

# How much is Europe spending on invasive alien species?

Riccardo Scalera

Received: 13 May 2008 / Accepted: 21 January 2009 / Published online: 4 February 2009  
© Springer Science+Business Media B.V. 2009

**Abstract** Over the last 15 years, despite the lack of a specific strategy or a dedicated financial instrument to deal with invasive alien species (IAS), the European Commission (EC) has contributed to financing almost 300 projects addressing this issue, for a total budget exceeding 132 million EUR. Such figures are based on projects funded under two specific EU financial tools: LIFE and the RTD Framework Programmes. The contribution of the two programmes has been characterised by an overall positive trend over the years, in terms of both the number of projects and the budget spent. Such trend can be assumed to reflect an overall increase in both the awareness of the problem among wildlife managers and scientific institutions, and the willingness to pay by the EC institutions and the EU citizens in general. Such data might contribute to the development of a response indicator measuring ‘Trends in invasive alien species in Europe’, useful to assess progress toward the target of halting the loss of biodiversity by 2010—as a part of the SEBI 2010 process. The results may also contribute to assess the economic impact of IAS in Europe—in terms of costs for reduction and/or prevention of damages—and to support policy decisions and communication campaigns. Finally, the results are encouraging and support the need for the development and the

implementation of a sound EU strategy on IAS, so as to regulate and optimise the administration of the available financial resources—whenever appropriate—on the basis of specific priorities.

**Keywords** EU · Funding · Alien · Species · Research · Management · LIFE · RTD FP · IAS · European Commission · Indicators · Eradication · Control · Prevention

## Background

Invasive alien species (IAS) are currently among the most urgent nature conservation issues to be faced in the European Union (EU) and many important steps are being undertaken to develop an adequate strategy to deal with this problem (EEA 2005; Gheorghe et al. 2007; Hulme et al. 2008). For example IAS are among the priorities of the Sixth Environment Action Programme of the European Community (EC) for 2002–2012, and are recognised as a key pressure on biodiversity and a priority for action by the European Commission’s Biodiversity Communication [COM (2006) 216 final]. Moreover a specific EC Communication “Towards an EU strategy on invasive species” [COM (2008) 789 final] has been issued in 2008.

The reason is that IAS are recognised as one of the greatest threats to biodiversity, which can also cause major socio-economic damage. In the past such effects have been generally underestimated, but

---

R. Scalera (✉)  
Rome, Italy  
e-mail: riccardo.scalera@alice.it

now there is general agreement that IAS require major expenditures on prevention, control and mitigation projects in order to reduce their ecological and economic impacts. Until recently, large-scale, comprehensive and well-documented economic studies were rare and mostly limited to cases where the monetary value of the impact could be calculated fairly easily (McNeely 2004; Gren 2008). However, the staggering figures published so far have stimulated growing attention toward the economic costs of biological invasions. For example, according to a study carried out on 25 species the costs of IAS in Europe amount to ca. 12 billion EUR per year (Kettunen et al. 2008). Another assessment available at the EU level showed that over 27 million EUR were spent for managing IAS through the LIFE programme from 1992 to 2002 (Scalera and Zaghi 2004). In order to get a comprehensive picture of the expenditures for projects for management and research on alien species, an extensive search was conducted on the LIFE and CORDIS databases of the EC (the only EU project databases freely available online). They allowed the collection of basic information on all projects funded through the LIFE programme and the Framework Programmes for Research and Technological Development (FPs). For each project the data collected were thus validated and enriched through direct enquiries to the relevant project managers and to the EC officers and services in charge of monitoring their implementation. In this way it was possible to get additional details such as exact scope and species targeted and budget spent specifically for measures on IAS. Data relative to other funding instruments (i.e. Structural funds, Rural funds, etc.) were collected as well, but the lack of a comprehensive database did not allow me to get exhaustive information and therefore were not considered in this work.

### Costs of EU projects on IAS

The present work aims to provide comprehensive and updated figures on the actual contribution of EU funded projects over the last 15 years to support management actions and research activities for IAS. For example, it is known that the LIFE programme has been used to deal with a wide range of measures,

as suggested by the contribution given to the implementation of the CDB guiding principles (Scalera and Zaghi 2004).

The LIFE programme (launched in 1992 and ended in 2006) was the only EU financial instrument specifically and entirely devoted to supporting environmental and nature conservation projects throughout the EU member states, as well as other countries. Although it did not specifically address the problem of IAS, many projects included measures aimed at preventing, controlling or eradicating unwanted populations—often connected with either restoration of habitats or recovery of species of EU interest, and accompanied by awareness-raising campaigns. In total, from 1992 to 2006, LIFE financed 187 IAS-related projects with a budget exceeding 44 million EUR. Among them 28 projects focused entirely on IAS, while 159 had at least one component dealing with IAS. The budgets for the two groups of projects were 28.6 million EUR and 15.4 million EUR, respectively. However, the figure relative to the last group should be considered conservative because data were available only for 102 projects (64% of the 159 projects partially aimed at IAS). On average, during the whole LIFE programming period, the EC financed 12 IAS related projects each year, for an average cost of 230,000 EUR each, which corresponds to a yearly budget of almost 3 million EUR. The country analysis highlighted that Italy, Spain and France alone had more projects than all the remaining countries (about 52% of total). Also the level of funding was uneven among countries. Spain, UK, Denmark, Italy and Belgium alone had more than 75% of the total budget spent for IAS.

It is known that the EC has funded projects addressing IAS through financial programmes other than LIFE (EC 2003; Miller et al. 2006). Among these instruments there are the FPs, which have funded IAS-related projects pertaining to a wide range of topics, often governed by various policy measures. Examples are projects related to forestry and agriculture, but also fisheries and aquaculture, plant and animal health, ballast waters, etc. The FPs are the main EU instruments for research funding (implemented since 1984) and have helped to develop a culture of scientific and technological cooperation between EU countries. Regarding IAS, under the auspices of the 4–6th FPs implemented during the period 1994–2006, the EC has funded a

total of 90 projects dealing with the issue, for a total budget of more than 88 million EUR. Of these, 70 projects focused entirely on IAS and another 20 had only part of the activities related to this issue. The respective budgets for the two groups of projects are 81.3 million EUR and 7.4 million EUR. In this case, the figures for projects partially addressing IAS should be considered conservative because they are based on a sub-set of seven projects out of 20 (35% of the total number). On average, in the period 1996–2006, the FPs financed seven IAS related projects per year, with an average cost of about 1 million EUR each. This amounted to a yearly budget of 7 million EUR. In accordance with a specific rule characterising the FPs, the EC financed only projects involving several partners from different countries, including EU member states and non-EU countries. In this regard, the analysis showed that on average each project was financed to a consortium of partners from 5.7 EU countries (ranging 1–21) and from 2.1 other countries (ranging 0–16) from all continents. The analysis shows also that each EU country was involved on average in 17.1 projects (either as coordinator or as partner), ranging from 2 to 61, with the United Kingdom, France and Germany involved in the highest number of projects. Luxembourg was the only EU country not involved in any project. The analysis of the budget breakdown for each country was not possible because this level of detail was not available.

To summarise, in total the EC funded almost 300 projects addressing the problems related to IAS in the past 15 years, for a total budget exceeding 132 million EUR. The total budget is likely to be even higher, because for a number of projects partially

aimed at IAS it was not possible to extrapolate the actual cost for IAS, and therefore such projects have not been considered in the analysis. Such data show that despite the lack of an EU strategy on alien species, resource managers and other stakeholders have been operating to adapt and to take advantage of the available EU funding resources to respond to the growing threat of IAS.

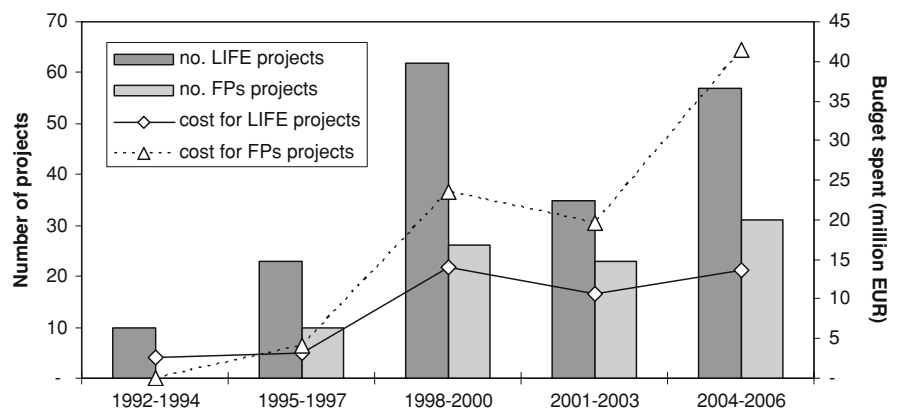
The data from LIFE and the FPs have been aggregated on a 3 year period in order to compare the trends over the years (Fig. 1). The trends for both financial tools can be interpreted in the following ways:

1. The positive trend regarding the number of projects funded over the years could indicate an increasing awareness of the problem among wildlife managers and scientific institutions, respectively.
2. The positive trend regarding the level of budget spent over the years could indicate an increasing willingness to pay by EU institutions and citizens.
3. The positive trend regarding either the number of projects funded or the level of budget spent over the years could indicate that within the EU the problem with IAS is increasing.

In each 3 year period LIFE financed more projects than the FPs, while the FPs have invested comparatively higher financial resources than LIFE. In practice, apparently the EC invested more money on research rather than on concrete management actions, to face the problems posed by IAS.

The data analysed also show that the average yearly budget spent by LIFE and the FPs has been about 10 million EUR, with a peak in the period

**Fig. 1** Number of projects and budget spent by LIFE and the FPs over the years



2004–2006 of 18.3 million EUR per year (corresponding to 55 million EUR in the 3 year period). Such figures may offer an indication of the minimum level of budget needed to face the problems linked to IAS at the EU level. In any case it is important to consider that this level is very conservative and is well below the costs of programmes for controlling the spread of IAS in other countries and regions (see McNeely 2004). Indeed the figures provided give only a partial picture of the problem because they do not consider the resources allocated through financial tools other than LIFE and the FPs. Moreover the relationship with the actual level of threat to biodiversity, as caused by IAS, will remain difficult to establish (see Mace and Baillie 2007; Born et al. 2005) and ex post evaluations of the project results are not available, so it is not possible to investigate their actual contribution to face the threat.

### Toward an indicator on costs for IAS

Since the costs for measures planned or undertaken to face the IAS threat—which are directly related to the relative level of damage costs—can be considered a factor to calculate the monetary value of their socio-economic impact (Reaser et al. 2007; Gren 2008), the present study might contribute to the development of a response indicator expressed by the measures of the budget spent for management and research activities for IAS. Indeed the need to collect and analyse comprehensive information on the issue of EU funding for IAS was emphasised within the SEBI 2010 project (see also McKenzie 2007, Unpublished) which already developed some indicators on alien species (EEA 2007). Therefore the development of such an indicator complies with the priorities set by both the convention on biological diversity (CBD) and the EU (Hulme et al. 2008), which are developing specific indicators focusing on IAS for assessing progress towards the target of halting the loss of biodiversity by 2010 (McGeoch et al. 2006; Mace and Baillie 2007).

An important effect of indicators is that since they reflect trends in the state of the environment and monitor the progress made in achieving environmental policy targets, they have become indispensable to policy-makers (Smeets and Weterings 1999).

Furthermore, economic analyses can engage the public in ways that information on ecological impacts does not, because the financial costs are something that people can understand more easily. Thus, an indicator on costs for IAS may be used as a tool to raise awareness on the issue and to strengthen public support for policy measures (Smeets and Weterings 1999) and for allocating funds to prevention and control programmes as well as research activities (see also McKenzie 2007).

However, it should be recognised that such funds have been allocated to projects dealing with IAS almost exclusively on the basis of ‘occasional’, ‘casual’ initiatives principally due to the requests of proponents/beneficiaries, without the support of any comprehensive strategy or dedicated financial programme. Therefore, although the conclusions of the present report can be considered quite encouraging, they strongly emphasise the need for the development and the implementation of a sound EU strategy on IAS, so as to regulate and optimise the administration of the available financial resources—whenever appropriate—on the basis of specific priorities specific priorities (see Genovesi and Shine 2004).

Meanwhile, for the programming period 2007–2013, the Community funding for nature conservation has been significantly revised. Apparently, new provisions opened up the possibility of making much more finance available for nature projects, thus creating new potential opportunities for the management and study of IAS (Miller et al. 2006; Miller and Kettunen 2007) as those offered by the new LIFE + Regulation and the 7th FP.

**Acknowledgments** I am very grateful to T.-B. Larsson for his valuable support. Moreover I wish to express my gratitude to many friends and colleagues of various Directorates General of the EC (Environment, Research, Agri, Fisheries and Development, plus the EuropeAid Cooperation Office) and the ETC./BD. In particular, I wish to thank P. Owen, J. Capitaio and all the staff from the LIFE Unit and Astrale G.E.I.E. I am also indebted to A. Arabatzis, from DG Research, and a long list of project beneficiaries who provided plenty of information on budget and activities. Finally, other friends and colleagues provided information and support. Among them I would like to thank M. J. Adams, P. Genovesi, P. Landolfi, K. Zaunberger, T. Foersch, B. Bacigalupi and M. Cipriani. The present work has been realised thanks to a grant of 9,600 EUR from the European Environment Agency within the SEBI2010 project. The opinions expressed in this paper do not represent the Agency’s official position.

## References

- Born W, Rauschmayer F, Brauer I (2005) Economic evaluation of biological invasions—a survey. *Ecol Econ* 55(3):321–336
- EC (2003) Thematic report on alien invasive species. Second report of the European Community to the conference of the parties of the Convention on Biological Diversity
- EEA (2005) The European environment. State and outlook 2005. European Environment Agency, Copenhagen, p 576
- EEA (2007) Halting the loss of biodiversity by 2010: proposal for a first set of indicators to monitor progress in Europe. EEA technical report No 11/2007. European Environmental Agency—EEA, Copenhagen
- Genovesi P, Shine C (2004) European strategy on invasive alien species. *Nature and environment*, n. 137. Council of Europe publishing, Strasbourg (67)
- Gheorghe A, Stanners D, Henrichs T, Kristensen P (eds) (2007) Europe's environment: the fourth assessment. European Environment Agency, Copenhagen, p 452
- Gren I-M (2008) Economics of alien invasive species management—choices of targets and policies. *Boreal Environ Res* 13:17–32
- Hulme PE, Roy DB, Cunha T, Larsson T-B (2008) A pan-European inventory of alien species: rationale, implementation and implications for managing biological invasions. In: DAISIE (ed) *The handbook of European alien species*. Springer, Dordrecht
- Kettunen M, Genovesi P, Gollasch S, Pagad S, Starfinger U, ten Brink P, Shine C (2008) Technical support to EU strategy on invasive species (IS)—assessment of the impacts of IS in Europe and the EU (Final module report for the European Commission). Institute for European Environmental Policy (IEEP), Brussels (40pp.+Annexes., May 2008 (DG ENV contract))
- Mace GM, Baillie JEM (2007) The 2010 biodiversity indicators: challenges for science and policy. *Conserv Biol* 21(6):1406–1413
- McGeoch MA, Chown SL, Kalwij JM (2006) A global indicator for biological invasion. *Conserv Biol* 20:1635–1646. doi:[10.1111/j.1523-1739.2006.00579.x](https://doi.org/10.1111/j.1523-1739.2006.00579.x)
- McNeely JA (2004) Control of the spread of invasive species as a global public good. Background paper prepared for the book project “The new public finance: responding to global challenges”. UNDP, New York, 17 p
- Miller C, Kettunen M (2007) Financing natura 2000: guidance handbook. European Commission—General Directorate for the Environment, Bruxelles
- Miller C, Kettunen M, Shine C (2006) Scope options for EU action on invasive alien species (IAS) Final report to the European Commission. Institute for European Environmental Policy (IEEP), Brussels (109pp+Annexes)
- Reaser JK, Meyerson LA, Cronk Q, de Poorter M, Eldredge LG, Green E, Kairo M, Latasi P, Mack RN, Mauremootoo J, O'Dowd D, Orapa W, Sastroutomo S, Saunders A, Shine C, Thrainsson S, Vaiutu L (2007) Ecological and socio-economic impacts of invasive alien species in island ecosystems. *Environ Conserv* 34(2):1–14. doi:[10.1017/S0376892907003815](https://doi.org/10.1017/S0376892907003815)
- Scalera R, Zaghi D (2004) Alien species and nature conservation in the EU: the role of the LIFE program. European Commission, Office for Official Publications of the European Communities, 56 p
- Smeets E, Weterings R (1999) Environmental indicators: typology and overviews. EEA technical report No 25/1999. European Environmental Agency—EEA, Copenhagen