ongoing, RBINS-MUMM; invasive species in the Walloon watercourses CRNFB; ‘Bijzondere Broedvogels Vlaanderen Project’ (Flemish Special Breeding Bird Project).

¹ See: <http://www.biodiversity.be/bbpf/>.

² See project website at www.fsagx.ac.be/ec/inplanbel.

Belgium has published a list of invasive alien species. This list is the responsibility of members of the Belgian Forum on Invasive Species. It is not exhaustive and will be progressively completed. Species profiles including description, habitat preferences, detrimental impact and management information are currently in development. See: <http://www.biodiversity.be/thematic-forums/invasive-alien-species/species>. Belgium is participating in the ALARM project.

Eradication/control programmes: IAS programmes in Belgium include some control programmes to protect valuable ecosystems and protected areas (eg control of *Fallopia japonica* and *Heracleum mantegazzianum* in nature reserves; and programmes in relation to exotic birds (*Psitaculla* sp., *Alopochen aegyptiacus*, *Branta canadensis*, etc) including management rules on grassland vegetation limiting the attraction for those birds. A brochure on *Fallopia japonica*, *Heracleum mantegazzianum*, *Impatiens glandulifera* and *Senecio inaequidens* containing recommendations for the eradication or control of these species is available at the Ministry of the Walloon Region. Flanders: there is active eradication of the Black cherry (*Prunus serotina*) in some parts of Flanders and a program to control the presence of floating pennywort (*Hydrocotyle ranunculoides*) in waterways.

Challenges/limitations: Belgium lacks effective coordination of its national and regional programmes (Royal Belgian Institute of Natural Sciences 2005). There is also a lack of a regulation tool for the introduction of biocontrol agents in Belgium. A legal framework and a risk assessment procedure must be developed at the federal level, together with pesticide and GMO regulations (SPF-FOD).

Reducing risk from invasive species by promoting use of natives:

In the Flemish and Walloon Regions, subsidies are delivered to land owners and local authorities for using endemic scrub and tree species instead of exotic ones in reforestation projects.

3. BULGARIA

Legislation: The Biological Diversity Act (2002) (State Gazette No 77/2002) sets out a procedure including scientific and public control for introduction of exotic species to the wild, and for reintroduction of native species. The Article 76 of the Act sets the following provisions regarding the IAS:

- (1) Introduction into the wild, as well as import for the purpose of breeding and raising of alien animal and plant species, shall be admitted provided that this is not detrimental to any natural habitats in the natural range thereof or to any native species of wild flora and fauna or to any populations thereof.
- (2) The activities referred to in Paragraph (1) shall be authorised on the basis of an elaborated programme solely after a favourable conclusion of a scientific expert examination commissioned by the relevant competent authority covered under Paragraph (3) and after a favourable decision of the National Council of Biological Diversity.

- (3) The activities referred to in Paragraph (1) shall require written authorisation granted by:
 - the Head of the National Forestry Board - in respect of any tree, bush and game species;
 - the Minister of Environment and Water - in respect of all other species.
- (4) The authorities covered under Paragraph (3) may issue an order, promulgated in the State Gazette, prohibiting the introduction into the wild of any alien species which would threaten the natural habitats or native species of wild flora and fauna

The national Protected Areas Act (State Gazette No 133/1998) stipulates that the introduction of plant and animal species that are alien to the region is prohibited in national and natural parks (Article 21). Similar provisions are also included in the Medicinal Plants Act (State Gazette No 29/2000).

The Law on Phytosanitary Control (State Gazette of 28. March 2003) provides for the phytosanitary control at the import, export and transit, production and transportation in the country of plants, plant products and other objects. The Law states that the phytosanitary and veterinary authorities carry out border control related to the import of plants and animals into Bulgaria (See <http://nsrz.government.bg>).

Policy: The following national policies and strategies take issues related to IAS into consideration:

- Framework for Development of a National Biodiversity and Protected Areas Monitoring System in Bulgaria states that the velocity of introduction of alien species or the reintroduction in nature of local faunal and plant species and the effects of these activities on the biodiversity should be monitored.
- National Biodiversity Conservation Plan (1999) identifies IAS as the most common threats for almost all ecosystems

The development of a national strategy for IAS is underway.

Research: The Bulgarian Ministry of Environment and Water funded two projects in 2004: one on the invasive plants and fungi and other on invasive animals. The overall goal of the first one is to strengthen the scientific basis for elaboration a national strategy on IAS and for recommending urgent measures for recovery of selected damaged populations and ecosystems. Bulgaria is participating in the ALARM project.

Additionally, a number of research activities are ongoing in the Black Sea that is suffering from the impacts of alien introductions, eg *Balanus improvisus*, *B. eburneus*, *Blackfordia virginica* and *Mercierella enigmatica*.

Eradication/control programmes: Not found

Challenges/limitations: Not found

• CYPRUS

Legislation: The existing legislation in Cyprus was reviewed during the process of harmonization with the EU directives. New legislation on nature-related issues was introduced in Cyprus in 2003. The Ministry of Agriculture, Natural Resources and Environment stated in its annual report for 2004 that national environmental policy had been revised as a result of the process of harmonization with European Union *acquis communautaire*.

Law N° 153(I)2003) on the protection and management of nature and wildlife seems to constitute the main framework for biodiversity protection setting provisions (among others) for EIA, fauna and flora protection, special areas of conservation, and the control of the introduction into the environment of alien species. The import and export of fauna and flora has been strictly regulated through the above mentioned law and implementation of CITES.

Only Mediterranean species may be used for marine aquaculture, based on the Aquaculture Law. Aquariums may not have direct connection with the marine environment; discharges from aquariums into the sea are not allowed. The import of aquatic species is controlled by the Law on Fish 273/90 which states that no aquatic animal can be imported into Cyprus without a written permit from the Director of the Department for Fish.

Policy: The main policy of the Forestry Department is reforestation with native species and for roadside planting. Availability of native plants has been promoted in Forestry Department nurseries.

Research: Not found.

Eradication/control programmes: Management programmes for the eradication/control of wild boar and feral dogs have been established.

Challenges/limitations: Not found.

4. CZECH REPUBLIC

Legislation: Czech nature conservation legislation, (Ministry of Environment Act No. 114/1992 Coll. on the Nature and the Landscape Protection as amended), includes preventative measures to combat the spreading of IAS, including a prohibition on stocking of alien species of animals and plants. No alien species can be deliberately introduced, planted or farmed in landscape without a permit from the environmental section of the municipal office or other state environmental office. However, sine exceptions exist, eg for woody species planted in forestry (they have special plans for planting). Also a few articles (namely § 16, 26, 29, 34, 35, 68, 69 and 77) specify management of IAS or alien species in protected areas.

Other legislation also addresses the issue of IAS, mainly legislation on plant health, fisheries and game-keeping (see Plesník and Stanková 2001) and water management (Act. 254/2001 Coll. on the Water). Exceptions for introduction of fish may be given by the nature and landscape protection authorities and at the same time there must be approval of the water management authority (for introduction of all aquatic species).

Game Management Act No. 449/2001 of the 27th November 2001 provides provisions for import and introduction of non-autochthonous animal species. Introduction of those species should be authorised by Nature conservation and Game Management organisations (Article 4(2)). Exceptions for release of game species may be given by state game-keeping authorities with approval of the nature and landscape authorities. Act on game-keeping has some regulations which largely inhibit use of effective measures of eradication of some alien animals (e.g. American mink, racoon). These animals may be hunted only by a very limited number of hunters (game managers).

No. 326/2004 Phytosanitary Act lists species that are not to be imported to the country. The list is specialized to agricultural weeds and pests. Article 10 of the Act stipulates that the state phytosanitary service has to monitoring IAS, which are defined in act 330/2004. The monitored IAS are: *Acer negundo* L., *Ailanthus altissima* (Mill.) Swingle, *Aster* sp.div. (North American species), *Helianthus tuberosus* L., *Heracleum mantegazzianum* Sommier et Levier, *Impatiens glandulifera* Royle, *Lycium barbarum* L., *Pinus strobus* L., *Reynoutria japonica* Houtt., *Reynoutria sachalinensis* (Friedr. Smidt) Nakai, *Reynoutria ×bohemica* Chrtek et Chrtková, *Robinia pseudacacia* L., *Solidago canadensis* L., *Solidago gigantea* Ait.

Policy: There is no national plan in relation to IAS, but IAS are addressed in the National Biodiversity Strategy (<http://www.chm.nature.cz>).

Research: Czech scientists have been active in IAS research, especially in relation to invasive plants. There has been a research school on invasive alien plant species in the Institute of Botany, Academy of Sciences of the Czech Republic. Some risks resulting from the spread of invasive alien species in the Czech Republic have been identified and assessed. However, there has been no integrated assessment of the risks caused by the alien species at the national scale. The Czech Republic is represented in the DAISIE and ALARM project teams.

Eradication/control programmes: In accordance with the appropriate legislation, introduced species are controlled by mechanical, chemical or other means. Major biological invasions are controlled by targeted projects on regional level. However, there are no comprehensive/compulsory measures in place at the national level. Many organisations and associations have, however, included the eradication and monitoring of IAS in their programmes. Also, some non-governmental organisations interested in the environment have management of IAS in their programme. There has been some monitoring of the individuals of the American mink (*Mustela vison*) was initiated, as it is an important predator of a number of endangered species. Nationwide mapping of the habitats of crayfish including three non-indigenous species is in progress.

Limitations/challenges: No Act lists environmental weeds or pests that must not be imported to the country.

5. DENMARK

Legislation: The Danish Environmental Protection Act (§ 30, 31) contains provisions restricting the introduction of animals into nature without permission. However, there are no restrictions in relation to the introduction of wild plants.

The introduction of fish for maricultural purposes is regulated by the Fishing Act (828/2004). Chapter 12, Article 63, of the Fishing Act states that the deliberate introduction of fish and eggs or brood thereof into nature without permission is not allowed (any introduction of alien species into the wild requires a permit). The Minister of Food, Agriculture and Fisheries must approve the species to be introduced as well as a plan for the introduction. Mariculture is specifically mentioned by the Fishing Act which states that the Minister of Food, Agriculture and Fisheries must approve the breeding of fish on Danish fishing territories (chapter 13, articles 66 and 67). Regarding the introduction of organisms to freshwater systems the Forest and Nature Agency has produced a guidance note on introduction of fish, crustacea and molluscs in fresh water. The guidance note contains a 'white list' - species that may be introduced as well as a 'black list' - introduced species occurring in the wild in Denmark, but which are not to be introduced.

The Hunting Act (no 114/1997) regulates the introduction of game animals, including alien species such as animals from fur farms (American mink, musk rat etc). The Act regulates alien game animals that are deliberately introduced or have unintentionally escaped captivity and which have established self-reproducing populations in the wild (article 2, para1). According to the Hunting Act (Article 6, paragraph 1) the Environment Minister may issue a prohibition against deliberate introductions of certain game animals. The Hunting Act is supplemented by a statutory order on the ways of hunting and hunting gear (statutory order no. 1018/2004). Under certain conditions the statutory order allows breeding and release of Partridge (*Perdix perdix*), Mallard (*Anas platyrhynchos*) and the introduced Pheasant (*Phasianus colchicus*).

Alien wild growing plants are regulated by the Protection of Nature Act, Article 31, paragraph 2 (no. 85/2002). The Environment Minister may decide to put forward rules regarding the deliberate introduction of alien plants.

Alien species are not explicitly dealt with under the Forestry Act, but through some of the statutory orders affiliated with this law various lists of accepted trees/shrubs are maintained. The species lists are used in connection with subsidised plantings in forests and hedges.

The Act on Management of Agricultural Land entitles authorities to require the eradication of plants on private land if an official eradication plan has been adopted in the specific geographical area.

Policy: Denmark was among the promoters of NOBANIS through the Nordic Council of Ministers on Alien Species. Public awareness campaigns have been carried out by the Danish Forest and Nature Agency on the Giant hogweed, American mink, Iberian slug and introduction of pets into nature.

Research: A joint report (Denmark, Norway and Sweden) to review national legislations and guidelines concerning the import of *Homarus americanus* and to prevent introductions of new lobsters in the Nordic sea areas has been published in 2004 by the Nordic Council of Ministers. Denmark participates in NOBANIS.

Denmark has a database on IAS available at www.skovognatur.dk/natur/invasive_arter/images/introarter.xls. Denmark is represented in the ALARM project team.

Eradication/control programmes: There are Statutory Orders on management of Giant Hogweed (*Heracleum mantegazzianum*) and *Avena fatua*. Hunting is allowed year-round on some introduced species as a means of control.

Denmark has also started research and development projects on the best eradication measures of Canada goldenrod (*Solidago canadensis*) and American mink (*Mustela vison*). Campaigns have also been carried out to control Iberian slug (*Lehmanna valentiana*). Information material on eradication of a number of invasive plants and Spanish slug (*Arion lusitanicus*) has been made available and continuously updated on the Danish Forest and Nature Agency homepage. A booklet on eradication of Rugosa rose (*Rosa rugosa*) has been produced and a leaflet on eradication measures of the leaf miner (*Cameraria ohridella*) was done. The Danish Forest and nature Agency acts as national focal point for information on all AIS occurring in the country and the agency is as the greatest land owner active in eradication of giant hogweed (*Heracleum mantegazzianum*), ruddy duck (*Oxyura jamaicensis*) and others.

The Danish Forest and Landscape Research Institute co-ordinated the Giant Alien Project. The project was financed by the European Commission within the 5th Framework Programme.

Challenges/limitations: Challenges identified by Denmark in relation to IAS include: open borders, sector integration, trade, tourism, transport, and lack of awareness.

6. ESTONIA

Legislation: The Environmental Register Act (2003, amended 2005) contains an obligation to create a national environmental database of natural resources and protected natural objects, including alien species and genetically modified organisms. The common database is under construction. Aggregation of the relevant data existing in different databases and formats is needed.

According to the Nature Conservation Act (RT I 2004, 38, 258;53,373), no alien species may be planted or introduced into the wild without special permission³. An Invasive Alien Species Regulation was passed in 2004. (Official Journal RTL, 19.10.2004, 134, 2076). This contains a list of species that may not be imported into Estonia: 2 plant species and 19 animal species (see box below).

The Fisheries Law 1995 provides that introduction of alien fish species or species of other aquatic organisms is allowed only by written permission from the Minister of Environment. There is also a law in place in relation to environmental surveillance (Environmental Surveillance Law 2004) for organisms potentially harmful to human health or the environment.

Species prohibited for import into Estonia (Invasive Alien Species Regulation)

Plants:

- 1) *Heracleum mantegazzianum*
- 2) *Heracleum sosnowskyi*

Animals (vertebrates):

- 1) *Castor canadensis*;
- 2) *Cervus nippon*;
- 3) *Dama dama*;
- 4) *Lutra canadensis*;
- 5) *Mustela vison*;
- 6) *Nyctereutes procyonoides*;
- 7) *Odocoileus virginianus*;
- 8) *Ondatra zibethicus*;
- 9) *Oryctolagus cuniculus*;
- 10) *Ovis ammon*;
- 11) *Sciurus carolinensis*;
- 12) *Oxyura jamaicensis*

Invertebrates:

- 1) *Astacus leptodactylus*;
- 2) *Orconectes limosus*;
- 3) *Pacifascatus leniusculus*;
- 4) *Globodera rostochiensis* (Wollenweber) Behrens;
- 5) *Bursaphelenchus xylophilus* (Steiner ja Buhner);
- 6) *Hyphantria cunea* Drury;
- 7) *Megachile rotundata* (Fabricius) (syn. *Apis pacifica* Panzer).

Exceptions can be made to *Mustela vison* and *Nyctereutes procyonoides* whose specimens can be brought into Estonia only for gene pool refreshment.

Research: Estonia participates in the NOBANIS and ALARM projects. There is no specific programme for monitoring of all IAS in Estonia, but some species are monitored, eg the populations of *Heracleum sosnowskyi*, and some bird species (*Branta canadensis*, *Columba livia*). Estonia also takes part in the Baltic Sea Alien Species Database.

IAS have been identified in different groups of organisms (plants, vertebrates, terrestrial and water invertebrates) and the vectors identified. Estonia has published a

³ An English translation of the Act is available at http://www.legaltext.ee/et/andmebaas/ava.asp?tvvp=SITE_ALL&ptvvp=I&m=000&querv=loduskaitse

review of the current situation regarding invasive species (available on the Internet at www.envir.ee). A database on alien species in Estonia is available at: <http://eelis.ic.envir.ee/voorliigid/eng/?a>.

Eradication/control programmes: There is a national strategy in place to eliminate poisonous hogweeds (*Heracleum mantegazzianum*). A special regulation is being drafted on keeping raccoon dogs (*Nyctereutes procyonoides*) and American minks (*Mustela vison*) in fur farms, in order to minimize the risk of their escapes into the wild.

In December 1998-April 2000 the American mink was eradicated from Hiiuma Island in order to establish a safe area for the European mink (*Mustela lutreola*). The programme carried out by Foundation Lutreola and the Zoo of Tallinn in co-operation with the Oxford University was fully supported by the Ministry of Environment.

Challenges/limitations: Better cooperation between different ministries is needed. There is no strategy on IAS in Estonia. Work on a strategy is to begin in 2006 (it will be a part of biodiversity strategy, or a separate strategy on IAS). The IAS issue is not perceived as priority by the authorities. Money allocated for collecting data and eradication programmes is not sufficient.

7. FINLAND

Legislation: The Nature Conservation Act (1096/1996) restricts the introduction of alien species in Finland. Alien plant species are not to be planted or sown outside gardens, fields or other sites designated for special purposes. If a alien plant or animal species is known to spread rapidly in the wild, and there is a reasonable cause to suspect that it might constitute a health hazard or have a detrimental effect on indigenous Finnish species, the Ministry of Environment may issue any regulations necessary to prevent the spread of such species. In accordance with the Hunting Act (615/1993, 1268/1993), wild birds or mammals of foreign origin cannot be imported or introduced into the wild without permission from the Ministry of Agriculture and Forestry.

The Plant Protection Law (1203/1994) lays down provisions to prevent the introduction of pests and diseases of plants into Finland. In addition, pests and pathogens which are present in Finland as native or introduced, but which are not widely distributed, can be controlled in order to prevent their further spread. Secondary legislation lays down detailed provisions for import, monitoring, eradication, control and containment, and is enforced by a central authority, the Plant Production Inspection Centre.

Policy: Finland has published a review of the current situation regarding invasive alien species (see Nummi 2001). This report does not consist of a plan of action, but it does recommend measures to reduce observed impacts, as does a report on the same issue prepared by the Nordic Council of Ministers in 2000. Such measures are jointly planned by the ministries concerned according to the need to target specific invasive species.

In 2002, the Finnish Ministry of Agriculture and Forestry, the Central Union of Agricultural Producers and Forest Owners (MTK) and the Finnish Forest Industries Federation (Metsäteollisuus ry) together designed a crisis action plan to be used in case of a pinewood nematode (*Bursaphelenchus xylophilus*) appearance in Finland.

A comprehensive Finnish Plant Protection Strategy for the years 2004-2013 was prepared in 2004. One of the central targets addressed in the strategy is to prepare crisis action plans for other potentially invasive forest pests.

Research: Finland's Ministry of Transport and Communications participated in the Academy of Finland's Baltic Sea Research Programme during the period 2003–2004. A research project on Invasive species in the Baltic Sea, jointly funded by the Ministry and the Academy, examined how invasive species get into the waters of the Baltic, and assessed their ecological significance, particularly with regard to plankton communities, algal blooms and zoobenthic communities in the Gulf of Finland. Finnish institutes are participating in the ALARM project, and Finland is part of NOBANIS.

Eradication/control programmes: It has been decided that Canadian beavers (*Castor canadensis*) should be exterminated within the Lapland Game Management District, to stop the species spreading into Norway and Sweden. Elsewhere in Finland, measures are being taken to prevent the spread of Canadian beavers into areas still occupied by European beaver (*Castor fiber*). In the Archipelago Sea Metsähallitus and local hunters have been working for several years to exterminate American minks (*Mustela vison*), which have negative impacts on seabird colonies. During 2001, a project involving the trapping of mink in the outer islands of the Quark Archipelago in Western Finland was begun by Metsähallitus and local hunters, as part of the Quark environment Interreg project. Trapping was later expanded to islands nearer the mainland, and is still continuing in both the Quark, and islands in the Archipelago National Park of SW Finland.

A two-year campaign commenced in the beginning of 2001 aiming to intensify the hunting and trapping of two invasive small predatory mammals – *Mustela vison* and raccoon dog (*Nyctereutes procyonoides*). In 2002 a special project was started up to intensify the trapping of mink and raccoon dogs in wetlands in the Helsinki region. Over the two-year project a total of 300 raccoon dogs and 27 mink were caught. A related research project has been assessing the effects of such trapping on nesting birds' breeding success rates.

Introduced game species as a resource

White-tailed deer were introduced to Finland about 70 years ago, and have become the second most important game animal in economic terms. The official policy with regard to management of species such as white tailed deer is to undertake systematic management through regulated hunting. No attempts will be made to prevent such control of game species, or to promote the expansion of these species' distributions into new areas. Any proposals for introducing game species will be considered extremely critically. Imports and introductions of alien species have not been permitted in recent years.

Challenges/limitations: There are unresolved problems related to the presence of invasive species in ships' ballast water.

8. FRANCE

Legislation: There are a number of legal instruments related to IAS in France. The importation of all species of game birds is prohibited without authorisation (with six species excepted) (arrêté du 20 décembre 1983) (Annex Ic: articles L.424-10 and L.424-11 of the Code of the Environment).

The 'Code Rural' prohibits the introduction of new aquatic species in France (Article L.432-10: Annex Ie) without Ministerial authorisation. There are also a other specific restrictions in place in relation to the introduction of aquatic organisms (fish, crustacea, frogs etc) (Nepveau and Saint-Maxent 2002).

The 'Loi Barnier' (95-101 of 2 February 1995) provides a general prohibition on introduction of alien species into the wild. The prohibition applies to all new plant and animal species, and also to any species designated by the administrative authority (le Neindre, 2002).

There are particular statutes in place restricting trade in two species: *Trachemys scripta elegans*, and *Rana catesbeiana*.

Policy: Under the National Action Plan for Natural Heritage (2005) is stated in objective 1.2 to reinforce actions against invasive alien species by preventing their introduction in metropolitan areas and in the overseas territories, carrying out awareness campaigns, renewing legislation, setting up a research programme and an observatory on IAS and developing mitigation campaigns.

Research: There is an ongoing research on invasive Ambrosia (common ragweed). An exhaustive report on introduced fauna has been published in 2003: Pascal M., Lorvelec O., Vigne J.-D., Keith P. & Clergeau P. (coordonnateurs), 2003. Évolution holocène de la faune de Vertébrés de France : invasions et disparitions. Institut National de la Recherche Agronomique, Centre National de la Recherche Scientifique, Muséum National d'Histoire Naturelle. Rapport au Ministère de l'Écologie et du Développement Durable (Direction de la Nature et des Paysages), Paris, France. Version définitive du 10 juillet 2003 : 381 pages. France is represented on the DAISIE and ALARM project research teams.

Eradication/control programmes: Programmes are underway in France in relation to control of some invasive species, eg *Caulerpa taxifolia*, *Ludwigia sp.*, and American bullfrog (*Rana catesbeiana*)⁴. Every year, the different regional Départements make a list of the animal species that are classified as 'pests'. Species classified in this way may be hunted year-round. There is also a national list of pest species for which control activities are obligatory. The national list includes both plant and animal species.

⁴ See <http://www.grenouilletaureau.net/>.

Challenges/limitations: Not found.

9. GERMANY

Legislation: Article 41(2) of the Federal Nature Conservation Act (Bundesnaturschutzgesetz BNatSchG) requires the federal states (Länder) to take suitable measures to reduce the impact of IAS on indigenous flora and fauna, and to enact regulations governing approval of their introduction into the wild and also for possession and trade. Under the Bundesnaturschutzgesetz, the introduction of alien species is subject to approval in cases not involving agricultural or silvicultural, hunting or fishing uses or biological plant protection. Possession and trade of four species (*Castor canadensis*, *Chelydra serpentina*, *Macroclempys temminckii* and *Sciurus carolinensis*) is banned on the basis of article 52. The Federal Nature Conservation Act contains a definition of alien species that is not useful in the context of IAS (non-native species means: any wild species of fauna or flora which does not occur in the wild in the area concerned or has not occurred in the area concerned since more than 100 years), as it excludes alien species that are present already. There are efforts to amend it.

The Plant Protection Act (Articles 3 and 4) contains the basis for measures and prohibitions, some of which are defined in greater detail in the Plant Inspection Ordinance. The Plant Inspection Ordinance is based on the EU 'Quarantine Directive' 2000/29/EC. At present the system is primarily concerned with inadvertent introduction, but measures for preventing deliberate introduction of invasive alien species in the plant sector are under discussion.

Policy: The task of drawing up specific targets and measures designed to bring about improvements in the legal situation and in cooperation between relevant sectors has been completed under a research project related to the preparation of a national strategy for dealing with alien species, which is to include specific targets and measures. The results of the research project are currently being examined and undergoing consultation at national level.

In addition, a national strategy on biodiversity is currently in preparation and this will take account of the objectives of the national strategy on dealing with alien species. The problem of the introduction of IAS will probably also be addressed in the 'National strategy for the protection and sustainable use of the seas' which is in production at present. Sectoral plans and programmes for surveillance of introduction pathways and protection against the spread of invasive alien species already exist in the plant protection sector.

A detailed analysis for implementation of the CBD Guiding Principles has been undertaken for the plant quarantine sector. Many of the principles are already being implemented for and in this area. This analysis is to be integrated in a national strategy for all sectors.

Germany took part in the development of the Ballast Water Convention of the International Maritime Organisation and is involved in the preparation of relevant guidelines. In the context of the International North Sea Conference and the OSPAR

Convention, Germany is involved in investigating whether it is possible to comply with the requirements of the Ballast Water Convention for ballast water exchange under the conditions that exist in the North Sea and the Baltic. No legally binding requirements are currently in place.

Research: Germany and adjacent countries have a long tradition of research on alien species, in particular plants. German scientists have founded the working group 'NEOBIOOTA' (www.tu-berlin.de/~neobiota) that aims to enhance communication and research on applied and basic aspects of invasions. It is meanwhile acting as a European group and holds bi-annual meetings, the next one in Vienna (www.umweltbundesamt.at/neobiota). Germany is represented in the DAISIE and ALARM project teams and is part of NOBANIS.

The BioTeam research programme of the Federal Ministry of Education and Research includes research related to the assessment of the threats that IAS may pose to native ecosystems. Many of the harmful organisms dealt with in the plant quarantine sector can have adverse effects on ecosystems, habitats or species. Risk assessment here is undertaken as standard practice in the context of phytosanitary risk analyses.

Cost estimates:

A German study has found that 20 alien plant and animal species cost EUR156 million per year in Germany. *Ambrosia artemisiifolia* is most costly, contributing at least EUR20 million to the cost of asthmatic disease in Germany every year. (Reinhardt *et al* 2003).

In the aquatic environment the three most impacting species in German coastal waters are the Zebra mussel *Dreissena polymorpha*, the ship-worm *Teredo navalis*, and the Chinese mitten crab *Eriocheir sinensis*. For the latter two, a tentative economic impact is calculated as follows. The damage caused by the ship-worm in the Baltic alone is calculated as 25 Mio € since 1993. The total damage along all German coastal waters is estimated as 50 Mio € since 1993 (Hoppe, pers. comm.). For the Chinese mitten crab it was calculated that the monetary impact caused to German waters has totalled approximately 80 million Euro since 1912 when the crab was first recorded in German waters (Fladung pers. comm.).

Eradication/control programmes: The Federal Nature Conservation Agency assists local authorities in addressing IAS problems. The majority of control efforts fail due to a lack of information, even though an estimated € 6 million annually is spent for control of invasive plants by community authorities alone. Under www.neophyten.de, Germany has developed an Internet manual for identifying and combating 33 invasive plant species, in order to provide the Länder and administrative districts and other active bodies with basic information and hints on effective management measures. Certain animal species are identified in the Bundesjagdgesetz as unrestricted and free for hunting. A summary of aquatic invaders is available at www.aquatic-aliens.de.

Challenges/limitations: Controlling imports of IAS involves large inputs of human resources. One of the main challenges is to achieve better coordination of the fragmented legal competencies and bring about political agreement on objectives between the interest groups concerned. Nature conservation authorities and the plant protection system could achieve much by cooperating more, for which there is not really a tradition. More recently the Federal Nature Conservation Agency and the

Federal Biological Research Centre for Agriculture and Forestry are communicating regularly on IAS issues.

Introduction of plants and animals is of crucial importance. The article 41 BNatSchG that rules this suffers severely from too many exceptions: agriculture, forestry, areas within settlements are free from the permit requirement ruled by the article. In addition, nature conservation authorities are not equipped for informed decisions about a permit.

10.GREECE

Legislation: Article 20 of Law 1650/1986 on the Protection of the Environment obliges protection of indigenous flora and fauna. Under paragraph *b.* of Ministerial Decision n° I 1B/2000/19 on quarantine, the Sanitary Committee can decide to control introduced animal species. There are, however, no national laws dealing specifically with IAS issues.

Greece is a signatory party to the CITES convention and the trade of some alien species (eg pets) is controlled under CITES requirements and the customs offices are applying the relevant rules. Greece has also signed and is applying the IMO (International Maritime Organization) relevant provisions regarding ballast invaders. However, no specific national legislative instruments are at place.

Research: A network of Greek scientists and some institutes/universities has been working on aquatic (marine) invasive species. See <http://www.ncmr.gr/el/nais/index.html>. Greece is represented in the DAISIE and ALARM project teams.

Eradication/control programmes: There seems to be no national legislation or policy related to control or eradication of IAS. Nevertheless, recently, such action has been undertaken by the Hellenic Ornithological Society (HOS), targeting the eradication of rats from islets of the Aegean region, as part of a LIFE project for the protection of *Falco eleonorae*. Further information is available at: http://www.ornithologiki.gr/life/falcoel/en/news/show_article.php?artID=184&locale=en.

Challenges/limitations: The national instruments to address IAS are very limited.

11.HUNGARY

Legislation: Hungary established a strict system on controlling invasive alien species in the 20th century, including obligatory control of certain aliens, border control and quarantine. Formerly (prior to EU membership), several alien organisms were checked at border control of shipments, cargos by plant protection and veterinary services, obligatory control of several species listed by relevant legislation.

Act No. LIII of 1996 on Nature Conservation in Hungary

- Article 8 (4) introduces the concept of alien referred to the phytogeographical and zoogeographical perspective. Time scale is also considered in Article 8 (2). Under the Article 8 (4) ‘Harmful introduced species’ means any living organism which does not qualify as native from the phytogeographical or zoogeographical point of view, and in case it establishes and adapts itself, it may be capable of modifying the natural processes of the Hungarian wildlife communities unfavourably for the native species.
- Article 8 (2) "Native organism" means any wild creature which lived or still lives in the natural geographical region of the Carpathian Basin in the last two thousand years - and not as a result of introduction (be it intentional or not).
- Article 9 (4) establish that the introduction of any new organism (new to Hungary from a phytogeographical or zoogeographical aspect) may only be authorised if this colonisation does not harm natural processes within Hungary's communities for the disadvantage of native species.
- Article 13(2) establishes that introductions of alien wild animal species which is not by declaration a game species or to reintroduce a wild animal species needs to hold an authorisation of the Minister (which is granted with the approval of the Minister of Agriculture). (3) The authority responsible for hunting may oblige game-licence holders to reduce or liquidate the populations of harmful introduced wild animals by hunting techniques. (4) With the exception specified under paragraph (2), in order to introduce any alien living organism or to reintroduce any living organism it is necessary to hold an authorisation of the Minister (which is granted with the approval of the Minister of Agriculture).
- Article 14 prohibits the introduction of alien fish species into natural or near-natural waters as well as their transfer from fish farms into any other wetland.
- Afforestation of habitat with native tree species (if possible) is considered in article 16 (3) while reforestation in protected natural areas (Article 33 (3) b) shall be carried out exclusively with native species with the exception of “forest stands not able to naturally regenerate or consisting of alien species and being of a maximum block size of 3 hectares” (Article 33 (5) a).
- Efforts to establish close-to-natural conditions are to be made in forests of alien tree species in protected natural areas by replacing, complementing and changing the tree species and by regulating the species composition. (Article 33 (7)).

Act. No. LIV of 1996 on Forests and the Protection of Forests:

- Article 2 (1) – forests should be used, exploited in a manner so that the forests preserve their biological diversity and naturalness, ...
- Article 25 (2) a) – In the course of preparing the district forestry plan a priority should be given to the restoration of natural (indigenous) and close to natural forest biocoenoses when determining the tasks of afforestation.
- Article 35 (2) – Where the conditions of the habitat permit the creation of close to natural forest biocenosis shall be given preference in the preparation of the plantation-implementation plan by applying indigenous tree species.
- Article 38 (2) – The liquidation of the plantation can be ordered by the forest authority in case the growing stock planted without permission or not in compliance with the permission would be harmful to the habitat or the neighbouring forest-lands.

- Article 41 (3) – Where the conditions are provided for the natural afforestation from seed of indigenous tree species suiting the habitat, this shall be applied.

Act No. LV of 1996 on the Protection of Game, Game Management and Hunting:

- Article 33 (2) – introduction of non-indigenous game species for hunting purposes has to be authorised by the Minister of Agriculture with the consent of the minister responsible for the conservation of nature.

Act No. XLI of 1997 on Fishery and Sport Fishery:

- This Act regulates or binds to permission, the introduction of reared and non-indigenous animals into nature.

Act No. LIII of 1995 on the General Regulations Concerning Environmental Protection:

- Section 23 (1), (2), and (3) – general measures concerning protection of biodiversity
- Section 67 and 68 (EIA)
- Section 69 and 70 (Preliminary Environmental Study)
- Section 71 (In-depth Environmental Impact Study)

Act No. CLIV of 1997 on Public Health

- Article 35,36, 56, 73.

Act No. XXXV of 2000 on Plant Protection (DRAFT-English version) accepted by the Hungarian Parliament on 2 May 2000, published on 18 May 2000:

- Article 1 – aim is to protect plants, especially crops and plant products from any pests and to prevent and avoid risks ... to nature conservation.
- Article 4 (1) – plant protection activities should aim at preventing introduction or spread of pests [paraphrased]
- Article 5 (1) a) – The land user and producer are required to destroy the quarantine and the regulated non-quarantine pests, to prevent their introduction, establishment, spread, ...
- Article 6 (1) – Official treatment can be provided for if a non-quarantine pest has been recorded in the country
- Article 7 (1) Appeal against the decision ordering treatment of public interest has no postponing effect on the execution.
- Article 8 – details provided on phytosanitary inspections
- Article 19 (3) – studies with a plant protection product containing a viable organism not native in Hungary can be conducted even for laboratory purposes only with the permission of the Ministry [of Agriculture and Regional Development], issued observing the statement of the body designated by the Ministry of Health and of the Ministry of Environment.

In the report to the Convention on the Conservation of European Wildlife and Natural Habitats, Group of experts on Invasive Alien Species, Horta (Azores, Portugal), 12 October 2002 (T-PVS (2002) 11) all the above mentioned Acts were cited (except Act No. CLIV of 1997 on Public Health)

Moreover the Government Decree No. 67/1998. (IV.3.) on the Restrictions and Prohibitions Pertaining to the Protected and Strictly Protected Wildlife Communities was reported.

According to the Hungarian report to the Bern Convention: ‘Act No. XXXV of 2000 on Plant Protection deals with pesticides containing alien living organisms (natural enemies, biopesticides etc.). The Ministry of Environment and Water plays a special role in the pesticide regulation process in this case (Article 19. (3)). There are data requirements on the origin and other ecological properties of living organisms in the registration dossiers (Ministerial Order No. 6/2001 FVM on release of pesticides Annex 1 and 2.). Quarantine actions are also mentioned (Ministerial Order No. 7/2001 FVM on the objectives of plant protection quarantine), but invasive alien species have no specific interest in this law.’

Policy: Hungary has started to develop a national strategy based on the European Strategy on Invasive Alien Species and on Decision VI/23 of the CBD. The National Biodiversity Strategy and Action Plan states that proposals should be elaborated on how to limit or suppress the spreading of invasive alien species.

Control of invasive alien species is incorporated into the National Nature Conservation Master Plan (chapter 5.4.1.2.5), into the National Biodiversity Strategy and Action Plan, and into some sectoral programmes such as common health, plant protection, animal husbandry.

Research: The most dangerous invasive plant species of Hungarian habitats were listed (35 species) during a symposium in 1998 (See Report of the group of expert on IAS, T-PVS (2002) 11)).

The state nature conservation organisation has initiated several programmes for the mechanical control of invasive plant species in protected areas. The government and non-governmental organisations launch programmes for ragweed (*Ambrosia artemisiifolia*) control. The Hungarian Biodiversity Monitoring System monitors five invasive plant species (*Ailanthus altissima*, *Amorpha fruticosa*, *Asclepias syriaca*, *Solidago gigantea*, *Solidago canadensis*) since 1998.

The Authority for Nature Conservation, Ministry of Environment and Water published a book ‘Invasive Alien Species in Hungary’ in 2003 containing actions against IAS at international, European and national level and also information about invasive plant and animal species.

A book on invasive alien plant species in Hungary was published by the Office for Nature Conservation in 2004. Contents: taxonomy, morphology, origin, distribution, life cycle and possible protection measures.

Scientific reports on invasive alien plant species were in progress in 2004 while some reports on invasive fishes and mammals were already been prepared but not published. (Report on Implementation of Programme of Work for the Global Taxonomy Initiative Annex to Decision VI/8).

Eradication/control programmes: IAS are now in species action plans and in the management plans of protected natural areas (detailed management plans exist for 113 protected areas and for 59 planned protected areas). Control is underway for several alien invertebrate species, microorganisms and weeds eg common ragweed (*Ambrosia artemisiifolia*). In 2004 an inter-ministerial committee was set up to deal with legal and financial aspects of the control of *Ambrosia artemisiifolia*.

Challenges/limitations: One limitation identified in Hungary's report to the CBD is that there is no priority governmental interest in solving this issue. Within the European Community the trade of certain invasive species is not regulated and the import of these species may have considerable negative effect on the native flora (eg ornamental use of *Solidago gigantea*).

12. IRELAND

Legislation: There are several alien species prohibited by law both in the Republic and Northern Ireland. For example, in the Republic, *Berberis vulgaris* has been classified as a 'noxious weed' since 1958 and it has been systematically eliminated; in Northern Ireland, the 1985 Wildlife Order makes it an offence to plant or cause to grow in the wild *Heracleum mantegazzianum* and *Fallopia japonica* and all species of *Spartina*.

The Wildlife Act 1976 and the Wildlife (Amendment) Act 2000 are the primary pieces of legislation containing provisions in relation to IAS. It is prohibited, without licence,

- to release, wilfully cause to escape or transfer within the State for the purpose of establishment in the wild any species of wild animal or spawn and any wild bird or the eggs thereof;
- to transfer any species of wild animal or wild bird or the eggs of such a wild bird from any place in the State to any other place in the State for the purpose of establishing it in a wild state in such other place
- to plant or otherwise cause to grow in a wild state in any place in the State any species of flora, or the flowers, roots, seeds or spores thereof.'

The Wildlife (Amendment) Act, 2000 strengthened the legal basis for controlling the introduction of potentially invasive alien species. The Minister may issue regulations prohibiting possession or introduction of any species of wild bird, animal or flora, or part, product or derivative thereof that may be detrimental to native species. Where a alien species has been introduced, measures can be taken, as far as feasible and appropriate under the Wildlife Act, to ensure that such introductions do not pose a potential hazard to native species.

Under the Regulation on the Control of Importation of Wild Animals and Wild Birds, 1989, the importation of live wild animals or birds is subject to licence by the Minister.

Policy: A proposal for addressing the impact of invasive alien species on native biodiversity has been published in The National Biodiversity Plan for Ireland (2002-2006). For example:

- Action 28: ‘Prepare strategies, in consultation with Northern Ireland, to control introduced species and to prevent, or minimise, future (accidental or deliberate) introduction of alien species, which might threaten biodiversity. Unless clearly safe, all deliberate introductions of alien species into Ireland will require a risk assessment’.
- Action 29: ‘All public bodies will endeavour to use native species, landraces and breeds and the public will be encouraged to do so’.
- Action 30: ‘Ireland will seek to ensure that relevant laws and instruments, including those concerned with trade, - both within the EU and internationally - do not contribute to the problem posed by alien species and Ireland and will support the development of specific international instruments to address alien species’.

The same proposal of collaboration was included in Recommendation 48 of Biodiversity in Northern Ireland.

In 2004 a report on the situation of IAS in Ireland was carried out by Quercus jointly to the Environment & Heritage Service of the Department of Environment (Northern Ireland) and the National Parks and Wildlife Service of the Department of Environment, Heritage and Local Government (Republic of Ireland). A strategy is under development to implement the recommendations.

Sectoral policies: voluntary quality control schemes having an impact on alien species are in place for the sector of aquaculture. The refusal of the quality mark is given for non-compliance.

Under the Global Strategy for Plant Conservation and to fulfil its commitment to the CBD a Stakeholder Meeting was held in September 2005. A total of 16 targets were adopted. Among them target 10 deals with IAS. Here are reported actions contained in target 10 (Management plans in place for at least 10 major alien species that threaten plants, plant communities and associated habitats and ecosystems in Ireland) of the Ireland’s National Plant Conservation Strategy (www.botanicgardens.ie/gspc/gspc.htm):

Actions:

- Draft new lists of prohibited weeds in consultation with Northern authorities to ban the sale, introduction, introduction or movement, especially of aquatics. Maintain vigilance on emerging threats.
- Review of national phytosanitary legislation to be harmonized with international and regional provisions by 2006.
- Develop priority list of 10-12 species; Implement efficient management programmes and Species Action Plans for at least 10 established invasive plant species by 2008.
- Develop and implement mechanisms for early detection and rapid action against potentially new invasive species including a manual of procedures for border control by 2007. Prepare documents for horticulturists to enable guidelines to be developed to prevent the establishment of new invasive aliens in the country.
- Evaluate existing all-Ireland Species Action Plans for Alien species, and modify as appropriate, by 2009.

- Assess and monitor the risk of genetic pollution of native plant species and populations from introductions of foreign ‘Wild Flower seed’ by 2009.

Milestones & Indicators:

- Develop an efficient target-10 webpage, as part of the GSPC page, which will co-ordinate actions and organisations in highlighting or controlling problem species.
- Leaflets warning of the dangers of alien plants especially aquatics such as *Crassula helmsii*.
- Noxious Weeds act extended to cover an increased list of prohibited species.
- *Hydrocotyle ranunculoides* exterminated in its two localities.

Research: The National Research Centre for Biodiversity and Conservation Biology in Northern Ireland (Quercus) (<http://www.quercus.ac.uk>) has some projects on IAS: ‘All-Ireland review of introduced species’ (a cross-border project) and ‘Impacts of invasive aquatic amphipods’. A report on the situation of invasive alien species in Ireland was carried out by Quercus (2004). Ireland is represented in the DAISIE and ALARM project teams.

Eradication/control programmes: Active control programmes for *Rhododendron ponticum* and *Heracleum mantegazzianum* are in place. Some control measures have been undertaken in Killarney National Park where introduced Sika deers have interbred with Red deer. Eradication is not feasible for Grey squirrel and bank which have reached pest status in some localities.

Challenges/limitations: It seems there are problems with enforcement of legislation related to IAS in the Republic of Ireland (Stokes et al 2004). Powers of access to private land if needed for control of IAS are not in place.

13. ITALY

Legislation: There has been a review of the Italian legal/policy framework in relation to IAS. The Decree of the President of the Republic DPR no 357 of 1997 and its amendments (D.P.R. no. 120 of 2003) contain provisions prohibiting the introduction of alien species in Italy. The Decree transposes the habitats Directive, and states in Article 12(3) that introductions of ‘non-local’ species require the authorisation of the Ministry of Environment under the condition that the proposed introduction will not threaten biodiversity. Article 12 of the DPR 120/03 forbids any introduction of alien species in Italy. Guidelines for the application of this provision are being produced.

Regional Act No. 12 making provision on keeping and trade in exotic animals: This Regional Act has been enacted to lay down rules applicable to the keeping and trade in exotic animals. The Regional Council shall draw up the list of animal species covered by these provisions. The list shall be updated annually (art. 1). Article 2 provides for the setting up of a Technical and Scientific Committee which shall perform advisory functions. Keepers of exotic species must notify the Mayor of the competent Commune. Trade in exotic animals is subject to the previous issue of an authorisation by the competent Commune as per article 4. Article 8 deals with the surveillance system. Articles 10 and 11 provide for the seizure of the animals and

application of penalties in case of infringement. Regional Act No. 40 of 10 October 1994 is repealed.

Decree laying down phytosanitary measures concerning the importation of plants belonging to the *Chamaecyparis* Spach and *Pinus* L. species originating in Japan: The present Decree introduces some phytosanitary and quarantine measures in order to prevent the dissemination of pests which might arise from the importation into Italy from Japan of the plants specified in article 1. Prior to the exportation from Japan, the plants shall be subject to inspection to be carried out by the Japanese phytosanitary authorities (art. 2), so as to guarantee that they are free from the diseases defined under article 2 (2) and they meet the requirements established therein. The plants shall also be accompanied by the certificate referred to in article 3 and, upon arrival into Italy, shall be subject to the quarantine measures contained in article 4. An authorisation granted by the Ministry of Agricultural and Forestry Policies is compulsory as well (art. 5).

Regional Act No. 89 on keeping, breeding and marketing of exotic animals: This Regional Act regulates the keeping, breeding and marketing of exotic animals. Exotic animals are defined as mammals, birds, reptiles and amphibians belonging to exotic wild fauna species which are foreign to the national territory (art. 1). Such animal species, when kept for any purpose within the regional territory, shall be subject to veterinary inspections carried out by the competent Local Health Authority. Veterinary inspections aim at ensuring animal welfare and guaranteeing that hygienic and sanitary requirements are fully met. Article 3 regulates the conditions of transport and keeping of exotic animals. The latter may be kept only after a special authorisation has been granted by the competent Mayor (art. 4). An authorisation is compulsory to breed and place on the market exotic animals, too (art. 5). Traders and breeders must keep the register referred to in article 6. The Regional Technical Commission is established, under the Regional Health Counsel, by article 7. Article 12 regards the seizure of animals unlawfully kept, bred or marketed as well as the withdrawal of the authorisation. Article 13 lays down penalties.

Policy: Monitoring and mitigation programmes for invasive alien species are among the criteria of management for Natura 2000 sites.

Research: Italy is participating in the DAISIE and ALARM projects. The Central Institute for Applied Marine Research is carrying out projects such as identification and distribution of alien species in Italian seas.

Other actions include: Inventory of Alien mammals and birds, Study on distribution and impact of *Rapana venosa*, Inventory of alien species in Italian Seas, Inventory of alien plants in Sardinia, a pilot study is being carried out in the Trieste and Milazzo harbours in order to identify species and monitor the ballast waters, Atlantic and Lessepsian Immigrant Environmental Noises project, etc.

LIFE projects had an important role for the management of IAS. In 2003 the 64 per cent of Italian projects funded through the LIFE mechanism had as main objective the eradication and control of IAS (IP/03/1202 Date: 05/09/2003). In the period 1994-2002 the following alien species were targeted through 27 LIFE projects:

Plant species:

Abies cephalonica, *Acacia cianophylla*, *Acer negundo*, *Ailanthus altissima*, *Amorpha fruticosa*, *Caulerpa taxifolia*, *Cedrus sp.*, *Eucaliptus sp.*, *Laserpitium niger*, *Lonicera japonica*, *Mesembryanthemum acinaciforme*, *Nelumbo nucifera*, *Pinus halepensis*, *Phytolacca americana*, *Pinus pinaster*, *Platanus spp.*, *Populus hybrida*, *Prunus serotina*, *Pseudotsuga menziesii*, *Quercus rubra*, *Robinia pseudoacacia*, *Solidago canadensis*, *Solidago gigantean*.

Animal species:

Canis lupus familiaris, *Carassius carassius*, *Ctenopharyngodon idella*, *Dama dama*, *Ictalurus melas*, *Lepomis gibbosus*, *Miocastor coypus*, *Procamburus clarkii*, *Rana catesbeiana*, *Silurus glanis*, *Trachemys scripta*.

Italy is also a member of the trilateral ballast water management sub-commission for the Adriatic Sea (Italy-Slovenia-Croatia) which deals with the problem of introduction of harmful organisms from ships in the area.

Eradication/control programmes: The Ministry for the Environment and Territory has produced an action plan for freshwater fishes (2003), and guidelines for *Myocastor coypu* (2001) and *Sciurus carolinensis* (2001). Also other eradication and control programmes have also been undertaken in Italy.

Guide lines for exotic mammals and birds management were also published in 2001 by the same Ministry. (Andreotti A., N. Baccetti, A. Perfetti, M. Besa, P. Genovesi, V. Guberti, 2001 - Mammiferi ed Uccelli esotici in Italia: analisi del fenomeno, impatto sulla biodiversità e linee guida gestionali. Quad. Cons. Natura, 2, Min. Ambiente - Ist. Naz. Fauna Selvatica.)

Challenges/limitations: Inadequacy of legal basis could affect the success of mitigation programmes (eg in the attempt of eradication of *Sciurus carolinensis*).

14.LATVIA

Legislation: The Law ‘On Protection of Species and Habitats’ (16.03.2000) provides for control of pathways for introduced species, Chapter IV Species Introduction and Reintroduction. Annex 1 to the Law ‘On Environmental Impact Assessment’ states that for introduction of wild species which are not native to the territory of Latvia, impact assessment is required. After positive assessment, introduction of certain species for economic or social use may be possible. Relevant regulations of the Cabinet of Ministers set a procedure of introduction and reintroduction. The Law ‘On Plant Protection’ states regulations for import and export of plants. National legislation prohibits use of alien tree species for forest restoration or afforestation.

Policy: The National Programme on Biological Diversity (NPBD) sets numerous goals for control of invasive species in all relevant sub-programmes. Those dealing with control of pathways are described in the box below.

Goals on IAS in Latvian National Programme on Biological Diversity

In agriculture:

14.8. Contain the distribution of introduced species.
14.8.1. Allow the introduction of agricultural crops only after rigorous testing and experience in other countries. Observe precautionary principle when making decisions on cultivation of introduced species.

14.8.3. Control the distribution of aggressive species, especially by their removal from natural communities.

14.8.4. Develop and implement regulations on introduction of new crops, and stipulate grower responsibility for damages ensued to local species and communities.

In inland waters:

1.6.1. Ensure a ban on introduction of alien species into natural waters, and restrictions on their growing in fish ponds

15.3. Prevent entry of foreign fish species or other organisms into the natural environment

15.3.1. Control and combat the already widespread aggressive species.

15.3.2. Assess the safety of the utilised technologies for fish growing in existing aquacultures, and the impact of possible release of the grown foreign species in natural ecosystems.

15.3.3. Exclude the introduction of genetically modified aquatic organisms in nature.

In marine and coastal areas:

1.6.2. Control the use of ballast waters.

2.1.8. Encourage use of local species for dune stabilisation, and prohibit planting of alien species on dunes.

2.1.9. Restrict distribution of expansive species (for example, roses *Rosa rugosa*, sea buckthorn and *elaegnus*) on dunes.

In forests:

4.4.3. Monitor distribution of alien species in forests and combat expansive species.

13.9. Control the distribution of foreign tree species in forests.

13.9.1. Utilise specific tending methods in forests with high densities of foreign tree species in plant communities.

In urban ecosystems:

10.1. Identify the trends in expansion of distribution of species in human environments, with the appropriate monitoring.

1.1.1. Control the expansion of aggressive weeds, and hunting.

16.5. Prevent the impact of introduced species on natural populations.

16.5.1. Promote hunting of introduced predator species.

16.5.2. Monitor the population dynamics of introduced predator species.

16.5.3. Develop legislation on introduction of foreign species, and ensure compliance.

Research: A list of the most important and aggressive alien species has been made, including 15 species. The Latvian State Centre of Plant Protection and Institute of Biology of Latvia, Laboratory of Botany took part in a EU 5th Framework Programme project: 'Giant Hogweed (*Heracleum mantegazzianum*) a perilous invasive weed: developing sustainable strategy for alien invasive plant management in Europe'. Studies on *Heracleum sosnowskyi* (genetics, ecology) were carried out in the frame of this project. Researchers of the Latvian University of Agriculture carried out project on biology of Giant Hogweed in 2001-2002. Studies on distribution of alien species in coastal habitats of Latvia have been also carried out (Faculty of Biology, University of Latvia, 2002), involving mapping of alien species along the coast of the Baltic Sea. A State Plant Protection Service was established in 1998.

Regional cooperation on alien invasive species is ongoing with the Nordic and Baltic countries through the NOBANIS project. Latvia's alien species list home page, established on <http://lv.invasive.info> is contributing to information transfer.

Eradication/control programmes: One of the main threats to habitats and species in rural areas is *Heracleum sosnowskyi*. This expansion of this species is controlled by measures supported by Single Programming Document (2004-2006).

Challenges/limitations: Most of the invasive species do not have national strategies or plans for minimising distribution of these species. Although the main trans-regional distribution pathways are controlled to prevent invasion of new species, distribution of invasive species within the country is not sufficiently controlled. There is a lack of financial resources available for monitoring of invasive species. Other challenges identified were lack of capacity (specialists), knowledge and funding.

15. LITHUANIA

Legislation: The Law on Wild Flora (1999), the Regulation of the Ministry of Environment on import of new plant and fungi species (2000), and Law on Protected Plant, Animal and Fungi Species and Communities (1997, amended 2001) and related regulations provide control for pathways for introducing species. The Law on Plant Protection (1995, amended in 2003) states regulations for import and export of plants. According to national legislation it is prohibited to use alien species in afforestation.

The Ministry of Environment approved an Order on Introduction, Reintroduction and Relocation, the Order on Control and Eradication of Invasive Species Organisms and Composition of Committee on Invasive Species Control (Order No 352) issued in July 2002⁵. In 2004, the list of Invasive Species was approved by Ministerial Order No D1-433.

When importing live alien animal species into the country, a permit from the Ministry of Environment is required. The importer must apply to the Ministry, and get conclusions and recommendations from the Committee on Invasive Species Control to confirm that the distribution of such species in the wild will not have adverse ecological or economic effects, or negative effects on human health. The permit will be issued only if the Committee has approved the application. There are also provisions for quarantine of potential invasives. The same legislation also contains provisions to prohibit trade in invasive species, and allows for potential invasives that are known to cause harm elsewhere to be treated as dangerous (import prohibited etc).

Control of IAS is performed by the State Food and Veterinary Service, State Plant Protection Service, Customs Department, the Ministry of Health and the Ministry of Environment. The competence of each of these organisations is described in the Order on Control and Eradication of Invasive Species Organisms.

⁵ Available at;

http://www3.lrs.lt/pls/inter3/dokpaieska.showdoc_l?p_id=179371&p_query=introdukuotos%20rušys&p_tr2=0

In 2002 the Ministry of Environment approved the Programme on Introduction, Reintroduction and Relocation, and a related Action Plan. In the Programme there are guidelines how to prevent and stop spread of invasive species and in the Action Plan there are detailed actions, together with responsible actors and provisions for financing.

Policy: The Lithuanian Biodiversity Strategy and Action Plan (1998) sets a goal and actions related to IAS. The goal is: protect locally characteristic species and natural populations by preventing the spread of adventitious and invasive species, and by enhancing research. The action is to prepare a study on introduced and invasive species and their ecological role’.

Among various activities set in this Action plan (for 2002-2007) the following have particular relevance for invasive species

- strengthening of institutional capacities for prevention of introduction, trade and relocation of harmful alien species
- creation of data base on alien bacteria, fungi, plant and phytoviruses;
- creation of data base on alien dendroflora in forest ecosystems;
- creation of data base on alien Baltic sea species;
- creation of data base on animal species;
- creation of consolidated data base on all alien species and integration of this database into international information networks on alien species;
- incorporation of monitoring of alien species into National monitoring programmes;
- preparation of specific monitoring programmes and implementation to track and control spreading and habitats of specific alien species;
- control of adventitious dendroflora in Lithuanian forest ecosystems;
- evaluation of introduced tree species in Lithuanian forests (inventory of tree species, preparation of catalogue, estimation of spreading, evaluation of ecological and economical damage or benefit);
- creation of the list of invasive species;
- identify invasive species origin, distribution, spreading routes and ways;
- preparation of maps of invasive species distribution;
- preparation of control and eradication plans for invasive species;
- creation of information system for public, education and awareness raising.

In the new National Environment Monitoring Programme for 2005-2010 (which was adopted in February 2005) the following goal is included:

a) To halt the loss of biodiversity till 2010 assessing the main tendencies of biodiversity changes; *to assess, forecast and control spread of the most dangerous fauna and flora invasive species to Lithuanian biodiversity;*

Research: Lithuania is represented on the DAISIE and ALARM project teams, and is part of NOBANIS.

Eradication/control programmes: In 2005 preparation of two management plans for IAS is planned – *Heracleum sosnovskyi* Manden. and *Orconectes limosus*.

Challenges/limitations: Lack of capacity and funding.

16. LUXEMBOURG

Legislation: There is no specific piece of legislation concerning IAS in Luxembourg. However, the Act of 19th January 2004 on the Protection of Nature and Natural Resources and its following amendments provide the several provisions that are relevant to IAS. This Act abrogates the previous Act on the Protection of Nature and Natural Resources of the 11th August 1982.

(See: <http://www.legilux.public.lu/leg/a/archives/2004/0102901/0102901.pdf?SID=c3243b613dc6a330ed0eb304bb73463f#page=2>)

Article 30 prohibits the import and introduction of alien species into the wild without Ministerial authorisation. The permission could be only given if species are harmless for natural habitats and native fauna and flora and after a process of consultation with the Superior Council for the Protection of Nature and Natural Resources.

Articles 26 and 27 prohibit the unjustified exploitation, damaging, capture and possession of wild native and alien flora and fauna. Article 27 applies also to the trade of the wild animal species and the provisions of the Article can also be used to control the trade and possession of IAS. On the other hand, these Articles may imply that the eradication or control of IAS might need a clear legal justification. This might hinder a quick response to prevent the establishment of IAS in the country.

Policy: Luxembourg is currently drafting its national plan for nature conservation ('Plan national concernant la protection de la nature'). This plan will also consider issues related to IAS. In terms of priority species, an initial list of invasive plants for which urgent action is needed has been compiled. This list will be which will be included in the national plan.

Research: Non native mammals are monitored through an ongoing project to determine their status and distribution on the territory, to assess their impact on native fauna and flora and to develop guide lines for their management.

Development of hunting legislation is underway to enable hunting for control of alien species if necessary. Examination of the legal framework is underway to determine whether it is sufficient and whether improved measures to control the most invasive plant species are necessary. There are some legal measures in place to prevent introduction and distribution of muskrat (*Ondatra zibethicus*) and raccoon (*Procyon lotor*).

Eradication/control programmes: Several species of plants and animals are the target of control or eradication programmes, including *Ovis ammon* and *Syringus vulgaris*.

Challenges/limitations: Not found.

17.MALTA

Legislation: The Environment Protection Act (Chapter 435, Act XX of 2001) Regulation 9.2 k (iii) states that ‘any species known to be invasive should be declared and rules should be established for its control.’⁶ Subsidiary legislation includes the Trees and Woodland Protection Regulations (LN 12 of 2001) which prohibit the propagation, sowing, importation and sale of certain listed plant species (*Acacia saligna*, *Acacia karoo*, *Ailanthus altissima*, *Albizzia lebbek*, *Ricinus communis* and *Schinus terebinthifolius*). Article 14 also prohibits the importation of trees that could endanger biodiversity⁷. The Flora, Fauna and Natural Habitats Protection Regulations 2003 (LN 257 of 2003) which empower the Competent Authority to prohibit the importation of any species of flora and fauna that in its opinion may endanger native biodiversity⁸.

Article 6(1) of the Trade in Fauna and Flora Regulations 2004 (LN 236 of 2004) prohibits the import, export, re-export and possession of any species of fauna or flora if, in the opinion of the CITES Scientific Authority and CITES Management Authority such transactions or possession would endanger the biological identity of any ecosystem or any species of flora or fauna in Malta.

A system is in place for controlling importation from third countries (non-EU). A permit must be obtained for imports of animals from third countries, but this does not apply to plant species (LN 242 of 2004 on Importation Control Regulations).

Policy: A national strategy on alien species is being developed. This will address the issues of alien species in Malta with respect to nature conservation as well as in relation to international and regional treaties.

Research: The Maltese authorities have commissioned studies to list alien species already introduced to the islands. Maltese scientists are also working with other countries on projects such as the CIESM PORTAL project which deals with marine alien species in the Mediterranean.

Eradication/control programmes: Eradication action plans for *Rattus* spp and *Gambusia* spp have been drafted. Past eradication/control efforts include two invasive alien plant species: *Ricinus communis* and *Caprobrotus edulis*. Eradication of rats from an islet within the Maltese archipelago has been achieved.

Challenges/limitations: Not found.

18.THE NETHERLANDS

Legislation: Pest risk analysis and pest risk management is in place for pests of plants in agriculture, and for some other organisms on an ad hoc basis. The Flora and Fauna Act 1998 (Article 14) prohibits releasing animal species into the wild, and also prohibits planting or sowing of certain assigned plant species without permission.

⁶ See www.mepa.org.mt/environment/legislation/chapt435_2001_E.pdf

⁷ See www.mepa.org.mt/environment/legislation/LN_12_2001_E.pdf

⁸ See www.mepa.org.mt/environment/legislation/LN_257_2003_E.pdf

Only one species has been assigned: *Hydrocotyle ranunculoides* (Floating Pennywort). Two species are currently restricted in terms of possession, trade and import and/or export: *Hydrocotyle ranunculoides* (Floating Pennywort) and *Muntingia calabura* (Reeve's Muntjac).

Article 67 of the Flora and Fauna Act contains provisions for the abatement of assigned species. The Article offers the possibility to limit the population size of species. It allows the use of 'normal' (legally defined) hunting methods, provided that 'other satisfying options' to control or limit the population size are not available (de Groot and Gerrits 2003).

Assignment of species under Article 67 can be for reasons of safety (eg at airports, dikes); to prevent economic damage; or to prevent damage to native flora and fauna. The execution of these measures is decentralised. Each of the twelve Provinces has the authority to grant permission for abatement in its own territory. Nation-wide coordination is absent.

Hunting Act 1954 regulation of 1995: provides extra possibilities for control of the following alien mammals and birds, including species which may threaten ecosystems, habitats or species: *Mustela vison*, *Procyon lotor*, *Myocastor coypus*, *Nyctereutes procyonoides*, *Ondatra zibethicus*, *Alopochen aegyptiacus*, *Oxyura jamaicensis*, *Tamias sibericus*.

In accordance with the CITES-related EU council regulation 338/97 (L 61) and commission regulation 1988/2000 (L 237), it is not allowed to import the *Rana catesbeiana* and *Trachemys scripta elegans* in the Netherlands.

Since 1986 the provinces have the responsibility by law for reducing the muskrat (*Ondatra zibethicus*) populations in the country.

Policy: A proposal to install a national coordinating body to control the different pathways for major potential alien invasive species pathways is under consideration.

With regard to marine alien species: at IMO, in February 2004, the Ballast Water Convention has been signed by the Netherlands. Preparations for ratification and implementation have started.

Research: The Netherlands is represented on the ALARM project team.

Eradication/control programmes: For approximately 10 invasive alien species a management plan will be executed starting in 2006. Some animal aliens (eg muskrats) are currently controlled, but an overall policy to prevent, eliminate or control invasive alien species has to be developed. The two largest rodents in The Netherlands are exotic: the muskrat (*Ondatra zibethicus*) and the coypu (*Myocastor coypus*). They are considered pest species and there is a national control programme.

Challenges/limitations: Not found.

19.POLAND

Legislation: There are three pieces of Polish legislation regulating intentional introductions of alien species. The new Nature Conservation Act (2004) regulates introductions of all alien species, except for fish. According to this Act, introduction alien species have to be approved by the Minister responsible for environmental issues. Introduction of alien fish species into freshwater is regulated by the Inland Fisheries Act (1985), whereas introductions of alien fish into seas is controlled by the Fisheries Act (2004). Introduction of alien fish have to be approved by the Minister responsible for agriculture.

Obtaining consent from the Minister responsible for the environment is also necessary for importing alien species whose introduction into the environment could pose a threat to native species. However, the criteria for recognising alien species as particularly dangerous have not yet been specified.

Two pieces of legislation relating to species already introduced and established in Poland have recently also been amended. The numbers of alien game species is controlled following the Ordinance of the Minister of the Environment on the list of game species and close seasons for those animals (2001, as amended in 2005). Two alien species of crayfish and three alien species of fish are subject to control according to the Ordinance of the Ministry of Agriculture and Rural Development of 2001 on fishing and conditions for raising, breeding and catching other organisms living in water.

There is a comprehensive organisational-legal system for phytosanitary and veterinary protection in Poland (supervised by the Ministry of Agriculture and Rural Development) and for forests (supervised by the Ministry of the Environment). Tasks performed by those bodies indirectly pertain to reduction of adverse effects of alien species on native natural diversity.

According to the recently amended Fishery Act (2004), carrying out breeding, fish farming and fish hatchery in Polish marine areas requires a permission and needs to be approved by the Ministry of Agriculture. If the planned investment would be dangerous for the marine environment, permission will not be given. Threat or danger may include as the possibility of fish escaping from the farm. The permission may be cancelled if the investment is carried out against the rules stated in the permission or the enterprise causes harm to the marine environment.

Use of alien species in forestry is regulated and controlled through forest breeding principles, which regulate share of alien species. There is a ban on using American black cherry in undergrowth. Wider use of alien species is acceptable in post-industrial areas or buffer zones where they constitute a fore-crop, preparing the soil for indigenous species.

Policy: In 2003 the Council of Ministers adopted the National Strategy for Conservation and Sustainable Use of Biological Diversity with the Action Plan, in which the needs and priorities for enforcing the CBD Guiding Principles were partly identified:

- Recording and monitoring of alien species and exploring the sources and routes of their expansion, impact on native species and ecosystems special and economic effects of that impact.

- Working out the principles and programme for preventing introductions, elimination, control of spreading and control of numbers of alien species, in particular those which pose the most serious threat to native resources of biological diversity.
- Implementation of the programme for preventing introductions, elimination, control of spreading and control of numbers of alien species, in particular those which pose the most serious threat to native resources of biological diversity.

Under the National Strategy, institutions taking part in activities aiming at reduction in adverse effects of alien species and possible sources of financing those activities were identified, and institutions coordinating them (Ministry of the Environment) were indicated.

In 2005, the Institute of Nature Conservation, Polish Academy of Sciences, commissioned by the Ministry of Environment, developed Code of conduct for alien species in Poland. This included listing of alien species expanding and invasive in Poland, with suggested methods of control. This Code may become the basic element of the future Polish strategy on IAS.

Polish IAS Database:

In 1999 the Institute of Nature Conservation commissioned by the Ministry of the Environment developed the database "Alien Species in Poland". The first version of the database included some 250 most important alien species in Poland. Among others the scale of threat each of the species posed to biological diversity in Poland was determined and it was assessed whether it was necessary to control its population numbers specifying the methods for the species control. In 2003, thanks to the grant of the US Department of State, a part of the data in the database was translated into English and published on the Internet (www.iop.krakow.pl/ias). In 2003-2005 the information in the database has been supplemented. At present, there are over 600 alien species in it. The work on the new database structure complying with the recommendations of the Global Invasive Species Program (GISP) and Invasive Species Specialist Group (ISSG) is under way. In the future, the database will be included in the developing Global Invasive Species Information Network (GISIN). In 2004-2005 also the database of Polish experts dealing with alien species was developed.

Research: There is presently a database on alien species including basic characteristics. The Committee for Nature Conservation of the Polish Academy of Science organised a special session dedicated to invasive species, which was the basis for preparing among others the respective publication (by the Institute of Botany, PAS).

The project of the Committee for Scientific Research for 2004-2006 entitled 'Invasive alien species in Poland and conservation of biological diversity' co-ordinated by the Institute of Nature Conservation PAS and the Institute of Botany PAS in Kraków is now under way. The project aims at comprehensive assessment of threat constituted by alien species to the native biological diversity. This will result, among others, in publication of two books on alien flora and fauna in Poland.

Since 2004 Poland has been participating in NOBANIS (North European and Baltic Network on Invasive Species). Poland is also participating in the ALARM project.

Costs of action – estimate in Poland

In the National Strategy for Conservation and Sustainable Use of Biological Diversity with the Action Plan adopted by the Council of Ministers in 2003, the estimated costs and possible sources of financing tasks related to reduction in threat posed by alien species in 2003-2006 have been specified. The total costs were estimated at 1 700 000 PLN (approx. € 425 000).

Eradication/control programmes: Not found.

Challenges/limitations: Lack of effective methods for counteracting adverse effects, restraining invasions and eliminating alien species. Finding appropriate financial means, and very low social awareness with respect to the issue of invasive species are also important constraints to effective implementation of Article 8(h).

The fact that there is no single definition of an alien species at all leads to considerable arbitrariness in interpretation of the existing regulations which make the applied measures less effective. In addition, introductions are regulated by three different laws (separate for alien inland water fish, alien marine fish and all other alien species). Another important gap in the legal system is a provision that renders introductions of alien plants used for establishment and maintaining green areas and in forestry practically unregulated. A lack of any provisions concerning the criteria for recognising species as dangerous or harmless in the legal regulations is yet another gap that makes the ban on import of possibly dangerous alien species to Poland unenforceable. Control of some IAS (eg Canada goose) is hampered by the fact that they are not included in the law on game species.

20.PORTUGAL

Legislation: There is specific legislation in Portugal that controls the introduction of alien species (Decree-Law nr 565/99 of 21 December). The Decree prohibits breeding, culture or detention in a confined space as well as the use as ornamental plants or pets of those species that are identified as invasive in Annex I or those considered as entailing an ecological risk (Annex III) of the legislation.. The Decree also prohibits the acquisition, offer, transport, farm installations, etc. of those species that are identified in Annex III. Deliberate introduction of such species is also prohibited without specific authorisation.

Articles 4, 5 are applicable to economic exploitation of alien species in a non-confined space, namely aquaculture and apiculture. Restocking with IAS is also prohibited by article 17. Unintentional introductions are approached in article 7, and security measures for prevention are provided in articles 6 and 9-15 and for ballast waters in article 16. Mitigation measures are not provided but article 18 plans the elaboration of a national action plan. Sanctions (article 21) and the polluter-pays principle (Article 25) are included in the present act.

The Law 565/99 forbids introduction and possession of species listed as invasive in its Annexes I and III (with the exception of non-living parts or in the absence of

propagules). The Law prohibits the cultivation, detention and growth of these annexed species. Their use as ornamental or pet is also not allowed. Additionally, the Law also forbids these species to be bought, sold, offered or transported. The Law does not give any provisions as regards export.

Regional Decree No. 27/99/M regulating imports and dissemination of exotic fauna species into the territory of the Autonomous Region of Madeira. This Regional Decree regulates the keeping, import and dissemination of exotic fauna species into the territory of the Autonomous Region of Madeira. It consists of 6 chapters and 1 annex establishing: general provisions (chap. 1); imports and dissemination requirements (chap. 2); licensing (chap. 3); administrative and scientific authority (including Scientific Commission competencies) (chap. 4); sanctions (chap. 5) and final provisions (chap. 6). The annex lists animal species not included in this legislation.

Additionally, Lei de Bases do Ambiente (Law 11/87, 7 April 1987, Article 15, Number 6) mentions the elaboration of adequate legislation regarding the introduction of exotic flora (Article 16, No 3) and the adoption of control measures to control the introduction of animal species.

Policy: The national strategy for Nature Conservation and Biodiversity (2001) contains a set of measures concerning IAS in the fields of integrated policy, scientific research, management, education, and public awareness.

The Ministry of Environment (in collaboration with the Ministry of Agriculture) is developing a national plan to control or eradicate IAS already present in nature. This plan is undergoing an approval process and its provisions have not, therefore, been implemented in practise.

Research: Portuguese authorities are participating in the research project INVADER (www.uc.pt/invasoras) which is aiming to evaluate control methodologies. Portugal is represented in the ALARM project team.

Regional Governments of Madeira and Azores participated together with regional Spanish authorities in a cooperative project for 'the Control of Invasive Vertebrates in Islands of Spain and Portugal'.

Eradication/control programmes: A number of regional programmes have been established in order to control or eradicate IAS (in particular plan species). These programmes are often located in conservation areas.

The Azores Regional Government has published a Regional Plan for the Eradication and Control of Flora Invasive Species in Sensitive Areas (Resolution n° 110/2004, 29th July) that will be implemented until 2009. The plan foresees the eradication and control of 16 species of flora invasive species in sensitive areas in every islands of the Azores archipelago (*Pittosporum undulatum*, *Hedychium gardnerarum*, *Hydrangea macrophylla*, *Arundo donax*, *Gunnera tinctoria*, *Clethra arborea*, *Carpobrothus edulis*, *Lantana camara*, *Ailanthus altissima*, *Polygonum capitatum*, *Drosanthemum floribundum*, *Acacia melenoxylon*, *Ulex europaeus*, *Ipomoea indica*, *Rubus ulmifolius*, *Pteridium aquilinum*).

Eradication of *Acacia longifolia* is underway in some places in Portugal, and there are programme for eradication of invasive species to support restoration of the Azores bullfinch and Zino's petrel. During 2004 and 2005, regional authorities followed the implementation of the control and eradication projects for (1) the conservation of the endemic Zino's Petrel *Pterodroma madeira*, (2) the recovery of the terrestrial habitat of Selvagens Islands and (3) the control of the invasive plant species in the laurel forest of Madeira.

Challenges/limitations: Constraints in financial and human resources have delayed the application and implementation of existing measures relating to IAS.

21. ROMANIA

Legislation: There is no law concerning IAS belonging to 'CORMOPHYTA' ('superior plants'). There is, however, a law for pests ('inferior plants' and microorganisms). There is no coherent strategy or action plan focused on IAS.

However, there are some laws that include articles referring to IAS, including:

- Law 192/19.04.2001 which forbids the introduction of fish species in rivers.
- Law 103/23.09.1996 regarding hunting stipulates that the introduction of animal species in hunting areas can be done only with the approval of some state organisations.
- Law 137/29.12.1995 regarding environmental protection forbids the introduction of animal, plant and microorganism species without the approval of the central authority of the Environment Protection which has to consult the Romanian Academy of Sciences.
- Order 322/16.03.2000 regarding the import of animal and plant species from wild fauna, stipulates that the import of alien animal and plant species can be done only with the necessary approvals of the Romanian Government and the Romanian Academy of Sciences.
- Law 58/13.07.1994 which implements the CBD in Romania. Article 8 stipulates that the signing bodies will prevent, control or eradicate the introduction of alien species that are potentially dangerous.

Policy: Not found.

Research: There are two national projects, aiming at developing control programmes and publishing a list of neobiota in Romania:

- CNCSIS grant in the University of Bucarest
- Neobiota in Romania coordinated by Babes-Bolyai University from Cluj-Napoca

Additionally, the financing programmes of the Ministry of Research have IAS as one of their priority topics of research.

Control/eradication programmes: In some area, the forests are affected by invasive alien species. However, there is no strategy or coherent action plan focused on alien invasive species. Major problems are caused in the Danube Delta and floodplain by

Amorpha fruticosa, *Fraxinus pennsylvanica*, *Fraxinus americana*, clones of Euro-American poplars and *Populus nigra* hybrids. Control of ballast water in the Black Sea ports are in place. There are laboratories for the identification of invasive species, especially insect leaf miners, at all ICAS branches in the country. There is a Central Laboratory of Phytosanitary Quarantine with strict regulations.

Challenges/limitations: Lack of adequate technologies, restrictions in the use of chemicals. High costs of eliminating the invasive *Amorpha fruticosa* and other species from the Danube delta and floodplain.

22.SLOVAKIA

Legislation: The Slovak law (Act No. 543/2002 Coll. on Nature and Landscape Protection) provides a framework for protection of native species and ecosystems. Some of its regulations deal with intentional introduction of IAS, trade in IAS, and eradication of IAS. According to an order of the Ministry of the Environment, the compulsory elimination of IAS applies only to 7 plant species (the most problematic): *Fallopia japonica*, *Fallopia* × *bohemica*, *Fallopia sachalinensis*, *Heracleum mantegazzianum*, *Impatiens glandulifera*, *Solidago canadensis*, *Solidago gigantea*.

Policy: A National Strategy on Invasive Alien Species is being prepared based on Global/European Strategy on Invasive Alien Species. The Strategy will include measures to prevent the introduction of, control or eradicate all invasive alien species in Slovakia. Slovakia has incorporated invasive alien species consideration into its national biodiversity strategy and action plan but the issue has not yet been incorporated into sectoral and cross-sectoral strategies and policies.

There is no clear methodology for risk assessment to address threats of IAS to biodiversity.

Research: In 2002, List of Alien, Invasive Alien and Expansive Native Vascular Plant Species of Slovakia was published. From other systematic groups: fishes, mammals, invertebrates, only major species of concern have been identified. Lists of IAS (major species of concern) in the other systematic groups are being developed. Since 1997, alien vascular plant species have been mapped. Some alien animal species have been mapped since 2003.

The State Nature Conservancy of Slovak Republic in cooperation with the Slovak research and scientific institutions has promoted and carried out research on the vulnerability of ecosystems or habitats to invasion by alien species, the impact of alien species on biodiversity, and the development of environmentally friendly methods to control and eradicate invasive alien species.

Slovakia has developed and made available technical tools and related information to support efforts for the eradication and/or control of invasive alien plant species. Other relevant tools are under development, however, more information on prevention, monitoring, and particularly on early detection (programmes or systems) is needed.

Eradication/control programmes: Management measures follow the results of invasive alien vascular plant species mapping and they are concentrated in protected

areas. In Forestry, measures for control of black locust (*Robinia pseudoacacia*) are implemented at the local scale.

Slovakia lacks a comprehensive system of risk analysis. However, some water courses (wetland habitats) mostly in southern parts of Slovakia (Protected Landscape Areas: Latorica, Dunajské luhy, Záhorie) have been assessed for impact of alien fish species on native fish species. Increased attention is given to reptiles (mostly *Trachemys scripta elegans*), birds of prey (mostly hybrids). As for vascular plants, some assessments of the risk posed by 28 identified invasive alien species to habitats/ecosystems have been done (eg *Heracleum mantegazzianum*, *Fallopia japonica*, *Fallopia* × *bohemica*, *Solidago canadensis* etc.).

Challenges/limitations: Challenges include:

- lack of coordination of work on invasive alien species;
- lack of cross-sectoral consideration
- limited awareness amongst the public and decision-makers;
- limited involvement of relevant stakeholders; and
- limited financial sources.

(Ministry of Environment (Slovakia) 2005).

23.SLOVENIA

Legislation: The Nature Conservation Act (ZON-UPB2; Uradni list RS, št. 96/04) regulates introduction of alien species into the territory of Slovenia. The measures relate to introduction, reintroduction, repopulation and captive breeding of alien species. Import and export is supervised by customs. Until May 2004, all imports of wild animals of alien species were subject to a permit which was issued only after the competent Authority was satisfied that such import would not pose the threat to native flora and fauna. This provision ceased to be valid when Slovenia became a full member of in the European Union.

Detailed regulation in this area was introduced in 2002 by the Rules on the assessment of risk to nature (Uradni list RS, št. 43/02). These Rules lay down the conditions and methods for the assessment of risk to nature prior to the introduction or repopulation of alien plant and animal species in the wild or the breeding of alien wild animal species

Other relevant legal measures include the Environmental Protection Act (1993, 2004), the Nature Conservation Act (1999, 2004), the Forestry Law (1993), the Freshwater Fisheries Act (1986,...2002), and the Plant Health Act (Ur.l. RS, št. 86/2004).

Policy: According to the National Environment Programme which was to be adopted in 2005, a strategy on alien species is to be prepared. This will provide a comprehensive list of priorities for action with regard to IAS.

Research: The Marine Biological Station (MBP-NIB) in Piran has carried out some relevant activities to assess the risk posed by some marine alien species. Slovenian institutes are participating in DAISIE and ALARM.

Some studies have been carried out in implementation of the Water Framework Directive. For example, the report on human induced impacts includes information on alien species in lakes and rivers, coastal sea and brackish waters. Some research has also been done on the invasive alien species in the Slovene sea.

Eradication/control programmes: Not found.

Limitations/challenges: Lack of a systematic approach, finances and institutional interest. There are less potential controls on IAS post-EU accession. An overview of legislation on alien species has been undertaken. No major gaps were found, however the implementation of existing legislation is inadequate. The main constraints are in institutional organisation and division of responsibilities, and not in lack of legislative measures.

24.SPAIN

Legislation: There are references to IAS in the basic Spanish environmental legislation (Law 4/1989 on the Conservation of Natural Areas and Wild Flora and Fauna (27 of March) (BOE n° 74, of 28.03.89)). This includes a general provision on the introduction of new species for hunting or fishing activities (a permit is required from the administrative administration prior to such introductions). Title IV, Chapter I, Art. n° 27 of the Law establishes a basic criterion to preserve genetic biodiversity 'to avoid the introduction and spread of species, subspecies or geographic races different from autochthonous ones, to the extent that they may compete with them, change their genetic purity or alter the ecological balance'. The Law also includes a general provision (Article 34(e)) on the introduction of alien or native species for hunting or fishing activities (a permit is required from the administrative administration prior to such introductions).

The Royal Decree 1803/1999 of 26th November (corrected in BOE N° 13 of 15 January 2000) lays down regulations and general criteria for the management of National Parks. In chapter 3.2(c) measures to prevent and minimise impact of IAS are provided by prohibiting introductions of non native taxa and encouraging efforts to eradicate established alien populations. Exceptions could be made for those alien species which already form part of the natural processes when their eradication may impair the conservation of native species.

Law 31/2003 of the 27th of October on the conservation of wild fauna in zoological parks compels zoos to put in place measure to avoid escapes of animals and particularly potentially invasive species (Article 3 (d)) and sets fines for illegal, negligent and intentional releases (Article 14).

Introductions of non native species are punishable according to the Article 33 of the new penal code which came into effect through the Organic Law 10/1995 of 23rd November and amended in 2003 (Organic Law 15/2003 of 25th of November).

Law 1/1970 of 4th April on hunting requires authorisation to import, export, transfer and release of game species.

Introductions and restocking of hunting and fishing species are made conditional on the authorisation of competent authorities to guarantee the genetic diversity and conservation of native hunting and fishing species. (Royal Decree 1095/1989 of 8th of September which identifies hunting and fishing species and provides rules for their protection).

A permit is required from the administration to import marketable living hunting and fishing species. For non native species the authorisation could be given only a) when measures to avoid their escape are guaranteed or b) when there are no risks for biological and genetic conservation of native species in the case they are imported for releasing into the environment (Royal Decree 1118/1989 of 15th September which identifies marketable hunting and fishing species and provide rules on the subject).

Order of 24 March 2006 declares *Rhynchophorus ferrugineus* a plague and establishes phytosanitary measures for its eradication and control (Boletín Oficial de Canarias No. 61).

Order APA/94/2006 (26 January 2006) modifies the Order of 12 March 1987. It establishes a phytosanitary procedure for the import, export and transport of vegetables and vegetable (plant) products, to prohibit the import of species of palms (Palmae) in the Canary Islands.

The Governments of Spain and Morocco have developed an action plan to control *Oxyura jamaicensis* (Ruddy duck) in the latter country, because such ruddy ducks detected in the wetlands of Morocco could threaten the Iberian population of *Oxyura leucocephala* (White-headed duck).

Penal Code (Law 10/1995): Title XVI, Chapter IV, Art. 333: declares that introducing or releasing alien species with adverse effects for ecological balance, in contravention of laws and general regulations on protection the nature, is punishable with a prison sentence of 6 months to 2 years or probation of 8 to 24 months.

Draft of Natural Heritage and Biodiversity Law. Title I, Art. 3 introduces the term invasive exotic species. Title II, Chapter III, Art. 14, will create a national register of invasive exotic species. Title V, Chapter III deals with prevention and control measures on IAS: Art. 93 establishes a national database of IAS; Art. 94 deals with prohibitions; Art. 95 provides for monitoring and control of IAS. Title VII., Chapter III, Art. 130 establishes a natural and heritage and biodiversity fund to support the prevention of forest fires and the elimination of other actions that impacts severely on biodiversity and the environment. In particular it will support the control and eradication of invasive exotic species.

On the basis of this legal framework Regional governments have developed their own legislative tools.

Policy: The policy initiatives in Spain include the following:

- A national action plan on IAS has been developed, and several regional governments are also working on developing their own strategies on IAS. Spain has ratified the IMO convention on ballast water.

- Andalusian government started in 2004 a regional Plan for the control of IAS, including the identification and control of the most dangerous IAS.
- Regulations of Ebro Hydrological Confederation to control and prevent the spread of *Dreissena polymorpha* was adopted in 2002.
- The protocol of elimination of feral animals in the island of La Gomera (Canary Islands) was approved in 2006.
- As contracting party of the Barcelona Convention Spain adopted the Action Plan Concerning Species Introductions and Invasive Species in the Mediterranean Sea. Spanish representatives are part of the Group of Experts on IAS of the Bern Convention and of the SEBI2010 EG5 on trends in IAS.

Research: Spanish institutions participated in the EPIDEMIE project related to exotic plants in Mediterranean ecosystems, the ALARM and the DAISIE project. In addition, specific research projects have been undertaken related to control of IAS at specific sites/deal with impacts of some invasive species (eg *Mustela vison*, *Carpobrotus edulis*, *Cortaderia selleana*, *Eichornia crassipes*, *Azolla filiculoides*, *Linepithema humile*, *Procambarus clarki*, *Oxyura jamaicensis*).

Several institutions have adopted different approaches to establish databases on IAS. These include, for example, the following: InvasIber (IAS of the Iberian Peninsula, Ministry of Science and Technology of Spain, Special Action REN2002-10059-E), database of exotic species in Canary Island (Canary Islands Government), database of exotic bird species (Group of Alien Birds, SEO/BirdLife). Additionally, distribution maps have been produced for some groups (mammals, birds, fishes amphibians and reptiles), an atlas of invasive alien plants was published by the Ministry of Environment, and there is some work underway on developing IAS databases.

The National Action Plan on IAS (Ministry of Environment) will be edited in 2006.

Additionally, LIFE projects play an important role to fight invasive alien species in Spain:

LIFE99 NAT/E/6392 : *Oryctolagus cuniculus*, *Felis catus*, *Rattus*, *Nicotiana glauca*

LIFE00 NAT/E/7299: *Mustela vison*, *Populus hybrida*

LIFE00 NAT/E/7311: *Oxyura jamaicensis*

LIFE00 NAT/E/7330: *Azolla filiculoides*, *Pinus sp.*, *Populus hybrida*, *Eucalyptus sp.*

LIFE00 NAT/E/7335: *Mustela vison*, *Populus hybrida*

LIFE00 NAT/E/7355: *Carpobrotus edulis*

LIFE02 NAT/E/8604: *Mustela vison*

LIFE92 ENV/E/0067: *Caulerpa taxifolia*

Eradication/control programmes: Some projects relating to the control and eradication of IAS have been undertaken in Spain (*Mustela vison*, *Caulerpa taxifolia*, *Rhynchophorus ferrugineus*, *Oxyura jamaicensis*, *Dreissena polymorpha*, *Carpobrotus edulis*), mainly in relation to protected areas. These include the project on 'Control of invasive invertebrates on Spanish and Portuguese islands'. Distribution maps have been produced for some taxa, and there is some work underway on developing IAS databases. Work is underway to eradicate Ruddy duck from Spain, as this species is a threat to the endangered endemic White headed duck. Likewise mitigation efforts are in place for the American mink and *Caulerpa*. Eradication of

Carpobrotus sp. has been carried out in Menorca (Balearic Islands) in the framework of the LIFE 2000NAT/E/7355.

At subnational level there are control programme for *Eichhornia crassipes* in Extremadura, and the Government of Canary Islands has responded to the invasion of the Red palm weevil (*Rhynchophorus ferrugineus*).

Many regional governments have restrictions in place related to angling and fishing (although these may be contradictory in some cases eg the case of *Pacifastacus leniusculus*), control of animals on islands, control of invasive plants etc.

Challenges/limitations: CBD definitions are not used in the Spanish legislation. The fragmentation of responsibilities and limited cooperation between different departments at national and sub-national level constitute one of the main weak points together with the lack of harmonisation in the legal field. The main efforts are put into mitigation but there is a low level of effort in relation to prevention of IAS eg the use of risk analysis for entry pathways (to prevent unintentional introductions) and species. The rapid response to invasions of IAS which are not considered pests is hampered by lack of rules. Transboundary aspects of biological invasions are not kept in account (eg liability). Fines are modest and sanctions provided by the penal law are not applicable in most cases.

25.SWEDEN

Legislation: There are several pieces of legislation with relevance to invasive species in Sweden. These include the Ordinance on Hunting (1987:905), section 41 which forbids the introduction of mammals and birds into the wild without permission from the Environmental Protection Agency. It is illegal to introduce fish into the wild without permission from the county administrative board (Ordinance on Fishing, Aquaculture and Fishing Industry).

Policy: The Swedish parliament has approved a set of 15 environmental quality objectives to be achieved by around 2020. The implementation of targets is supported by three action strategies. The objectives include several targets in relation to IAS, including in agriculture, freshwaters, wetlands, forests, and mountains. The objectives address the intentional introduction of alien species and genetically modified organisms into natural habitats, but the unintentional introduction of such organisms, and the pathways involved, is not addressed explicitly.

The Swedish Government has given the Swedish Maritime Administration and the Swedish Environmental Protection Agency instructions to investigate the consequences of implementation of the International Convention for the Control and Management of Ship's Ballast Water and Sediments.

National needs for the implementation of the CBD Guiding Principles on IAS were identified in a review of national legislature, measures and routines for dealing with alien species in 2004 by the Swedish Biodiversity Centre, in cooperation with government agencies. These needs include changes in legislation, developing a national strategy on invasive alien species, developing an organisation, plan and funding for dealing with newly discovered invasive alien species, and developing

methods for analyzing and managing risks involved with invasive alien species. The government has in the recent Bill to Parliament on the environmental objectives notified a package of actions in order to address the issue of alien species⁹.

Research: The AquAliens (www.aqualiens.tmbi.gu.se) is a research programme aimed at increasing knowledge on how to assess the risks posed by introduced aquatic species and their impact on ecosystems and economy in Sweden.

Sweden has completed a preliminary assessment of the risks posed to ecosystems or species by the introduction of alien species in three reports published by the Swedish Environmental Protection Agency in 1994, 1997 & 1999 and by the Nordic Council of Ministers in 2000. A future plan of work for continuing the assessment of risks of IAS to biodiversity at the genetic level is being developed.

All the above assessments are preliminary, compiling available data on known problems and making general risk statements. There is a need for enhanced risk assessments of certain taxonomic groups, certain pathways of introduction, and the development of assessment protocols.

Sweden is participating in the NOBANIS, DAISIE and ALARM projects. Sweden is also participating in regional work within the North Sea Conference and HELCOM with implementing the International Maritime Organization's Convention for the control and management of ship's ballast water and sediments.

Eradication/control programmes: To-date, very few species have been targeted for management. Comprehensive policies and programmes are under joint development by several actors, eg the Swedish Environmental Protection Agency, Swedish University of Agricultural Sciences, the National Board of Fisheries, and the Swedish Biodiversity Centre (www.cbm.slu.se).

Eradication programmes are in place in certain Swedish County Administrative Boards for the American mink (*Mustela vison*) and the Giant hogweed (*Heracleum mantegazzianum*). In Västra Götalands län has a programme for eradicating a newly discovered marine algae, (*Gracilaria vermiculophylla*).

The issue of IAS is being addressed through a wide range of measures. For example, The Swedish Plant Protection Organisation is charged with controlling the pathways of introduction of pests and pathogens which threaten agricultural crops and forest trees. The Swedish Environmental Protection Agency and the National Maritime Board are engaged with developing methods for preventing the introduction of invasive alien species through ballast water and hull fouling. The National Board of Fisheries works with preventing the introduction of pathogens and pests through the importation of water-living plants and animals.

Challenges/limitations: The strengths of the existing framework lie in the control of intentional introductions, whereas there is a clear weakness when it comes to

⁹ See: <http://www.cbm.slu.se/pdf/regeringsuppdrag/frammandearter/IASRapport.pdf> for the Swedish Biodiversity Centre report.

unintentional introductions. Pathways of introduction need more attention. Another difficult area is the concept of risk analysis. Very few regulations call for such analyses, and the protocols applied are not well developed. The scientific basis for risk analysis still requires development, as well as the practical application of risk analysis procedures.

Responsibility for managing IAS is currently divided between at least ten separate government authorities. There is a clear lack of coordination between the fields of activities of these agencies. The Swedish legislation on IAS is also scattered in very many different laws and regulations.

26. UNITED KINGDOM

Legislation: The main piece of domestic legislation regulating the introduction of alien species in Great Britain is the Wildlife and Countryside Act 1981. The Act contains measures for preventing the establishment of alien species which may be detrimental to native wildlife, prohibiting the introduction of animals and planting of plants listed in Schedule 9.

In Northern Ireland, the Wildlife Order 1985 (Northern Ireland), Article 15 prohibits the introduction of alien species without a licence.

In Scotland provisions have been included in the Nature Conservation (Scotland) Act 2004, but no information is available on their efficacy. Keeping of certain fish species is restricted under the Import of Live Fish Act 1980, and section 30 of the Salmon and Freshwater Act 1975 prohibits the introduction of any fish or shellfish into English or Welsh waters without a licence.

Policy: The UK's Department for Environment, Food, and Rural Affairs has carried out a non-native species policy review (2003) ('the Review'). A key recommendation of the Review was that the UK Government should designate or create a lead coordinating organisation to ensure consistency of application of IAS policies across the UK. The UK is in the process of implementing this recommendation. A similar review process has been undertaken in Northern Ireland, working with the Government of Ireland on an All-Ireland Review.

Exploring synergies with the Water Framework Directive

As part of the characterisation of River Basin Districts required for implementation of the European Union's Water Framework Directive, the possible impacts on the water environment have been assessed for the ten most invasive alien aquatic species covering rivers, lakes, estuaries or coastal waters. Further assessments of other invasive alien aquatic and riparian species will be undertaken as further characterisation is undertaken in preparation for the finalising of the UK's River Basin Management Plans by 2009.

The UK government has begun to engage with industry and with the public, to ensure they are fully aware of the consequences of their actions in relation to IAS. Defra has developed and published a Code of Practice in partnership with the horticultural industry to raise awareness of the threats posed by invasive plants escaping from gardens, and the risks of imported plants carrying invasive pests and diseases.

Research: The UK is currently supporting research to establish an effective risk assessment methodology. The first structured framework for evaluating the potential for any alien organism, whether intentionally or unintentionally introduced, to enter, establish, spread and cause significant impacts in all or part of the UK has been developed. A UK institution is leading the DAISIE project, and the UK is represented in the ALARM project team.

LIFE supporting IAS control

UK work has been undertaken to identify and quantify the threat posed by the Ruddy Duck. The Ruddy Duck is present in large numbers in the UK, having been accidentally introduced. It poses little conservation threat domestically, but has begun to migrate to Spain where it interbreeds with the globally-threatened white-headed duck, threatening its long-term survival. The UK initiated a control trial to assess whether eradication is feasible and has supported the submission of a LIFE bid to the European Commission to support this work.

Eradication/control programmes: There are many examples of control programmes in the UK, and action is also taken to control pathogens threatening plants. For example there is a control programme to eradicate *Phytophthora ramorum* in areas where this threatens native trees. Eradication programmes for coypu (*Myocastor coypus*) and muskrat (*Ondatra zibethicus*) have been successfully completed.

With regard to the UK Overseas Territories, plans are in place and operating in respect of some invasive species threatening endemic species, but not all, because of limited resources (Defra 2005). There have been some major successes, however, any attempt at organized eradication, and even small-scale removal of species has often been met with popular outcry. This response has extended to invasive flora (eg *Casuarina equisetifolia* – which is prized for its shade and whistling needles, and even to feral chicken eradication.

Limitations/challenges: Coordination, lack of success in enforcement/implementation of current domestic legislation.

ANNEX 4: Analysis of Community Instruments and activities with relevance to IAS

	Instrument	Main purpose	Mentions IAS?	Could IAS be within scope?	Deals with specific IAS pathway/ vector?	Consistent with CBD Guiding Principles?	Consistent with provisions of European Strategy for IAS?	Evidence as to application/effectiveness?	Overseas territories (application)
General/Community									
1	<p>Treaty on European Union</p> <p>http://europa.eu.int/eur-lex/lex/en/treaties/index.htm</p>	<p>Sets out the basic policies for operation of the European Community. Includes monetary policy, movement of goods, etc.</p> <p>Article 2 states that 'The Community shall have as its task, [...], to promote throughout the Community a harmonious, balanced and sustainable development of economic activities, a high level of employment and of social protection, [...], a high degree of competitiveness and convergence of economic performance, a high level of protection and improvement of the quality of the environment, [...], and economic and social cohesion and solidarity among Member States.'</p> <p>Articles 28 and 29 state that quantitative restrictions on imports and exports are prohibited.</p> <p>Article 174(2) states that 2. Community policy on the environment shall aim at a high level of protection [...]. It shall be based on the precautionary principle and on the principles that preventive action should be taken, that environmental damage should as a priority be rectified at source and that the polluter should pay.</p>	No specific reference.	Yes (in very general terms). Article 30 states that 'The provisions of Articles 28 and 29 [which prevent MS imposing quantitative restrictions on imports or exports] shall not preclude prohibitions or restrictions on imports, exports or goods in transit justified on grounds of [...] the protection of health and life of humans, animals or plants [...]. Such prohibitions or restrictions shall not, however, constitute a means of arbitrary discrimination or a disguised restriction on trade between Member States.' This provision has been used to justify restrictions on movement of living organisms within the EC (see discussion of Danish bees case).	Yes, trade.	Not directly - very general provisions	Not directly - very general provisions.	Many MS (especially new 2004 MS) have reduced the possible import restrictions related to IAS on joining the EC, perhaps in the belief that such restrictions were not legally justified under the EC Treaty. The one case where the provisions of Article 30 in relation to IAS have been tested is the 'Danish bees case' (see discussion below). The implications of that case are discussed below. It is possible that MS have been excessively conservative in their interpretation of the requirements of the EC Treaty in relation to IAS.	
2	<p>Environmental Impact Assessment Directive (85/337/EEC as amended)</p> <p>'EIA Directive'</p> <p>http://europa.eu.int/eur-lex/lex/LexUriServ/site/en/consleg/1985/L/01985L0337-19970403-en.pdf</p>	The Directive applies to the assessment of the environmental effects of public and private projects which are likely to have significant effects on the environment.	No specific reference.	Yes. The Directive covers the direct and indirect effects of a project on human beings, fauna and flora and on soil, water and landscape (see requirements in Article 3). This could include impacts from IAS if caused or exacerbated by a project.	Some (construction of transport corridors under Annex I.7-8; afforestation and salmon aquaculture under Annex II.I.(d) and (g)).	Consistent with GP1 and potentially with GP10 and GP11.	Particularly supports 5.3.2 (unintentional introductions). Could support 3.4.2 if criteria on IAS were incorporated into assessment.	No specific information on application in relation to IAS.	

	Instrument	Main purpose	Mentions IAS?	Could IAS be within scope?	Deals with specific IAS pathway/ vector?	Consistent with CBD Guiding Principles?	Consistent with provisions of European Strategy for IAS?	Evidence as to application/effectiveness?	Overseas territories (application)
3	Strategic Environmental Assessment Directive (2001/42/EC) 'SEA Directive' http://europa.eu.int/eur-lex/pri/en/oj/dat/2001/l_197/l_19720010721en00300037.pdf	The purpose of the SEA-Directive is to ensure that environmental consequences of certain plans and programmes are identified and assessed during their preparation and before their adoption (ref Article 5). The public and environmental authorities can give their opinion and all results are integrated and taken into account in the course of the planning procedure. After the adoption of the plan or programme the public is informed about the decision and the way in which it was made. In the case of likely transboundary significant effects the affected Member State and its public are informed and have the possibility to make comments which are also integrated into the national decision making process.	No specific reference.	Yes. The Directive requires an environmental assessment for all plans and programmes for agriculture, forestry, fisheries, energy, industry, transport, waste management, water management, telecommunications, tourism, town and country planning or land use and which set the framework for future development consent of projects listed in Annexes I and II to Directive 85/337/EEC, or (b) which, in view of the likely effect on sites, have been determined to require an assessment pursuant to Article 6 or 7 of Directive 92/43/EEC. The assessment should consider significant environmental effects, and in particular, effects on sites designated under the habitats and birds Directives, or transboundary effects: these could include the impacts of IAS.	"Plans and programmes" very broadly defined to cover some sectoral pathways eg. transport corridors	Consistent with GP1 and potentially with GP10 and GP11.	Particularly supports 5.3.2 (unintentional introductions). Could support 3.4.2 if criteria on IAS were incorporated into assessment and 4.1 on consultation with neighbouring States on IAS risks.	No specific information on application in relation to IAS.	
4	Environmental Liability Directive (2004/35/CE) http://europa.eu.int/eur-lex/pri/en/oj/dat/2004/l_143/l_14320040430en00560075.pdf	The purpose of the Directive is to establish a framework of environmental liability based on the 'polluter-pays' principle, to prevent and remedy environmental damage.	No specific reference. Defines 'emissions' as 'the release to the environment, as a result of human activities, of substances, preparations, organisms or micro-organisms' which could include release of IAS. 'Environmental damage' is defined to include 'damage to protected species and habitats which is any damage that has significant adverse effects on reaching or maintaining the favourable conservation status of such habitats or species' as well as any damage that 'significantly adversely affects the ecological, chemical and/or quantitative status and/or ecological potential, as defined in Directive 2000/60/EC, of the waters concerned, with the exception of adverse effects where Article 4(7) of that Directive applies.'	Yes, where environmental damage as defined is caused/threatened by an occupational activity listed in Annex III (which covers activities involving GMOs) or any other occupational activity whenever the operator has been at fault or negligent. However, there needs to be one or more identifiable polluters, the damage must be concrete and quantifiable and a causal link should be established between the damage and the identified polluter(s). Liability is not a suitable mechanism for pollution of a widespread, diffuse character where it is impossible to link the negative environmental effects with acts or failure to acts of certain individual actors.	No (unless GMOs are considered to be within scope of IAS)	Supports GP12 which says that an individual or entity responsible for the introduction of invasive alien species should bear the costs of control measures and biological diversity restoration where it is established that they failed to comply with the national laws and regulations...	Particularly supports 3.6 (compliance and enforcement).	The Environmental Liability Directive came into force in 2004. No reports on the effectiveness of the Directive were found, and there is no evidence that it has been applied to IAS to-date.	
5	Communication from the Commission on the Precautionary Principle (COM(2000)1) http://europa.eu.int/eur-lex/en/com/cnc/2000/com2000_0001en01.pdf	The Communication aims to: outline the Commission's approach to using the precautionary principle; establish Commission guidelines for applying it; build a common understanding of how to assess, appraise, manage and communicate risks that science is not yet able to evaluate fully; and avoid unwarranted recourse to the precautionary principle, as a disguised form of protectionism. It also seeks to provide an input to the ongoing debate on this issue, both within the Community and internationally.	No specific reference.	Yes. The Communication discusses the Community's right to establish the level of protection - particularly of the environment, human, animal and plant health, that it deems appropriate. It states that applying the precautionary principle is a key tenet of its policy, and the choices it makes to this end will continue to affect the views it defends internationally, on how this principle should be applied.	No	The Communication is in line with the CBD Guiding Principles.	The Communication is in line with the European Strategy.	There is no evidence as to the application of the precautionary principle to IAS.	

	Instrument	Main purpose	Mentions IAS?	Could IAS be within scope?	Deals with specific IAS pathway/ vector?	Consistent with CBD Guiding Principles?	Consistent with provisions of European Strategy for IAS?	Evidence as to application/effectiveness?	Overseas territories (application)
6	Sixth Environmental Action Programme (2001-2010) (Decision 1600/2002/EC of the EP and the Council of 22 July 2002 http://europa.eu.int/eur-lex/pri/en/oj/dat/2002/l_242/l_24220020910en00010015.pdf	This Decision establishes a programme of Community action on the environment. It addresses the key environmental objectives and priorities based on an assessment of the state of the environment and of prevailing trends including emerging issues that require a lead from the Community. It sets out the key environmental objectives to be attained. It establishes, where appropriate, targets and timetables. The objectives and targets should be fulfilled before expiry of the Programme, unless otherwise specified. The Programme runs from 2001-2010.	Yes. IAS are specifically mentioned in Article 6 in a specific objective: 'halting biodiversity decline with the aim to reach this objective by 2010, including prevention and mitigation of impacts of invasive alien species and genotypes', and in a specific priority action: 'developing measures aimed at the prevention and control of invasive alien species including alien genotypes'	Yes, IAS are clearly within the scope of the 6EAP.	No	The 6EAP broadly supports the GPs, but is very general.	The 6EAP broadly supports the European Strategy, but at a very general level.	No concrete outcome to date.	
7	Case law on IAS: Danish bees case (Case C-67/97)	The case concerned the keeping of a non-indigenous species of bee on the island of Læsø. Danish law prohibited the keeping of nectar-gathering bees except the brown bee of Læsø. When the Danish government pursued a prosecution against an individual who was breaching the prohibition, he claimed that the law constituted a quantitative restriction on imports and was contrary to Article 28 of the EC Treaty. The Court found that the law was indeed a restriction, but that it was justified under Article 30 of the Treaty, for the protection of the health and life of animals.	Not specifically. But the case directly concerns the threat that non-native species may pose to natives. The Court referred to the existence of protected areas for biodiversity conservation under the Birds and Habitats Directives, and stated that the 'establishment by the national legislation of a protection area within which the keeping of bees other than Læsø brown bees is prohibited, for the purpose of ensuring the survival of the latter, constituted an appropriate measure.	Yes	No	Not applicable.	Not applicable.		
Fresh Water									
8	Water Framework Directive (2000/60/EC). http://europa.eu.int/comm/environment/water/water-framework/index_en.html	Sets objective that a 'good status' must be achieved for all European waters by 2015 and that water use be sustainable throughout Europe.	No specific reference.	Yes. The Directive refers to high, good, and moderate 'ecological status'. The determinants of status in relation to biological quality elements include an assessment of taxonomic composition in comparison to undisturbed conditions. If IAS are present at levels that significantly alter taxonomic composition, this will affect the level of ecological status	No	Supports GP3 (ecosystem approach); if information on IAS is recorded and shared by MS, could support GP8 (exchange of information); supports GPs 12.	Could assist in Part 2 (collecting managing and sharing information) in relation to aquatic IAS. If WFD requirements are incorporated into broader	The Directive is still in early stages of implementation. Some Member States have included an assessment of IAS as part of their initial characterisation of water bodies under the directive, to determine whether they are at risk of failing their environmental quality objectives (e.g. UK, Ireland). This could drive future management of IAS as	

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9	Water Framework Directive: Common Implementation Strategy Guidance http://forum.europa.eu.int/Public/irc/env/wfd/library?l=/framework_directive/guidance_documents&vm=detailed&sb=Title	Sets out guidance for implementation of the WFD by Member States.	Specific reference included in three guidance documents: REFCOND, IMPRESS, and COAST.	affect the level of ecological status assigned to a water body.	No	supports GPs 12, 13, 14, 15 (where MS take actions to prevent deterioration of ecological status).	broader environmental policy at MS level, may contribute to part 3 (strengthening national policy, legal and institutional framework). Networks formed in relation to WFD could also facilitate regional cooperation (objective 4). Control and eradication actions taken to improve or avoid deterioration in the ecological status of water bodies could assist in meeting objectives 5 and 7 (prevention and mitigation of impact). Actions taken under WFD could also contribute to objective 8 (restoration of native biodiversity).	future management of IAS as Member States aim to achieve good ecological status for water bodies.	
Wildlife/Nature Protection/Biodiversity									
10	The Wildlife Trade Regulations (Council Regulation 338/97/EC and Commission Regulation 1808/2001/EC)	Article 1 provides that the object of the Regulation is to 'protect species of wild fauna and flora and to guarantee their conservation by regulating trade therein [...].	<p>Yes. Article 4(6) provides that '[...] the Commission may establish general restrictions, or restrictions relating to certain countries of origin, on the introduction into the Community: (d) of live specimens of species for which it has been established that their introduction into the natural environment of the Community presents an ecological threat to wild species of fauna and flora indigenous to the Community.'</p> <p>Article 9(6) provides that 'Under the procedure laid down in Article 18, the Commission may establish restrictions on the holding or movement of live specimens of species in relation to which restrictions on introduction into the Community have been established in</p>	Yes. Four species are currently subject to restrictions on import into the EC (under Article 4(6)). These are the red eared slider (<i>Trachemys scripta elegans</i>), the American bullfrog (<i>Rana catesbeiana</i>), the painted turtle (<i>Chrysemys picta</i>) and the American ruddy duck (<i>Oxyura jamaicensis</i>). Ruddy duck and painted turtle were added by Commission Regulation 252/2005 (http://europa.eu.int/eur-lex/lex/LexUriServ/site/en/oj/2005/l_043/l_04320050215en00030021.pdf). No species are subject to restrictions under Article 9(6).	Yes, trade.	Yes: could support GP 2, 10.	Could support 5.2 (intentional introductions).	Effectiveness of the Regulations was reviewed in 2002 by Adrados & Griggs. The analysis concluded that the Regulations were not sufficient to deal with all problems related to IAS, and the Regulations were also not preventing ecological impacts from the two species that were listed under Article 4(6) at the time.	

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			accordance with Article 4 (6).'						
11	The Habitats Directive (92/43/EEC)	Article 2 provides that the aim of the Directive is to contribute towards ensuring biodiversity through the conservation of natural habitats and of wild fauna and flora in the European territory of the Member States.	Yes. Article 22 provides that Member States shall 'ensure that the deliberate introduction into the wild of any species which is not native to their territory is regulated so as not to prejudice natural habitats within their natural range or the wild native fauna and flora and, if they consider it necessary, prohibit such introduction. [...]'	Yes, IAS are clearly within the scope of the Directive. Article 6 sets out MS obligations in relation to Special Areas of Conservation (areas that make up the Natura 2000 protected sites network that is established under the Directive). These include avoiding deterioration of natural habitats and disturbance of species, both of which could be driven by IAS in specific circumstances. Plans or projects (which could include release of new species) should be subject to appropriate assessment of implications for the conservation objectives of Natura sites.	No	Could support GP7, GP10, also 12-15 in the context of site restoration or management.	Supports 5.2 (intentional introductions); could support 5.4; also supports objectives related to 7 (mitigation of impacts) and 8 (restoration of native biodiversity).	Many Member States did not report on this Article when preparing their Article 17 reports under the Directive (see http://europa.eu.int/comm/environment/nature/nature_conservation/monitor_indic_reporting/reporting/habitats/pdf/art_17/report_en.pdf). In those countries where reporting was done, it seems that introductions of IAS are still a problem despite the provisions of the Directive. Legal provisions of individual MS are analysed in Task 2. NB: For some habitat types, non-native species are included in the EU Habitats Interpretation manual as characteristic species (eg 3150, which includes Azolla, an introduced water fern that is subject to control in some places).	
12	The Birds Directive (79/409/EEC)	Covers the protection, management and control of wild birds, and lays down rules for their exploitation.	Yes. Article 11 provides that Member States shall 'see that any introduction of species of bird which do not occur naturally in the wild state in the European territory of the Member States does not prejudice the local flora and fauna.'	Yes, IAS are clearly within the scope of the Directive. Aside from Article 11, MS have obligations to manage sites under the Directive, including avoiding deterioration of habitats or any disturbances affecting the birds, in so far as these would be significant having regard to the objectives of this Article. Member States are also obliged to avoid deterioration of habitats outside the protection areas. IAS can be drivers of habitat deterioration and disturbance, so IAS management may be included in measures needed to implement the Directive.	No	Could support GP7, GP10, also 12-15 in the context of site restoration or management.	Supports 5.2 (intentional introductions); could support 5.4; also supports objectives related to 7 (mitigation of impacts) and 8 (restoration of native biodiversity).	Reporting on introduced species has not been consistent through the period of application of the Directive, despite a specific question in the reporting format. However, several MS have reported issues with specific introduced birds, eg Ruddy duck, monk parakeet, rose-ringed parakeet, Canadian goose, Egyptian goose. There is no evidence that the measures in the Directive are alleviating issues with IAS. (See DG-Environment, 2004). Some species alien to Europe are protected through inclusion in the Annexes to the Directive, eg Canada goose.	

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13	Council Directive 1999/22/EC of 29 March 1999 relating to the keeping of wild animals in zoos	The objectives of this Directive are to protect wild fauna and to conserve biodiversity by providing for the adoption of measures by Member States for the licensing and inspection of zoos in the Community, thereby strengthening the role of zoos in the conservation of biodiversity	Yes, IAS could be considered in the context of Article 3 that state that Member States should take measures to prevent the escape of animals in order to avoid possible ecological threats to indigenous species and preventing intrusion of outside pests and vermin	Yes, preventing unintentional introduction of animal IAS (eg diseases and pests) from zoos is the aim of the Article 3	Yes, unintentional introduction through escape	Could support GP11	Supports 5.3 (unintentional introductions);	No information found	
14	European Community Biodiversity Strategy (COM (98)42) http://europa.eu.int/com/environment/docum/pdf/9842en.pdf	The Community Biodiversity Strategy set out in the Communication provides the framework for developing Community policies and instruments in order to comply with the CBD.	Yes. The Strategy states that 'The presence or introduction of alien species or sub-species can potentially cause imbalances and changes to ecosystems. It can have potentially irreversible impacts, by hybridisation or competition, on native components of biodiversity. Applying the precautionary principle, the Community should take measures pursuing to prevent that alien species cause detrimental effects on ecosystems, priority species or the habitats they depend on and establish measures to control, manage and, wherever possible remove the risks that they pose.'	Yes, clearly IAS are within the scope. The Strategy considers the need to develop indicators in relation to IAS.	No	The Strategy broadly supports the GPs, but is very general.	The Strategy broadly supports the European Strategy, but at a very general level.	A review of Strategy and Action Plans was published in 2004. The Reviewers found that the targets in relation to IAS had largely been met, but the 6EAP requirement to develop measures for prevention and control of invasive alien species had not yet adequately been met; there remains a need for a comprehensive assessment of instruments required to control invasive alien species in response to CBD Decision VI/23. The reviewers also considered that 'the BAP-NR actions and targets do not fully reflect the need for a comprehensive response to the problem of invasive alien species and need to be adjusted accordingly'. The BAP for Fisheries contains measures in relation to the use of non-indigenous species in aquaculture, which are being progressed in DG-Fisheries with the development of the proposed Regulation assessed separately. The reviewers of the BAP-EDC noted that alien species should be included as an issue in any revision.	
15	European Community Biodiversity Action Plans (COM (2001) 162 final) http://europe.eu.int/smartapi/cgi/sga_doc?smartapi!celexplus!prod!DocNumber&lg=en&type_doc=COMfinal&an_doc=2001&nu_doc=162	The Communication presents four specific 'sectoral' Biodiversity Action Plans on: Conservation of Natural Resources; Agriculture; Fisheries; and Economic and Development Co-operation.	There are specific references to IAS (or non-native species) in the BAPs for Natural Resources and Fisheries. There are no specific references in the BAPs for agriculture or economic and development cooperation.	Yes, IAS are clearly within the scope.	No	The Action Plans BAP-NR and BAP-F broadly support the GPs. The other two BAPs do not integrate IAS-related provisions of the Biodiversity Strategy (COM(98)42).	Two of the four BAPs broadly support the European Strategy at a general level.		
16	Upcoming Commission Communication on Biodiversity: Halting the Loss of Biodiversity by 2010 - and Beyond (draft March 2006)	The Communication identifies four key policy areas for action to 2010 and beyond. It then sets out priority objectives related to each of the four policy areas and explains their scope.	Yes. One of the priority objectives listed in relation to Policy Area 1 (Biodiversity in the EU) is 'to reduce the impact on EU biodiversity of invasive alien species and alien genotypes'. The EU Action Plan for 2010 and Beyond (Annex 1) includes specific actions for IAS, including: developing a Community Strategy to address IAS which may contain measures to fill gaps; and establishing an early warning system for the prompt exchange of information between countries on the emergence of IAS and cooperation on control measures across national boundaries.	IAS are clearly within the scope of the Communication and Action Plan.	No	The measures contained in the Communication would generally support the GPs.	The measures contained in the Communication would broadly support the European Strategy [insert specifics].	N/A	
17	Message from Malahide	The Malahide Conference aimed to outline priority objectives and detail the targets required in order to deliver the overall EU 2010 target and to optimise the EU's contribution to the overall global 2010 target. In addition, the	There is a specific objective related to IAS - 'to develop and implement measures for the prevention and control of invasive alien species and alien genotypes.' The targets in relation to IAS are: 1. Strategy on IAS	IAS are clearly included in the scope of the Message from Malahide.	No (but specific support for action to tackle ballast water pathways)	Not applicable.	Not applicable.	Not really applicable, as is not a binding legal document. However, many of the targets from the Message have been picked up in the Commission's Biodiversity Communication.	

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		conference aimed to consider the indicators which will inform us on progress, and implementation arrangements including key actors, coordination mechanisms and resource needs. The conference also aimed to consider research priorities to 2010 and beyond emerging from the Irish Presidency meeting of the European Platform for Biodiversity Research Strategy taking place in Killarney 21-24 May 2004. The main outcomes of the Conference were: 1) broad stakeholder endorsement of an 'audit' of progress to date, and 2) a Message from Malahide (see section 3 of this report) containing the priority objectives, targets, indicators, and research priorities.	adopted by 2005, taking into account the CBD's guiding principles on IAS, considering potential legal instruments, and identifying priorities for eradication programmes and measures capable of the prevention of further intentional or non-intentional introductions of potential IAS. 2. MS encouraged to develop national strategies by 2007 and implement them fully by 2010.3. Adequate funding provided in the 7th Framework Programme and from national sources for research on the extent and scale of IAS and possible solutions to the problems they cause. 4. Ratification by MS of the International Convention for the Control and Management of Ship's Ballast Water and Sediments under the IMO encouraged. 5. Early warning system established for the prompt exchange of information between neighbouring countries on the emergence of IAS and cooperation on control measures across national boundaries.						
Sanitary/Phytosanitary									
18	Directive on protective measures against the introduction into the Community of organisms harmful to plants or plant products and against their spread in the Community (2000/29/EC). The 'Plant Health' Directive http://europa.eu.int/eur-lex/pri/en/oj/dat/2000/l_169/l_16920000710en00010112.pdf	This Directive concerns protective measures against the introduction into the MS from other MS or third countries of organisms which are harmful to plants or plant products. The general principles are based upon provisions laid down in the International Plant Protection Convention concluded under the auspices of the United Nation Food and Agriculture Organisation and, in the World Trade Organisation Agreement on the Application of Sanitary and Phytosanitary Measures.	Not specifically. The Directive refers to 'harmful organisms' which are defined as: pests of plants or of plant products, which belong to the animal or plant kingdoms, or which are viruses, mycoplasmas or other pathogens. Pests may be direct or indirect (e.g. weeds of cultivation). The definition of "plants" is not restricted to cultivated plants, so the Directive potentially applies to organisms that may harm wild (unmanaged) plants. Consistent with IPPC terminology, the terms "alien" or "non-native" are not used.	The Directive clearly applies to some categories of IAS, but only those that are included in the definition of 'harmful organisms'. The Annexes of the Directive contain lists of organisms that MS must ban from import in certain circumstances or absolutely. The Directive also contains requirements for MS to prevent introduction of the listed organisms or goods from one MS to another. Specific 'protected zones' may be established within MS in relation to particular harmful organisms. Certain organisms must be targeted for eradication or control if detected. The Commission's Food and Veterinary Office manages EUROPHYT, an electronic rapid alert system between the Commission and Member States, as well as the simpler CIRCA, used in urgent situations and for information exchange.	Yes, trade in plants and plant products.	It appears that the Directive is largely consistent with all the GPs, but only in relation to harmful organisms as defined (see Unger 2003).	The Directive supports the European Strategy, but as with the Guiding Principles, its application is limited to matters related to harmful organisms as defined.	Specific reports on the effectiveness of the Directive could not be located. However, MS appear to have been active in implementing the Directive which is the binding legal instrument used to implement the IPPC within the EU.	There are specific references to the French overseas departments and the Canary Islands in art 1. The Directive does not apply to Ceuta or Melilla (art 1(3)).
19	The species-specific and general Directives containing precautions against animal disease introductions. There are a large number of these	The Directives contain a suite of measures relating to reporting of, prevention of entry of, eradication of, etc of animal diseases and pathogenic agents in the EC.	The Directives do not mention IAS, but apply to animal diseases and pathogenic agents, some of which may also be IAS.	The Directives and Regulations contain the following types of measures: control measures against major epizootic diseases to be taken as soon as disease is suspected; eradication and monitoring	Yes, trade in animals and animal products.	It appears that the legislation related to animal diseases is broadly consistent with the GPs, but	The legislation supports the European Strategy, but as with the Guiding Principles, its	http://europa.eu.int/comm/food/animal/diseases/index_en.htm	

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	Directives and also Regulations These relate to specific types of animals and animal products, and are too numerous to list individually here.			programmes for diseases already in the Community which are subject to national programmes co-financed by the EU; application of the concept of "regionalization" in case of disease occurrence; registration of farms, identification of animals and establishment of a computerised system linking 2500 offices of the central and local veterinary authorities throughout the EU (ANIMO), which enables advance notification of the trade in animals and their products. Occurrence of the most important diseases must be notified to the Commission and the other MS, via the computerised Animal Disease Notification System, which now also involves many other European countries (EU acceding and candidate countries, Iceland, Norway, Switzerland, etc.); contingency plans in each MS for dealing with epizootic diseases; EU and national reference laboratories to ensure uniformity of testing and expert support to the Commission and the MS.		only where they apply to animal diseases.	application is limited to matters related to animal diseases.		
Genetically Modified Organisms									
20	<p>Directive on the contained use of genetically modified micro-organisms (90/219/EC)</p> <p>http://europa.eu.int/eur-lex/lex/LexUriServ/LexUriServ.do?uri=CELEX:31990L0219:EN:HTML</p>	To lay down common measures for the contained use of genetically modified micro-organisms for the purposes of protecting human health and the environment.	No specific reference, but focus of the Directive is on reducing the risks related to unintentional release of genetically modified organisms (some of which may be IAS).	Yes, where the IAS in question are genetically modified organisms being held in containment. The Directive includes provisions for: classification and risk assessment; notification and approval system; accidents; enforcement; public consultation and information; accident and emergency plans; ; waste disposal, etc.	No	The Directive is broadly consistent with the GPs, but these do not expressly apply to GMOs.	The European Strategy expressly excludes GMOs from its scope but the Directive is otherwise consistent with its general approach.	Reports on implementation of the Directive have been produced (see, eg, http://europa.eu.int/smartapi/cgi/sqa_doc?smartapi!celexplus!prod!DocNumber&lg=en&type_doc=COMfinal&an_doc=2001&nu_doc=263). It seems that MS are active in implementation of this Directive, and few problems with contained use of GMOs have been encountered.	
21	<p>Directive on the deliberate release into the environment of genetically modified organisms (2001/18/EC)http://europa.eu.int/eur-lex/lex/LexUriServ/LexUriServ.do?uri=CELEX:32001L0018:EN:HTML</p>	The main aim of this Directive is to make the procedure for granting consent to the deliberate release and placing on the market of GMOs more efficient and more transparent, to limit such consent to a period of ten years (renewable) and to introduce compulsory monitoring after GMOs have been placed on the market. It also provides for a common methodology to assess the risks associated with the release of GMOs (the principles applying to environmental risk assessment are set out in Annex II to the Directive) and a mechanism allowing the release of the GMOs to be modified, suspended or terminated	No specific reference, but focus of the Directive is on reducing the risks related to intentional release of genetically modified organisms (some of which may be IAS).	Yes, where the IAS in question are GMOs. The Directive makes public consultation and GMO labelling compulsory. A system of exchange of information contained in notifications is maintained. The Commission is obliged to consult the competent scientific committees on any question which may affect human health and/or the environment. The Directive requires registers to be established for the purpose of recording information on genetic modifications in GMOs and on the location of GMOs. The Directive invited the Commission to present a proposal for implementing	No	The Directive is broadly consistent with the GPs, but these do not expressly apply to GMOs.	The European Strategy expressly excludes GMOs but the Directive is otherwise consistent with its general approach.	Reports on implementation of this Directive have been produced (see, eg, http://europa.eu.int/smartapi/cgi/sqa_doc?smartapi!celexplus!prod!DocNumber&lg=en&type_doc=COMfinal&an_doc=2004&nu_doc=575). It seems that MS have been active in implementing this Directive, and few problems with management of GMOs have been encountered. However, the issue of deliberate release is highly controversial and political, and receives a large amount of media attention.	

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		where new information becomes available on the risks of such release.		the Cartagena Protocol on biosafety, which led to the adoption of Regulation (EC) No 1946/2003 of the European Parliament and of the Council on transboundary movements of genetically modified organisms .					
22	European Parliament and the Council Regulation on transboundary movements of genetically modified organisms (EC 1946/2003) http://europa.eu.int/eur-lex/pri/en/oj/dat/2003/l_287/l_28720031105en00010010.pdf	The objectives of this Regulation are to establish a common system of notification and information for transboundary movements of genetically modified organisms (GMOs) and to ensure coherent implementation of the provisions of the Cartagena Protocol on Biosafety on behalf of the Community. 'Transboundary movement' means the intentional or unintentional movement of a GMO between one Party or non-Party of the Cartagena Protocol and another Party or non-Party of the Protocol, excluding intentional movements between Parties within the Community.	No specific reference, however the Regulation applies to the transboundary movements of all GMOs that may have adverse effects on the conservation and sustainable use of biological diversity, also taking into account risks to human health.	Yes, when IAS in question are GMOs.	Trade, intentional and unintentional introduction	The Regulation is broadly consistent with the GPs, but these do not expressly apply to GMOs.	The European Strategy expressly excludes GMOs but the Directive is otherwise consistent with its general approach.	None found	
23	Council Regulation setting up a Community regime for the control of exports of dual-use items and technology (EC 1334/2000) (amended and updated by Council Regulation 2006/394/EC) http://trade.ec.europa.eu/doclib/docs/2006/march/tradoc_127868.pdf	The Regulation sets up a Community system of export controls for dual-use items. 'Dual-use items' mean items, including software and technology, which can be used for both civil and military purposes, and shall include all goods which can be used for both non explosive uses and assisting in any way in the manufacture of nuclear weapons or other nuclear or explosive devices.	No specific reference, however the Regulation applies to the exportation of micro organisms/GMOs that could be used for military purposes (Annex 1 of the Regulation).	Yes, when IAS in question are GMOs that could be used in military purposes.	Trade, intentional and unintentional introduction.	The Regulation is broadly consistent with the GPs, but it does not expressly apply to GMOs.	The European Strategy expressly excludes GMOs but the Directive is otherwise consistent with its general approach.	None found.	
European Funds									
24	Regulation on support for rural development by the European Agricultural Fund for Rural Development (EAFRD) (EC) No 1698/2005) http://europa.eu.int/eur-lex/lex/LexUriServ/site/en/oj/2005/l_277/l_27720051021en00010040.pdf	The EAFRD shall contribute to the promotion of sustainable rural development throughout the Community in a complementary manner to the market and income support policies of the common agricultural policy, to cohesion policy and to the common fisheries policy.	No specific reference.	Activities related to IAS are within the scope of the fund, in relation to agri- and forest- environment payments.	No	Potentially provides financial support for implementation of the GPs, but does not provide specific legal/policy framework.	Potentially provides financial support for the Strategy, but does not provide a specific legal/policy framework.	No information on the use of the former Rural Development Fund (EAGGF) for IAS was found.	
25	Community Strategic	The guidelines aim to: identify and	No specific reference.	The Guidelines state that the	No	Potentially	Potentially		

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	<p>Guidelines for Rural Development. OJ L.55/20 25.02.2006.</p> <p>http://europa.eu.int/eur-lex/lex/LexUriServ/site/en/oj/2006/l_055/l_05520060225en00200029.pdf</p>	<p>agree the areas where the use of EU support for rural development creates the most value added at EU level; make the link with the main EU priorities (Lisbon, Göteborg) and translate them into rural development policy; ensure consistency with other EU policies, in particular in the fields of cohesion and environment; accompany the implementation of the new market-oriented common agricultural policy (CAP) and the necessary restructuring it will entail in the old and new Member States.</p>		<p>resources devoted to axis 2 should contribute to three EU-level priority areas: biodiversity and the preservation and development of high nature value farming and forestry systems and traditional agricultural landscapes; water; and climate change. The measures available under axis 2 should be used to integrate these environmental objectives and contribute to the implementation of the agricultural and forestry Natura 2000 network, to the Göteborg commitment to reverse biodiversity decline by 2010, to the objectives laid down in Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy (1), and to the Kyoto Protocol targets for climate change mitigation. This could include measures to address IAS where they are compromising the chances of halting loss of biodiversity by 2010.</p>		<p>provides financial support for implementation of the GPs, but does not provide specific legal/policy framework.</p>	<p>provides financial support for the Strategy, but does not provide a specific legal/policy framework.</p>		
26	<p>Proposal for a Regulation of the European Parliament and of the Council concerning the Financial Instrument for the Environment (LIFE+)</p> <p>http://register.consilium.eu.int/pdf/en/05/st14/st14785-ad01.en05.pdf</p>	<p>The Regulation will establish the financial instrument for the environment ("LIFE+"). The general objective of LIFE+ shall be to contribute to the implementation, updating and development of Community environmental policy and legislation, including the integration of the environment into other policies, thereby contributing to sustainable development. In particular, LIFE+ shall support the implementation of the 6th EAP, including the thematic strategies, and finance measures and projects with European added value in Member States.</p>	<p>No specific reference.</p>	<p>IAS are within the scope of the fund. Annex I contains measures that can be eligible for funding if they satisfy the criteria in Articles 3(2) and (3) in relation to added value. The list of measures includes: capacity building; networking; information and communications actions; and site and species management. These measures could be applied to IAS.</p>	<p>No</p>	<p>Potentially provides financial support for implementation of the GPs, but does not provide specific legal/policy framework.</p>	<p>Potentially provides financial support for the Strategy, but does not provide a specific legal/policy framework.</p>	<p>The previous financing instrument for the environment (LIFE) was the main EU source of funding for field activities aimed at exotics (European Commission, 2004). From 1992-2002, more than 100 of the 715 projects financed through LIFE included actions to deal with IAS. The budget for implementing these projects amounted to more than €27 million.</p>	
27	<p>Proposed Regulation for a European Fisheries Fund. (Version as at 3 June 2005).</p>	<p>This proposed Regulation will establish a European Fisheries Fund and defines the framework for Community support for the sustainable development of the fisheries sector, fisheries areas, and inland fishing.</p>	<p>No specific reference. However, Article 28 provides that the Fund shall support investments in aquaculture that contribute to 'diversification towards new species'.</p>	<p>IAS could be within the scope of the fund, both in terms of the potential for aquaculture species to become IAS, and for the Fund to be used through Article 35 to support measures to protect and develop aquatic fauna and flora, which may include measures to deal with IAS.</p>	<p>No (but in practice most relevant to aquaculture pathways).</p>	<p>Potentially provides financial support for implementation of the GPs, but does not provide specific legal/policy framework.</p>	<p>Potentially provides financial support for the Strategy, but does not provide a specific legal/policy framework.</p>	<p>No information on the use of the former Fisheries Fund (FIFG) for IAS was found.</p>	
28	<p>Proposal for a Regulation of the European Parliament and of the Council on the European Regional Development Fund, COM(2004) 495</p>	<p>The ERDF shall contribute to the financing of assistance towards the reinforcement of economic, social and territorial cohesion by reducing regional disparities and supporting the structural development and adjustment of regional</p>	<p>No specific reference.</p>	<p>IAS could be within the scope of the fund. The Regulation provides that funds can be used for environment and risk prevention, and specifically: stimulating investment for the rehabilitation of contaminated sites</p>	<p>No</p>	<p>Potentially provides financial support for implementation of the GPs, but does not provide</p>	<p>Potentially provides financial support for the Strategy, but does not provide a specific</p>	<p>No information on the use of the former ERDF in relation to IAS was found.</p>	

	Instrument	Main purpose	Mentions IAS?	Could IAS be within scope?	Deals with specific IAS pathway/ vector?	Consistent with CBD Guiding Principles?	Consistent with provisions of European Strategy for IAS?	Evidence as to application/effectiveness?	Overseas territories (application)
	final (Commission proposal) http://europa.eu.int/eur-lex/en/com/pdf/2004/com2004_0495en01.pdf	economies, including the conversion of declining industrial regions. In so doing, the ERDF shall give effect to the priorities of the Community, and in particular the need to strengthen competitiveness and innovation, to create sustainable jobs, and to promote environmentally sound growth.		and land, and promoting the development of infrastructure linked to biodiversity and Natura 2000 contributing to sustainable economic development and diversification of rural areas. If removal or control of IAS fits within this description, possibly complemented with restoration measures involving native species, support under the fund would be possible. The Regulation also discusses 'natural and technological risks' in several places, which could include risks related to the release of IAS, though this is not specifically mentioned.		specific legal/policy framework.	legal/policy framework.		
29	Proposal for a Council Regulation establishing a Cohesion Fund, COM(2004) 494 final http://europa.eu.int/eur-lex/lex/LexUriServ/site/en/com/2004/com2004_0494en01.pdf	The proposed Regulation will establish a Cohesion Fund for the purpose of strengthening the economic, social and territorial cohesion of the Community in the interests of promoting sustainable development.	No specific reference.	Dealing with IAS could be within the scope of the fund, but only where linked to other major projects that contribute to the aims of the fund.	No	Potentially provides financial support for implementation of the GPs, but does not provide specific legal/policy framework.	Potentially provides financial support for the Strategy, but does not provide a specific legal/policy framework.	No information on the use of the former Cohesion Fund in relation to IAS was found.	
Marine & Fisheries/Aquaculture									
30	Proposed Marine Strategy Directive From Commission proposal at: http://europa.eu.int/com/environment/water/marine/dir_505_en.pdf	This Directive establishes a framework for the development of Marine Strategies designed to achieve good environmental status in the marine environment [by the year 2021 at the latest], and to ensure the continued protection and preservation of that environment and the prevention of deterioration. "Environmental status" means the overall state of the environment in marine waters, taking into account the structure, function and processes of the constituent marine ecosystems together with natural physiographic, geographic and climatic factors, as well as physical and chemical conditions including those resulting from human activities in the area concerned.	Yes. Introduction of non-native species and translocations are included in Annex II, Table 2 as pressures and impacts on the marine environment.	Yes, IAS are clearly within the scope of the proposed Directive. MS will have to make an initial assessment of the environmental status of their European marine waters, and this will include an assessment of the pressures included in Annex II, including introduction of non-native species. MS will then have to identify measures which must be taken to achieve good environmental status. These could include control or eradication of IAS.	No	Supports GP 3 (ecosystem approach); if information on IAS is recorded and shared by MS, could support GP 8 (exchange of information); supports GPs 12, 13, 14, 15 (where MS take actions to prevent deterioration of ecological status).	Could assist in Part 2 (collecting managing and sharing information) in relation to aquatic IAS. If MSD requirements are incorporated into broader environmental policy at MS level, may contribute to Part 3 (strengthening national policy, legal and institutional framework). Networks formed in relation to MSD could also facilitate regional cooperation (Part 4). Control and eradication actions taken to improve or avoid deterioration in the ecological	N/A	

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							status of water bodies could assist in meeting Parts 5 and 7 (prevention and mitigation of impact). Actions taken under MSD could also contribute to Part 8 (restoration of native biodiversity).		
31	Proposed Council Regulation regarding use of alien and locally absent species in aquaculture (version as at January 2006, received from DG-Fish)	The Regulation will establish a framework governing aquaculture practices in relation to alien and locally absent species to assess and minimise the possible impact of these on the aquatic environment and in this manner contribute to the sustainable development of the sector.	Yes. The proposed Regulation specifically refers to alien and locally absent species.	IAS are clearly within the scope of the Regulation: in fact, they are its focus. The proposed Regulation applies only to aquaculture facilities. It does not apply to all translocations within MS, only those between ecoregions, to/from/between non-European territories of MS, or those where there are grounds for foreseeing environmental threats due to the translocation. MS may decide to apply the Regulation to all translocations if desired.	Yes, aquaculture.	The draft Regulation appears to strongly support the Guiding Principles but is limited in its application to aquaculture organisms.	The Directive supports the European Strategy, but as with the Guiding Principles, its application is limited to those areas related to aquaculture organisms.	N/A	The proposal specifically refers to transfers 'to, from or between the non-European territories of a Member State'.
32	Marine Thematic Strategy COM(2005)504 final	The Thematic Strategy for the protection and conservation of the marine environment aims to "promote sustainable use of the seas and conserve marine ecosystems". While the Strategy is primarily focused on the protection of the regional seas bordered by EU countries, it also takes into account the international dimension in recognition of the importance of reducing the EU's footprint in marine areas in other parts of the world, including the High Seas.	Yes. The introduction of non-native species is mentioned as one of the principal threats to the marine environment that have been identified.	Yes, IAS are clearly within the scope of the Strategy.	No	The Strategy broadly supports the GPs, but is very general.	The Strategy broadly supports the European Strategy, but at a very general level.	N/A	
33	Proposed Maritime Green Paper (draft outline 12.12.05)	Information from Draft outline only.	No specific reference.	Yes, includes issues that are the scope of the Marine Thematic Strategy, as well as considerations about global biodiversity.	Includes marine vectors/pathways such as trade and shipping.	Level of detail not available.	Level of detail not available.	N/A	
Ongoing Research									
34	Delivering Alien Invasive Species Inventories for Europe (DAISIE) Research Project. http://www.europe-alien.org/ www.daisie.se	To create an inventory of invasive species that threaten European terrestrial, fresh-water and marine environments. To structure the inventory to provide the basis for prevention and control of biological invasions through the understanding of the environmental, social, economic and other factors involved. To assess and summarise the	Yes, focus is on IAS.	Yes. DAISIE is aiming to deliver a European one-stop-shop for information on biological invasions in Europe. It will bring together the European Alien Species Expertise Registry: a directory of researchers and research; the European Alien Species Database: including all known established alien species in Europe; the European Invasive Alien Species Accounts: description of all established alien species known to be invasive in Europe; and Species	No			N/A, project is in early stages.	

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		ecological, economic and health risks and impacts of the most widespread and/or noxious invasive species in Europe. To use distribution data and the experiences of the individual Member States as a framework for considering indicators for early warning.		Distribution Maps and Spatial Analysis: Distribution maps of all invasive alien species in Europe known or suspected of having environmental or economic impacts.					
35	Assessing Large scale Risks for biodiversity with tested Methods (ALARM) Research Project. http://212.18.63.69/alarm/	To develop an integrated large scale risk assessment for biodiversity as well as terrestrial and freshwater ecosystems as a part of environmental risk assessment, and to focus on risks consequent on climate change, environmental chemicals, rates and extent of loss of pollinators and biological invasions. To establish socio-economic risk indicators related to the drivers of biodiversity pressures as a tool to support long-term oriented mitigating policies and to monitor their implementation. To provide a contribution to objective based politics, to policy integration and to derive outcome-oriented policy measures in the field of biodiversity preservation by contributing to the integrated assessment of socio-economic drivers affecting biodiversity and integrated, long-term oriented means to mitigate them.	Yes, one of the foci of the project is on IAS.	The aim of the biological invasions module is to develop and test protocols to help prevent the introduction and spread of invasive species to European ecosystems. A range of taxonomic groups will be analysed using both global and European databases. Risk analyses will look at: the pathways of invasions; the invasibility of European ecosystems; characteristics of successful invaders; environmental drivers of invasion related to climate, land cover and population density; and the testing and integration of the elements named above where traditionally, these factors have been assessed separately. The impacts that will be taken into account include impact on: the gene pool of native species; the decline of native populations; the richness and functioning of ecosystems; socio-economic pressures (such as declines in agricultural, silvicultural or fishery yields); the management of invasive species, ie what is the effort of removing an invader from a system; and the integration of the previous analyses.	No			N/A, project is in early stages.	
36	Streamlining Bio-Diversity Indicators for 2010 (SEBI-2010) Information on the project is available at http://biodiversity-chm.eea.eu.int/information/indicator/F1090245995	The project SEBI-2010 is aiming to develop indicators to support the implementation of the CBD in Europe.	Yes.	A proposed indicator has been released in relation to IAS: Trends in invasive alien species (Numbers and costs of invasive alien species). Presently data is available only for the five Nordic countries (Iceland, Denmark, Norway, Sweden and Finland). Also pre-1900 introductions will be indicated. Information will be broken down by major ecosystems (terrestrial, freshwater and marine) and selected taxonomic groups: vertebrates, invertebrates and plants (vascular plants, algae and fungi).	N/A	Yes. In particular, relevant for GP5 and GP8.	Yes, particularly Part 2.	Not yet applied.	Data from the OTs should be included, but at present it is unclear whether this will occur.
Climate change/Renewable energies									
37	White Paper for a Community Strategy and Action Plan on renewable	The European Commission's White Paper for a Community Strategy sets out a strategy to double the share of	No specific reference	Addressing IAS could fall under the general environment related provisions of the White Paper: 'The	Intentional introduction of plant species for	No direct link	No direct link	None found	Applicable

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	energy (COM(97) 599)	renewable energies in gross domestic energy consumption in the European Union by 2010		net environmental effects of different renewable energy sources will be taken into account when implementing different measures.' (Chapter 2.3.1) Also, in relation to biomass production the White Paper states the following: 'All options of species should be carefully examined with preference given to the high-yielding/low input crops, which respect biodiversity'.	biofuel production				
38	EU biomass action plan (COM (2005) 628) (proposal)	Action plan is designed to increase the use of energy from forestry, agriculture and waste materials.	No specific reference	No provisions to address IAS directly or in directly.	Intentional introduction of plant species for biofuel production	No direct link	No direct link	None found	Applicable
Forestry									
39	Council Resolution on a forestry strategy for the European Union (1999/C 56/01) (15 December 1998)EU Forest Action Plan (proposal to be presented by the Commission by mid 2006)	The aim of the Strategy is to improve the coherence between the forest policies of the Member States and forest-related activities at the EU level.	No specific reference	Addressing IAS could fall under the general biodiversity related provisions of the Strategy. The Strategy recognises that the conservation and enhancement of biodiversity in forests is essential to their sustainable management and states that appropriate measures should be integrated in the forest programmes or equivalent instruments of the Member States.	Vectors related to forestry	No direct link	No direct link	None found	n/a
Soil									
40	Upcoming Soil Thematic Strategy Not available at time of finalising report								
Development cooperation and external assistance									
41	EU Development Policy: Joint statement 'The European Consensus on Development' (2006/C 46/01) http://europa.eu.int/comm/development/body/development_policy_statement/index_en.html	The Joint Statement on Development sets out a framework of common objectives, values and principles for development co-operation within the EU. It puts poverty eradication in line with the UN Millennium Development Goals (MDGs) as the overriding objective of the EU policy.	No specific reference	Addressing IAS can fall within the general biodiversity related scope of the Joint Statement. According to the Joint Statement, the Community will support the efforts undertaken by its partner countries to incorporate environmental considerations into development, and help increase their capacity to implement multilateral environmental agreements, eg Convention on Biological Diversity. Additionally, protection of the environment must be included in the definition and implementation of all Community policies, particularly in order to promote sustainable development.	External assistance and development cooperation	No direct link	No direct link	None found	Applicable (with possible exceptions)

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42	<p>EU External Action: Thematic Programme For Environment and Sustainable Management of Natural Resources including Energy (COM(2006) 20) (proposal)</p> <p>Note: within the proposed simplified framework for the Community external assistance, the existing range of geographical and thematic instruments are to be replaced by six instruments. These instruments are also to provide the legal basis for a number of future thematic programmes with a global geographical coverage, eg the one above.</p> <p>http://europa.eu.int/eur-lex/lex/LexUriServ/site/en/com/2006/com2006_0020en01.pdf</p>	A thematic programme for the environment and sustainable management of natural resources, including energy, is proposed to address the environmental dimension of development and other external policies as well as to help promote the European Union's environmental and energy policies abroad. The thematic programme will be delivered by a set of proposed six new instruments for Community external assistance under the Financial Perspectives 2007 to 2013 (COM (2004) 626).	Role of healthy and fully functional ecosystems providing several goods and services, eg resilience against IAS, is mentioned in the context of key environment and sustainable natural resource issues which are of concern to the EU (Annex 2) .	Addressing IAS can fall within the general biodiversity related scope of the thematic programme. The thematic programme supports existing environmental initiatives such as the implementation of the Rio Conventions on climate change, biodiversity and desertification.	External assistance and development cooperation	No direct link	No direct link	None	Applicable (with possible exceptions)
43	<p>EU External Action: Regulations for the instruments for external assistance in 2007-2013:</p> <p>An instrument for Pre-Accession Assistance (COM(2004) 627) (proposal); A European Neighbourhood and Partnership instrument (COM(2004) 628) (proposal); A Development Cooperation and Economic Cooperation instrument (COM(2004) 629) (proposal); An instrument for stability (COM(2004) 630) (proposal); Council Regulation (EC) No 1257/96 concerning humanitarian aid (<i>will remain largely unchanged</i>); Regulations on Macro Financial Assistance (<i>will remain largely unchanged</i>).</p> <p>http://europa.eu.int/comm/e</p>	In the context of the Financial Regulation, these six regulations will provide the 'basic acts' for the relevant budget appropriations under Heading 4 'The EU as a Global Player' of the future Financial Perspectives.	No specific reference	<p>IAS could be addressed under the general environmental component of certain instruments:</p> <p>A European Neighbourhood and Partnership instrument: states that Community assistance shall be used to support measures which pursue one or more of the following objectives [...] promoting environmental protection and good management of natural resources [...] supporting crossborder cooperation to promote sustainable economic, social and environmental development in border regions;</p> <p>A Development Cooperation and Economic Cooperation instrument: The supported measures shall relate inter alia to [...] environmental protection.</p>	External assistance and development cooperation	No direct link	No direct link	None found	Applicable to a certain extent (ie some instruments)

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	xternal_relations/reform/intr o/index.htm								
44	Action Plan to accompany the EU Strategy on Climate Change in the Context of Development Cooperation – Action Plan 2004-2008 (adopted by the General Affairs and External Relations Council at its meeting on 22 November 2004)	Action Plan provides a tool for the EU Member States and the Commission to actively assist partner countries in their efforts to address Climate Change and implement the UNFCCC and the Kyoto Protocol.	No specific reference	The implementation of the Action Plan supports coherence/synergies with the CBD. This should cover aspects related to IAS ie assessment of risks associated with choice of potentially invasive species in afforestation projects for carbon sinks.	Intentional introduction of tree species for reforestation	Now direct link, however supports coherence/synergies with CBD.	No direct link	None found	Applicable
45	European Neighbourhood Policy (ENP) – strategy paper COM(2004)373) http://ec.europa.eu/comm/world/enp/pdf/strategy/strategy_paper_en.pdf	The ENP is designed to give new impetus to cooperation with the EU's neighbours following enlargement. The policy applies to Algeria, Armenia, Azerbaijan, Belarus, Egypt, Georgia, Israel, Jordan, Lebanon, Libya, Moldova, Morocco, the Palestinian Authority, Syria, Tunisia and Ukraine.	No specific reference	In principle, IAS could be addressed under the general environmental objective of the strategy, eg as apart of the EU-ENP cooperation activities.	Trade, external assistance and cooperation	Supports GP 9 (Cooperation, including capacity-building)	Supports 2.3. (Regional exchange of information)	None found (Strategy recently adopted)	Not applicable
46	The Cotonou Agreement between the ECP countries and the EC (signed on 23rd of June 2000) http://europa.eu.int/comm/development/body/cotonou/index_en.htm	The Cotonou Agreement is a global and exemplary agreement that creates the basis for the ACP-EU cooperation. It is based on five interdependent pillars with the underlying objective of the fight against poverty: an enhanced political dimension, increased participation, a more strategic approach to cooperation focusing on poverty reduction, new economic and trade partnerships and improved financial cooperation.	No specific reference	Addressing IAS as a cross-cutting issue within ACP cooperation could fall under the general provisions related to environment: Article 1 on objectives of the partnership; 'The principles of sustainable management of natural resources and the environment shall be applied and integrated at every level of the partnership.' Article 49 on trade and environment: 'The Parties reaffirm their commitment to promoting the development of international trade in such a way as to ensure sustainable and sound management of the environment, in accordance with the international conventions and undertakings in this area and with due regard to their respective level of development.' Areas of cooperation under the Agreement can include aspects of IAS: Article 22: Cooperation on environmental protection and sustainable utilisation and management of natural resources	Trade, external assistance and development cooperation	No direct link	No direct link	None found	Applicable

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				shall aim at [...] supporting specific measures and schemes aimed at addressing critical sustainable management issues and also relating to current and future regional and international commitments concerning mineral and natural resources such as [...]tropical forests, water resources, coastal, marine and fisheries resources, wildlife, soils, biodiversity; protection of fragile ecosystems (e.g. coral reef); renewable energy sources notably solar energy and energy efficiency; sustainable rural and urban development; desertification, drought and deforestation; developing innovative solutions to urban environmental problems; and promotion of sustainable tourism.					
47	Decision of the ACP-EC Council of Ministers on the Compendium providing policy guidelines in specific areas or sectors of cooperation (adopted in General Affairs Council meeting on 22-23 January 2001)	The compendium of texts on co-operation strategies is intended to provide detailed reference texts as regards objectives, policy orientations and operational guidelines in specific areas or sectors of co-operation, as provided for in article 20(3) of the ACP-EC Partnership Agreement. These orientations and guidelines will be developed and applied within the framework of the integrated approach for cooperation strategies as set out in the Agreement and on the basis of the provisions on development finance co-operation.	Relevant to IAS in the context of animal health: [...] cooperation should provide support for improved animal health and campaigns to control zoonoses, including, where justified, the development of infrastructure for that purpose.	IAS could be addressed under the cross-cutting environmental objective , eg on preventive approach on the basis of the precautionary principle aimed at avoiding harmful effects on the environment as a result of any programme or operation. Specific areas of cooperation under the Agreement can include aspects of IAS, for example: Co-operation in the forestry sector shall give, for example, to improving sustainability of interventions in forest conservation and management [...] support locally adapted re-afforestation and forest management activities [...].Cooperation in the fisheries sector assistance, for example, [...] for the formulation and implementation of sectoral fisheries policies that comply with the FAO Code of Conduct [...]	Trade, external assistance and development cooperation	No direct link	No direct link	None found	Applicable
48	EU Strategy for Africa: Towards a Euro-African pact to accelerate Africa's development (COM(2005) 489)	The purpose of the EU Strategy for Africa is to give the EU a comprehensive, integrated and long-term framework for its relations with the African continent. The principal objective is to promote the achievement of the UN Millennium Development Goals (MDGs) in Africa.	Yes, work on IAS mentioned as one of the areas to be supported by the EU in the context of environmentally sustainable future and conservation of biodiversity in Africa (Chapter 3.1.3.2).	Yes, IAS is one of the areas to be supported to conserve biodiversity in Africa.	Trade, external assistance and development cooperation	Supports GP 9 (Cooperation, including capacity-building)	Supports 2.3. (Regional exchange of information)	None found (Strategy recently adopted)	Applicable

	Instrument	Main purpose	Mentions IAS?	Could IAS be within scope?	Deals with specific IAS pathway/ vector?	Consistent with CBD Guiding Principles?	Consistent with provisions of European Strategy for IAS?	Evidence as to application/effectiveness?	Overseas territories (application)
49	A stronger partnership between the European Union and Latin America – strategy for the EU-Latin America partnership (COM(2005)636) http://ec.europa.eu/comm/external_relations/la/news/ip_05_1555.htm	The strategy analyses the current challenges of EU-Latin America partnership and makes practical recommendations for revitalising the partnership. The recommendations put forward in the strategy include stepping up political dialogue between the two regions, stimulating economic and commercial exchanges, encouraging regional integration, tackling inequality and tailoring its development and aid policy.	No specific reference	IAS could fall under the strategy's objective to develop effective environmental dialogues with a view to promoting sustainable development. Biodiversity and implementation of CBD is one of the focal areas mention in this context (Chapter III-3.5).	Trade, external assistance and development cooperation	Could support GP 9 (Cooperation, including capacity-building)	Could support 2.3. (Regional exchange of information)	None found (Strategy recently adopted)	Not directly applicable
50	An EU-Caribbean partnership for growth, stability and development (COM(2006) 86) http://ec.europa.eu/comm/development/body/communications/docs/communication_86_2006_en.pdf	The strategy aims to provide a foundation for the EU-Caribbean partnership. The objectives of the strategy are to create a political partnership based on shared values, address economic and environmental opportunities and vulnerabilities in the Caribbean and promote social cohesion and combating poverty.	No specific reference	IAS could be addressed under the general environmental objective of the strategy. The strategy states that 'the EU will support the current efforts of the Caribbean to engage into a proactive agenda to jointly manage structural environmental challenges such as [...] biodiversity [...]' (Chapter 4.2.)	Trade, external assistance and development cooperation	Could support GP 9 (Cooperation, including capacity-building)	Could support 2.3. (Regional exchange of information)	None found (Strategy recently adopted)	Applicable
51	Europe and Asia: A Strategic Framework for Enhanced Partnerships (COM(2001)469) http://ec.europa.eu/comm/external_relations/asia/doc/com01_469_en.pdf	The Communication established a strategic framework for EU-Asia relationships and its subregions. The core objective is to core objective of strengthening the EU's political and economic presence across the region, and raising this to a level commensurate with the growing global weight of an enlarged EU.	No specific reference	One of the objectives for EU-Asia partnership is to strengthen the joint efforts on global environmental issues. In principle, IAS could fall under this broad scope.	Trade, external assistance and development cooperation	Could support GP 9 (Cooperation, including capacity-building)	Could support 2.3. (Regional exchange of information)	None found	Not applicable
52	New partnership with South-East Asia (COM(2003)399) http://ec.europa.eu/comm/external_relations/asia/doc/com03_sea.pdf	The Communication established a strategic framework for the relationship between the EU and South-East Asia. This Communication identifies the strategic priorities for cooperation and outlines actions by which the EU's relationship with the Association of South East-Asian Nations (ASEAN) and the countries of South-East Asia could be improved.	No specific reference	IAS could be addressed under the general environmental objective of the strategy. The strategy states that the Commission will continue to support bilateral and regional natural resource conservation and natural resource management projects and programmes, eg on biodiversity.	Trade, external assistance and development cooperation	Could support GP 9 (Cooperation, including capacity-building)	Could support 2.3. (Regional exchange of information)	None found	Not applicable
Trade									
54	Sustainability Impact Assessment (SIA) As based on the Commission's Communication on Impact Assessment (COM (2002) 276) and guided by SIA Methodology Handbook http://europa.eu.int/comm/trade/issues/global/sia/faqs.htm	Sustainability Impact Assessment (SIA) is a process undertaken during a trade negotiation which seeks to identify economic, social and environmental impacts of a trade agreement. The purpose of an SIA is to integrate sustainability into trade policy by informing negotiators of the possible social, environmental and economic consequences of a trade agreement. An SIA should also provide guidelines for the design of possible accompanying policy measures. Such measures may go beyond the field of trade as such, and may have implications for internal policy, capacity building or international	No specific reference	Issues related to IAS could be considered as a part of the SIA environment/biodiversity related dimensions. According to the SIA Handbook, a detailed assessment of the impacts of a trade agreement on the three pillars of sustainable development can be undertaken if the preliminary overview on potential negative and positive impacts of outcome scenarios so suggests. This detailed assessment can include biodiversity related aspects (namely ecosystem, protected areas and species related	Trade and transport of goods	Consistent with GP1, and also with GP10.	Particularly supports 5.3.2 (unintentional introductions). Could support 3.4.2 if criteria on IAS were incorporated into assessment.	None in relation to IAS found	n/a

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		<p>regulation. Accompanying measures are intended to maximise the positive impacts of the trade negotiations in question, and to reduce any negative impacts.</p> <p>The initial work on methodology was applied to the WTO Doha Development Round negotiations. Then the methodology was refined and applied to other negotiations, eg bilaterals with Chile, multilaterals with Mercosur, African Caribbean Pacific countries, and the Gulf Cooperation Council countries). In addition, SIAs for China and Ukraine will also be launched in 2006.</p>		objectives). If needed, it might be possible to address IAS as a part of this framework.					
Overseas Countries and Territories (OCTs)									
55	Council Decision of 27 November 2001 on the association of the overseas countries and territories with the European Community ('Overseas Association Decision') (2001/822/EC)	The Decision sets the basis for the association of the OCTs with the Community basing on the purpose set out in Article 182 of the Treaty, namely to promote the economic and social development of the OCTs and to establish close economic relations between them and the Community as a whole. It shall pursue the objectives laid down in Article 183 of the Treaty in accordance with the principles set out in Articles 184 to 188 of the Treaty by focusing on the reduction, prevention and, eventually, eradication of poverty and on sustainable development and gradual integration into the regional and world economies.	No specific reference	Yes. The Decision states that the Community shall cooperate with the OCTs in the conservation, sustainable use and management of their biological diversity taking into account the Community Action Plan on biological diversity. Addressing IAS can fall within the general biodiversity related scope included in the Decision, eg supporting the implementation of CBD and the elaboration, updating and implementation of national biodiversity strategies and action plans.	external assistance and development cooperation	No direct link	No direct link	None found	Applicable
56	Commission Regulation on implementing Council Decision 2001/822/EC on the association of the overseas countries and territories with the European Community ('Overseas Association Decision') (No 2304/2002/EC)	The Regulation lays down the procedures for the programming, implementation and control of the Community financial assistance to the OCT managed by the Commission under the This Regulation lays down the procedures for the programming, implementation and control of the Community financial assistance to the OCT managed by the Commission under the Ninth European Development Fund (EDF) covering the period 2003–2007, in accordance with the provisions of the Overseas Association Decision and the EDF Financial Regulation (EDF).	No specific reference	<p>No provisions to address IAS directly or in directly.</p> <p>However, the Regulation states that the Commission shall appraise the proposal for the OCT Single Programming Documents (SPD) to determine whether it contains all the elements required and is consistent with the aims of the Overseas Association Decision, this Regulation and the relevant Community policies.</p>	external assistance and development cooperation	No direct link	No direct link	None found	Applicable