



The mission of the European Platform for Biodiversity Research Strategy (EPBRS) is to ensure that research contributes to halting the loss of biodiversity by 2010.

Recommendations of the meeting of the European Platform for Biodiversity Research Strategy

held under the French presidency of the EU
Montpellier, France 4th - 6th December 2000

concerning **THE BIOLOGY OF INVASIONS**

"I have not failed. I've just found 10,000 ways that won't work."

THOMAS ALVA EDISON

To gain knowledge necessary to halt biodiversity loss by 2010, the participants of this meeting agreed that the following research action points have high priority:

1. Develop methods and techniques to recognise and characterise organisms that may be invasive and ecosystems that may be particularly vulnerable to invasion; and develop predictions of invasive behaviour and ecosystem vulnerability to invasion.
2. Improve monitoring methodology to detect potentially problematic invasive organisms early; to track invasions; and to evaluate their ecological and socio-economic impacts, and, where appropriate, to control them.
3. Develop multi-disciplinary scientific support for appropriate policy on prevention, management for control, and legislation, public awareness and information.

The participants further agreed that:

- In some circumstances, the advantage given to GMOs by virtue of resistance to ecological constraints may encourage invasive behaviour in the organism itself or in organisms that acquire the genetically modified trait.

The participants decided that the following issue has high priority for Europe:

4. Develop methods to predict and prevent invasive behaviour of GMOs released into the environment.

To develop high quality and policy relevant research on these priority areas, particular attention should be paid to the following considerations:

- research on invasives is more likely to be effective if it is inter-disciplinary, bringing in both natural and social scientists, and if it involves international collaboration between researchers both in and beyond Europe;
- legislation to control problematic invasion must be based on a correct balance between the needs of trade on the one hand, and on the other, prevention, the precautionary principle, and the support of sound scientific understanding of the mechanisms of invasions, including biology, vectors and socio-economic drivers, and of procedures of impact assessment;

- campaigns to counter problematic invasions must engage the information and participation of stakeholders, and encourage both public education and appropriate changes to the attitudes of society.

The above research priorities stemmed in particular from the following considerations:

- many thousands of non-native terrestrial, aquatic and marine organisms have been deliberately introduced or unintentionally brought to Europe;
- many non-native organisms have established themselves, and a few of them have become problematic invasives;
- problematic invasive organisms modify native populations, communities and ecosystems, may make it difficult to conserve native ecosystems, may interfere with human activities and uses of land, water or marine resources, and may provoke health problems;
- the financial cost of problematic biological invasions is often high, originating both from direct economic damage and from the cost of control activities;
- efforts to control problematic invasive organisms are typically difficult, costly and not always successful;
- the most cost-effective method of combating problematic invasion is prevention, and failing that, intervention early in the establishment and range extension of the organism;
- many international agreements point out the importance of the fight against problematic invasive organisms, and there is a considerable body of knowledge and experience concerning invasions;
- the factors favouring an invasion are often regional or global, although the most acute impact of problematic invasions may be felt locally rather than nationally or internationally;
- island ecosystems, and other ecosystems that are historically or geographically isolated, are particularly susceptible to damage from problematic invasion;
- the free movement of people and goods in the internal market favours the movement of potentially invasive organisms, and the expansion of the EU will add many new biological provinces to and from which organisms will be transferred;
- this increase in movement will increase the number and frequency of introductions, thereby increasing the probability of establishment of exotic organisms;
- problematic invasive organisms can only be controlled effectively and efficiently if action is based on a comprehensive knowledge of the ecology of the organism and the ecosystem or biotope concerned;
- the biology of invasions is poorly understood in general, and research is needed in most aspects of invasion.