

Social science in risk analysis: a case study from invasion science

Main author: Eugenio Gervasini (European Commission - Joint Research centre)

Co-authors: Karolina Czechowska, Chiara Magliozzi, Ana Cristina Cardoso, Celia Lopez Canizares, Angela Guimaraes Pereira, Paulo Rosa

INTRODUCTION

The past decade showed increasing interactions between social sciences and invasion biology. People's lives are affected by invasive alien species (IAS), but citizens also play a key role in introducing and spreading IAS, and in increasing the vulnerability of habitats to biological invasions.

Several studies observed that aspects such as 'ecological conditions', 'values and beliefs' and 'impacts and benefits' influence whether and in what way the social dimension is incorporated into prevention and management of IAS. However, the links between these aspects and risk analysis should be better and simultaneously investigated, in order to highlight challenges and possibilities for a relationship between social science and invasion biology, aiming at the adoption of the best policy and effective management options.

METHODOLOGY

A systematic literature review was carried out on risk analysis in invasion science, focusing on risk assessment, management and communication and how these interconnect with social, political and economic dimensions. The analysis was performed with an eye for relevant information on specific IAS, taxonomy groups, affected environments and stakeholders/citizens, and investigating ways in which the social component is embedded in the risk analysis.

Moreover, specific aspects of innovative communication in risk communication were evaluated by selecting the European Alien Species Information Network (EASIN) case study, including Citizen Science, citizens' engagement (i.e. 'the Invasive Alien Species Europe App'), and citizens' education through the 'Have you seen an Alien' online training course.

RESULTS

Risk assessment and risk management benefit from addressing the economic, social, health and environmental dimensions of biological invasions. The degree of success in assessing the risk and identifying its acceptable range depends very much on the possibility of

involving and consulting relevant stakeholders and communicating the level of uncertainty regarding the data and information on IAS. Both risk assessment and risk management seek to incorporate in their evaluation processes a wider range of expertise and local knowledge in the form of Citizen Science, following a participatory approach. To this end, risk communication benefits from public engagement to shape perceptions of management actions and thereby increase their effectiveness. But it also requires promoting awareness and education using ad hoc media programmes on IAS.

DISCUSSION

The outcomes of our review suggest a growing recognition of the value of integrating social values across different steps of risk analysis on IAS. Challenges include i) working across cultural differences, ii) working at multiple spatial scales (e.g. local or regional scale), and iii) policy and conservation agendas. Invasion science has never been solely about invasive species but includes many social facets that can be tackled with strategies of incorporation and integration.