

Invasive alien species in aquatic environments

Practical information and management insights

Vol. 1

Practical information

Emmanuelle Sarat, Emilie Mazaubert,
Alain Dutartre, Nicolas Poulet
and Yohann Soubeyran (editors)





We wish to salute two colleagues who passed away in 2013, two valiant defenders of biodiversity whose work and research on biological invasions continues to help us to progress to this day.

Robert Barbault, a great promoter of convergence among disciplines involving biodiversity and the highly productive president of the scientific council for the INVABIO research programme, who was one of the initiators of this book. *"...If we could accept to think differently, i.e. look at the world in ecological terms, the hope of reconciling humans with nature might cease to appear utopian."*

Michel Pascal, tireless traveller and unconventional researcher, nicknamed Ratator thanks to his innumerable island forays to attack ravenous alien rodent populations, even though they had never done him any particular harm. *"I am criticised as a jack of all trades. But that is precisely what I want to be, with a very broad knowledge base in order to better understand this world we live in."*



It was in this context that the national Biological invasions in aquatic environments (IBMA) work group was created. Since 2009, the group has brought together over 40 people representing an array of stakeholders (managers of natural areas, researchers, associations, public organisations, State services and local governments) to set up and run various projects. Intended primarily for managers, the objective of the projects is to contribute, to date in continental France, to the development of information networks on all the issues raised by invasive alien species in aquatic environments, notably by making available the knowledge gained on these species. The IBMA internet site is an effective means of disseminating information. Management of the work group, initially assumed by a partnership between Onema and Cemagref (now Irstea), shifted to Onema and the IUCN French committee in January 2014.

The IUCN French committee has two main projects concerning invasive alien species, the first was launched in 2005 in the French overseas territories and the second consists of managing the IBMA work group with Onema. The committee also acts as a liaison with the IUCN on the international level and is in close contact with its Invasive species specialist group (ISSG) that provides data to assist in formulating the major international agreements.

Work at Onema on invasive alien species takes place on two levels, the first being financial and technical support for research projects to develop operational knowledge for IAS management. An example is the programme for the Louisiana crayfish in a partnership with INRA, CNRS and the Brière regional nature park, which resulted in the first national symposium on invasive crayfish and in publications presenting background information. On the second level, Onema provides its know-how to State services and to the Ecology ministry on issues concerning regulations and the management of invasive alien species, examples being Wels catfish, Asian carp and crayfish.

The objective of these two volumes in the Knowledge for action series, based on the work of the IBMA work group in conjunction with almost 100 contributors, is to contribute to the debates on how to manage IASs, to provide a general outline on current knowledge (volume 1) and a number of specific examples (volume 2) to assist managers of aquatic environments and policy makers in their respective tasks to better manage these species.

We hope that these volumes will be of use to the full range of stakeholders dealing with IASs, including managers of natural areas, the coordinators of territorial groups and policy makers. We further hope that they will contribute to raising awareness of the issues involved in managing invasive alien species in aquatic environments in France.

Sébastien Moncorps

Director of the IUCN French committee

Philippe Dupont

Research and development department, Onema

Brief outline

Invasive alien species (IAS) and their impacts represent a growing concern for the managers of natural areas. That is particularly true for aquatic environments where an array of stakeholders are now taking action. In parallel, public policies are coming into play on the national level and the European Union recently adopted a new regulation in this field.

What is the status of current knowledge on biological invasions? What is the applicable legal framework and what recommendations should be made?

In the field, which species are managers attempting to address? Which techniques are used, where and how, and what are the objectives and the results achieved?

These two volumes of the Knowledge for action series clearly present the situation and propose a scientifically based approach to assist environmental managers in setting up management projects. Though no “cure alls” currently exist, this volume offers highly useful information while attempting to address the specific aspects of each situation, including the site, the species to be managed and the necessary technical and financial resources.

Vol. 1 Practical information

The first volume presents the current situation concerning invasive alien species in aquatic environments in continental France.

Six chapters provide a detailed outline on:

- current scientific knowledge on IASs, including definitions, colonisation processes, impacts and topics for future research;
- current legislation and regulations addressing IASs on the international, European and national levels;
- IAS strategies and action plans, including the main participants and existing projects;
- the general approach to IAS management, i.e. prerequisite knowledge, prevention, monitoring and action taken;
- IAS management, including a presentation on the overall situation for interventions, a panorama of existing techniques, the management of waste and assessments of management work;
- the existing tools available to managers, e.g. coordination of projects, lists of species, databases, platforms for information exchange and collections of feedback from management projects.

Vol. 2 Management insights

The second volume is a collection of fact sheets on invasive alien species and management projects carried out in continental France and Europe.

A total of 26 fauna and flora species are covered in 52 examples presenting management projects, drafted in conjunction with the managers.

Each sheet includes descriptive information on species identification, biology and ecology.

The project-feedback information comprises:

- the organisation managing the project;
- a description of the project site with maps;
- the problems on the site and the issues at hand;
- the intervention techniques, e.g. the selected method, each operational step, schedules, technical constraints;
- project results and budget;
- the outlook following the project;
- efforts to promote the project and its results;
- available documentation and the contact person for more information.

