

**Global Biodiversity Sub-Committee (GBSC)**

Thematic Report

**Invasive Alien Species: Priorities for  
International Research**

August 2006  
(with amendments January 2008)

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# **Invasive alien species: priorities for international research**

## **1. Background**

- 1.1 The GECC-GBSC meeting on 16 May 2006 discussed issues associated with invasive alien species (IAS), stimulated by a presentation from Sean Murphy of CABI Bioscience. Several potential research themes were identified, but it was recognised that further consideration was needed to identify priorities and guide future funding decisions.
- 1.2 This paper builds on the discussions at the May meeting and proposes a small number of international IAS issues that would benefit from UK-funded research.

## **2. The international context**

- 2.1 Ecological issues associated with IAS receive a substantial amount of attention from international bodies and conventions.
- 2.2 The Convention on Biological Diversity has identified IAS as a cross-cutting issue<sup>1</sup>, and as one of the biggest threats to biodiversity world-wide. Fifteen guiding principles for the prevention, introduction and mitigation of the impacts of invasive alien species were agreed at the 6<sup>th</sup> Conference of Parties in 2002. IAS will be considered in depth at the 9<sup>th</sup> Conference of Parties in 2008.
- 2.3 Other international conventions also have programmes of work concerned with IAS, e.g. the Ramsar Convention, the International Plant Protection Convention and the International Convention for the Control and Management of Ships' Ballast Water and Sediments.
- 2.4 The Millennium Ecosystem Assessment<sup>2</sup> (MA) treated IAS as one of five direct drivers of biodiversity loss. Over the last century, the impact of IAS was assessed as being very high in island ecosystems, and high in coastal, inland water and Mediterranean dryland ecosystems. Rapidly increasing impacts were predicted in several other ecosystems.
- 2.5 The Global Invasive Species Programme (GISP)<sup>3</sup> is an international partnership whose mission is to 'conserve biodiversity and sustain human livelihoods by minimising the spread and impact of invasive alien species'. It has responsibility for co-ordinating the implementation of the Global Strategy on Invasive Alien Species.

## **3. The European context**

- 3.1 In the EU, IAS were identified as a priority for action in the 6<sup>th</sup> Environmental Action Programme. One of the principal objectives in the recently published Biodiversity Communication is to 'substantially reduce the impact on EU biodiversity of IAS', and specific associated actions are identified, including the development of an EU-wide

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<sup>1</sup> <http://www.biodiv.org/programmes/cross-cutting/alien/default.shtml>

<sup>2</sup> <http://www.maweb.org/en/index.aspx>

<sup>3</sup> <http://www.gisp.org/index.asp>

strategy. Under the Streamlining European Biodiversity Indicators for 2010 initiative (SEBI 2010), Expert Group 5 is preparing a suite of indicators to assess the impacts of IAS on biodiversity in the years up to 2010. While recognising the role and value of EU-wide co-ordination, we should also recognise that the UK, as an offshore island of the European continent, may have some different priorities to those of the member states on the main European land mass.

#### **4. Principles**

4.1 The following principles are proposed to guide the identification of international IAS research priorities for the UK:

- i. research should support existing IAS initiatives (summarised above);
- ii. research should address the ecosystems most affected by IAS, as identified by the Millennium Ecosystem Assessment, and the species most affected by IAS as identified by IUCN red-listing and local review;
- iii. funding should be focused on areas where the UK can make a significant difference to its IAS work and responsibilities, and add significant value to what other countries are doing;
- iv. research should include take account of capacity building needs and should build any such needs into programmes where relevant;
- v. research should consider links between the environmental, social and economic issues associated with IAS.

#### **5. Priorities**

5.1 Based on these principles, six research priorities have been identified. These are identified below but are not ranked in priority order.

5.2 *Research to support IAS initiatives in islands, especially the UK's Overseas Territories (and Crown Dependencies).* Islands have a very rich biodiversity, with a high degree of endemism, some components of which are severely threatened by IAS. The MA identified IAS as the most significant driver of biodiversity loss for island ecosystems.. A desk-study audit of IAS in the Overseas Territories has recently been completed (JNCC Report 372), although there are some gaps in information that still need to be filled. It is proposed that research should now focus on undertaking risk assessments; developing effective control and eradication measures; characterising pathways and vectors for the introduction of IAS; and assessing the economic costs of IAS. Such work may be best undertaken collaboratively (for example, with other EC Member States with overseas countries and territories) because the results are likely to be applicable to many other small islands where IAS are a problem.

5.3 *Research into the links between IAS and poverty.* Globally, the impacts of IAS are often felt disproportionately by poor people as they prevent people from benefiting from the full range of goods and services provided by local ecosystems, e.g. by preventing sustainable land and the management and harvesting of native species.

This is often most acute in small island communities who tend to be very dependent upon local biodiversity goods and services. As well as adversely affecting biodiversity, IAS are, therefore, hindering achievement of the Millennium Development Goals.

- 5.4 *Research into global trade patterns and IAS.* Globalisation and the increase in international trade have been major factors contributing to the spread of IAS. Research into changing trade patterns and the implications for IAS would therefore be very valuable. The priority should be to identify mechanisms for preventing the establishment of IAS in new areas as a result of new and changing trade and transport patterns. It would be appropriate to focus on trade patterns in which the UK is a key player, with the aim of reducing the UK's global footprint.
- 5.5 *Long-term projections of the impacts of IAS.* It would be very useful to have long-term forecasts of the spread of IAS, their impact on biodiversity and associated social and economic costs, taking into account climate change, human migration, trade and other global drivers of change. To make this manageable, work would have to be focused on specific, high-risk geographical areas and/or species. Scenario building provides one possible approach.
- 5.6 *Research into invasive plant/animal pathogens.* As discussions at the May GECC-GBSC meeting revealed, very little is known about the impacts of invasive alien pathogens on animals and plants, except where crops or livestock are affected. However, it is clear that the impacts on biodiversity are potentially huge. Initial priorities for research should be audit, risk assessment and developing mechanisms for prevention and control.
- 5.7 *Research into safe and effective biological control methods for IAS.* It is becoming increasingly clear that the control of many IAS will be ineffective if it relies solely on physical methods of control. There are many examples of past biological control attempts causing further and greater problems than the original species which was to be the subject of control, and many authorities and scientists are therefore nervous of such approaches. However, the development of safe and effective biological control methods, and of effective means of testing these methods, is a critical area of research for future application of IAS controls.

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