

# Legal framework and regulations on invasive alien species

## 2

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The list of texts proposed in this chapter is not intended to be absolutely complete. It constitutes a panorama of the main conventions, agreements, laws and regulations concerning invasive alien species in aquatic environments applicable internationally, in Europe and in continental France.

The legal and regulatory situations presented in this chapter pertain to the texts as they existed at the time of writing (October 2014).

- 48 ■ International level
- 54 ■ European level
- 61 ■ National level
- 71 ■ Further progress required



## International level

On the international level, the preliminary work for conventions indicates growing awareness of the issues involving invasive alien species. They provide the ratifying countries with important guidelines on how to prevent introductions and to manage invasive alien species.

### Convention on biological diversity (CBD)



Convention on  
Biological Diversity

In May 1989, the United Nations Environment Programme (UNEP) set up a special work group of technical and legal experts to create an international legal document concerning the conservation and sustainable use of biological diversity.

In February 1991, the special work group became the Intergovernmental negotiation committee. The committee terminated its work on 22 May 1992 at the Nairobi conference with the adoption of the Convention on biological diversity.

Initial signing of the CBD took place on 5 June 1992 at the United Nations Conference on Environment & Development (the “Earth summit” in Rio). The convention entered into force on 29 December 1993 and was ratified by France on 1 July 1994.

The CBD proposed significant progress in regulations governing the conservation of biological diversity, the sustainable use of its components and a fair and equitable sharing of the advantages derived from the use of genetic resources (<http://www.cbd.int/convention/default.shtml>).

The CBD, in its article 8.h, stipulates that “Each Contracting Party shall, as far as possible and as appropriate...

***Prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species***”.

The Conference of the Parties (CoP), the executive arm of the CBD, directs its implementation through decisions taken during its periodic meetings. A number of these decisions concern invasive alien species:

- decision IV/1 by CoP 4 (1998) devoted a paragraph to invasive alien species representing a threat for ecosystems, habitats and species, and noted that the CoP “Decides that alien species is a cross-cutting issue for implementation of many of the themes of the Convention”;

- decision V/8 by CoP 5 (2000) concerning invasive alien species representing a threat for ecosystems, habitats and species, the CoP “Decides that alien species is a cross-cutting issue for implementation of many of the themes of the Convention” and set in Annexe I “Interim guiding principles for the prevention, introduction and mitigation of impacts of alien species” and in Annexe II, the “Outline for case studies on alien species”;

- decision VI/23 by CoP 6 (2002) included the adoption of guiding principles for the prevention, introduction and mitigation of impacts of alien species threatening ecosystems, habitats and species;
  - decision VII/13 by CoP 7 (2004), the CoP “Notes that specific gaps in the international regulatory frameworks at global, regional and national levels persist [...]” and “Requests the Subsidiary Body on Scientific, Technical and Technological Advice [SBSTTA<sup>5</sup>] to establish an ad hoc technical expert group to address gaps and inconsistencies in the international regulatory frameworks at global and regional levels [...]”;
  - decision VIII/27 by CoP 8 (2006) defined the measures by which the Parties, other governments, relevant organisations and the Executive Secretary should address identified introduction paths of invasive alien species;
  - decision IX/4 by CoP 9 (2008) proposed an in-depth examination of current work on alien species threatening ecosystems, habitats and species;
  - decision X/38 by CoP 10 (Nagoya, 2010) enabled the CoP to establish and determine the mandate of an “ad hoc technical expert group on addressing the risks associated with the introduction of alien species as pets, aquarium and terrarium species, and as live bait and live food”.
- (<http://www.cbd.int/decisions/>)



During CoP 10 in Nagoya in 2010, the Parties also adopted the **Strategic plan for biodiversity 2011-2020**, which set approximately 20 objectives (Aichi targets) to be met by 2020. In strategic goal B to “Reduce the direct pressures on biodiversity and promote sustainable use”, target 9 states “By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment”.

(<http://www.cbd.int/doc/decisions/cop-10/cop-10-dec-02-en.pdf>)

Box 4

### Guiding principles set in Annexe I of decision V/8 by CoP 5 (2000)

- |   |                                 |
|---|---------------------------------|
| 1. Precautionary approach                   | 10. Intentional introduction    |
| 2. Three-stage hierarchical approach        | 11. Unintentional introductions |
| 3. Ecosystem approach                       | 12. Mitigation of impacts       |
| 4. State responsibility                     | 13. Eradication                 |
| 5. Research and monitoring                  | 14. Containment                 |
| 6. Education and public awareness           | 15. Control                     |
| 7. Border control and quarantine measures   |                                 |
| 8. Exchange of information                  |                                 |
| 9. Cooperation, including capacity-building |                                 |

5. The SBSTTA is open to the participation of all Parties. A multidisciplinary group, it comprises governmental representatives in charge of the specific fields in question.

## Convention on international trade in endangered species of wild fauna and flora (CITES)



The Convention on international trade in endangered species of wild fauna and flora (CITES or Washington convention) was signed in Washington on 3 March 1973 and entered into force on 1 July 1975. In France, the convention was approved on 11 May 1978 and entered into force on 9 August 1978.

In that trade in wild fauna and flora ranges far beyond national borders, its regulation requires international cooperation to preserve certain species. Designed in a spirit of cooperation, CITES now protects, under different conditions, over 30 000 wild species. The

Convention also ensures that international trade in wild animal and plant specimens does not threaten the survival of the species in question.

(<http://www.cites.org/eng>)

The countries having ratified CITES are members of the Conference of the Parties (CoP). The CoP meets regularly (every 2 to 3 years), primarily to monitor CITES application and to adopt new resolutions.

Among these resolutions, the resolution Conf. 13.10 (Rev. CoP14) concerns **trade in invasive alien species** for which the CoP recommends that the Parties:

- “a) consider the problems of invasive species when developing national legislation and regulations that deal with the trade in live animals or plants;”
- “b) consult with the Management Authority of a proposed country of import, when possible and when applicable, when considering exports of potentially invasive species, to determine whether there are domestic measures regulating such imports; and”
- c) consider the opportunities for synergy between CITES and the Convention on Biological Diversity (CBD) and explore appropriate cooperation and collaboration between the two Conventions on the issue of introductions of alien species that are potentially invasive.”

This resolution was amended during CoP 14, held in the Hague (Netherlands) from 3 to 15 June 2007.

([www.cites.org/eng/res/13/13-10.shtml](http://www.cites.org/eng/res/13/13-10.shtml),

[www.cites.org/eng/res/13/13-10R14.php](http://www.cites.org/eng/res/13/13-10R14.php))

In Europe, CITES resolutions are implemented by EU regulations that are regularly updated (see page 55).

## Convention on the conservation of migratory species of wild animals (CMS)



This convention was signed in Bonn (Germany) on 23 June 1979 and entered into force in France on 1 July 1990. Its purpose is to ensure the conservation of all terrestrial, aquatic and avian migratory species throughout their distribution range.

(<http://www.cms.int/en/>)

Two articles in the convention mention the introduction of alien species:

- article III 4.c): “*Parties that are Range States of a migratory species listed in Appendix I [endangered migratory species] shall endeavour [...] to the extent feasible and appropriate, to prevent, reduce or control factors that are endangering or are likely to further endanger the species, including **strictly controlling the introduction of, or controlling or eliminating, already introduced exotic species***”;
- article V 5.e): “*Where appropriate and feasible, each agreement [Appendix II: migratory species covered by*

*international agreements for their conservation and management] should provide for but not be limited to [...] conservation and, where required and feasible, restoration of the habitats of importance in maintaining a favourable conservation status, and protection of such habitats from disturbances, including, **strict control of the introduction of, or control of already introduced, exotic species detrimental to the migratory species**".*

In France, decree 90-962 (23 October 1990) published the convention.

(<http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000000168211&categorieLien=cid>)

## Agreement on the conservation of African-Eurasian migratory waterbirds (AEWA)



AEWA is an independent international treaty drafted under the auspices of the U.N. environment programme and the Bonn convention (CMS). It was approved on 16 June 1995 in the Hague (Netherlands). The convention was signed by France in 1996 and entered into force on 1 November 1999.

■ Article III of the Agreement on the Conservation of African-Eurasian Migratory Waterbirds includes the following section:

*"2. To this end, the Parties shall [...] (g) prohibit the deliberate introduction of non-native waterbird species into the environment and take all appropriate measures to prevent the unintentional release of such species if this introduction or release would prejudice the conservation status of wild flora and fauna; when non-native waterbird species have already been introduced, the Parties shall take all appropriate measures to prevent these species from becoming a potential threat to indigenous species;"*

In this framework, various documents have been proposed during AEWA meetings of the Parties, suggesting guiding principles to prevent the introduction of non-native species of waterbirds (Owen et al., 2003). During the fifth Meeting of the Parties (MoP) in La Rochelle on 14 May 2013, the AEWA action plan proposed new measures to rehabilitate or restore areas impacted by invasive alien species (article 3.3) and to encourage the Parties to counter the threats weighing on wetlands, notably in view of preventing IAS introductions (article 4.3.12).

(<http://www.unep-aewa.org/en/documents/agreement-text>)

## Convention for the protection of the marine environment and the coastal region of the Mediterranean



The Convention for the protection of the marine environment and the coastal region of the Mediterranean was signed in Barcelona on 16 February 1976 and subsequently modified on 10 June 1995. Its purpose is to protect the marine environment and the coastal region of the Mediterranean.

One of the protocols drafted in the framework of this convention concerns the specially protected areas and biological diversity in the Mediterranean. Two articles of the protocol deal with non-native species.

■ Article 6, on protective measures, requires "the regulation of the introduction of any species not indigenous to the specially protected area in question, or of genetically modified species, as well as the introduction or reintroduction of species which are or have been present in the specially protected area".

■ Article 13 deals more specifically with the introduction of non-native or genetically modified species and stipulates that:

- “1. The Parties shall take all appropriate measures to **regulate the intentional or accidental introduction of non-indigenous or genetically modified species to the wild and prohibit those that may have harmful impacts on the ecosystems, habitats or species in the area to which this Protocol applies.**”

- “2. The Parties shall **endeavour to implement all possible measures to eradicate species that have already been introduced** when, after scientific assessment, it appears that such species cause or are likely to cause damage to ecosystems, habitats or species in the area to which this Protocol applies.”

In France, decree 2002-1454 (09 December 2002) published the convention.

(<http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000000416310&dateTexte=&categorieLien=id>)

## Convention on wetlands of international importance especially as waterfowl habitat (Ramsar convention)



The purpose of this convention, signed on 2 February 1971 in the Iranian city of Ramsar, is to provide for the conservation and intelligent use of wetlands and their resources. The convention entered into force in France on 1 December 1986.

(<http://www.ramsar.org>)

Two resolutions were adopted on invasive species and wetlands during the sessions of the Conference of the Parties having signed the convention:

- resolution VII.14, adopted during the 7th session (1999), titled “People and Wetlands: The Vital Link”;
- resolution VIII.18, adopted during the 8th session (2002), titled “Wetlands: water, life and culture”.

These two resolutions present precise requests to the contracting Parties, i.e., the first calls upon them “to wherever possible address the environmental, economic and social impact of invasive species on wetlands within their jurisdictions” and the second urges them “to address the problems posed by invasive species in wetland ecosystems in a decisive and holistic manner, making use, as appropriate, of the tools and guidance developed by various institutions and processes, including any relevant guidelines or guiding principles adopted under other conventions.”

The Ramsar strategic plan 2009-2015, adopted by resolution X.1 (2008) and adjusted for the period 2013-2015 by resolution XI.3 (2012), proposes guidelines to the contracting Parties and the many other convention participants on the means to focus their efforts in implementing the Convention on wetlands.

The plan comprises a number of goals for the implementation and management of the Ramsar convention. The first concerns the rational use of all wetlands. To achieve this objective, various strategies have been proposed, including strategy 1.9 on invasive alien species (see Box 5).

## Ramsar strategic plan

The Ramsar strategic plan 2009-2015 includes an appendix titled *“How implementation of Ramsar Strategic Plan 2009-2015 strategies contributes to the “Aichi Biodiversity Targets” (CBD COP10 Decision X/2 Strategic Plan for Biodiversity 2011-2020)”*.

This appendix clarifies the links between target 9 of the Aichi biodiversity targets and Strategy 1.9 in the Ramsar strategic plan.

**Target 9 :** *“By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.”*

**Strategy 1.9 :** *“Invasive alien species. Encourage Contracting Parties to develop a national inventory of invasive alien species that currently and/or potentially impact the ecological character of wetlands, especially Ramsar Sites, and ensure mutual supportiveness between the national inventory and IUCN’s Global Register on Invasive Species (GRIS); develop guidance and promote procedures and actions to prevent, control or eradicate such species in wetland systems.”*

## International plant protection convention (IPPC)



The International plant protection convention (IPPC) is an international agreement on plant protection, initially adopted in 1952, ratified by France on 20 August 1957 and revised in 1997. The convention provides for the protection of cultivated and wild plants by preventing the introduction and dissemination of plant pests. These organisms (species, strain or biotype of plants, animals or pathogens) are called quarantine pests when they represent a significant risk for the economy of the threatened area, but are not yet present there (or, if already present, are not widely disseminated and are the target of official countermeasures).

IPPC provides an international framework for plant protection that foresees the drafting of international standards for phytosanitary measures (ISPM) intended to preserve plant resources. For example, ISPM 11 (2004) deals with *“Pest risk analysis (PRA) for quarantine pests, including analysis of environmental risks and living modified organisms”*.

(<https://www.ippc.int/en/> and <http://www.fao.org/docrep/010/a0785e/a0785e00.htm>)

The European plant protection organisation (EPPO), which corresponds to the regional plant-protection organisation for Europe within the IPPC framework, assists in preventing the introduction and spread of pests that damage plants in the European and Mediterranean region by carrying out pest risk analyses. EPPO also runs pest risk analysis (PRA) to determine the risks involved with certain invasive alien plant species and to make recommendations on how to prevent their introduction and spread via international trade.

([http://www.eppo.int/ABOUT\\_EPPO/about\\_eppo.htm](http://www.eppo.int/ABOUT_EPPO/about_eppo.htm)  
and [http://www.eppo.int/INVASIVE\\_PLANTS/ias\\_plants.htm](http://www.eppo.int/INVASIVE_PLANTS/ias_plants.htm))



## European level

In Europe, the Bern convention produced recommendations on how to prevent and manage invasive alien species and served as the backdrop for a European IAS strategy as early as 2003 (see Chapter 3). EU regulations restrict their trade, importation and introduction to natural environments. The European regulation on the prevention and management of the introduction and spread of invasive alien species, adopted on 29 September 2014, reinforced those policies. It targets a reduction in IAS impacts, harmonised management of these species throughout the Union and the development of preventive measures. European directives support EU policy concerning IAS management, but let the Member States decide on the measures required to achieve those ends.

### Convention on the conservation of European wildlife and natural habitats (Bern convention)



This convention protects the natural heritage of the European continent, with the exception of Russia, and extends to a few African countries (Morocco, Tunisia, Senegal, Burkina Faso). The convention was signed on 19 September 1979 and entered into force on 1 June 1982. The aim is to conserve wildlife and natural habitats, and to promote European cooperation in this field. France ratified the convention in 1990.

Article 11.2.b) of the convention stipulates that “each Contracting Party undertakes [...] to **strictly control the introduction of non native species**”.

The Standing committee, comprising representatives of the Contracting Parties, monitors the application of the convention and issues guidelines on its implementation and continued development. It also makes recommendations concerning measures to be taken for the purposes of the convention and on enhancing its effectiveness.

Among those recommendations, approximately 20 refer to alien species, e.g.:

- recommendation 154 (2011) on the European code of conduct on pets and invasive alien species;
- recommendation 149 (2010) on the eradication of the ruddy duck (*Oxyura jamaicensis*) in the Western Palearctic;
- recommendation 134 (2008) on the European code of conduct on horticulture and invasive alien plants;
- recommendation 125 (2007) on trade in invasive and potentially invasive alien species in Europe;
- recommendation 99 (2003) on the European strategy for invasive alien species.

The Standing committee has also set up numerous groups of experts specifically devoted to certain types of species. One of these groups deals with invasive alien species.

The group of experts for invasive alien species was established in 1992. It meets every two years and works on harmonising national regulations addressing species introduction. One major tool of the group is the European strategy for invasive alien species that is presented in greater detail in Chapter 3 of this book.

(<http://www.coe.int/en/web/bern-convention/invasive-species>).

## Regulations on the importation and introduction of invasive alien species in the EU

### ■ European commission regulations relating to CITES

Council Regulation (EC) 338/97 of 9 December 1996 on the protection of species of wild fauna and flora by regulating trade therein is implemented in compliance with the objectives, principles and stipulations of the CITES convention. The regulation provides for restrictions on the introduction of certain species in the EU (article 4, paragraph 6) and on the holding and movement of live specimens of species whose introduction is already subject to restrictions (article 9, paragraph 6). Various invasive alien species observed in France are listed in Annexes B and C of the regulation.

(<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:1997:061:0001:0069:EN:PDF>)

Regularly updated implementing regulations (REU) are derived from this regulation. These regulations can:

- modify the classification of species proposed in the annexes of regulation (EC) 338/97;
- suspend or prohibit the introduction of certain species in the EU.

For example, Commission regulation (EU) 101/2012 of 6 February 2012 amending Council Regulation (EC) 338/97 of 9 December 1996. In Annex B, it mentions (in compliance with Article 3, paragraph 2, point d) three squirrel species (*Callosciurus erythraeus*, *Sciurus carolinensis* and *Sciurus niger*) that constitute an ecological threat to the red squirrel (*Sciurus vulgaris*) and to certain habitats and plant communities.

(<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:039:0133:0200:EN:PDF>)

Similarly, the Commission implementing regulation (EU) 888/2014 of 14 August 2014, derived from the 1996 regulation, prohibits the introduction in the EU of specimens of certain species of wild fauna and flora.

([http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:JOL\\_2014\\_243\\_R\\_0002&from=EN](http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:JOL_2014_243_R_0002&from=EN))

The invasive alien species whose introduction in the EU is currently prohibited are therefore the ruddy duck (*Oxyura jamaicensis*), three squirrel species (*Callosciurus erythraeus* (see Figure 32), *Sciurus carolinensis* and *Sciurus niger*), the painted turtle (*Chrysemis picta*), American bullfrogs (*Lithobates catesbeianus*) and the red-eared slider turtle (*Trachemys scripta elegans*).

Figure 32



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Pallas' squirrel (*Callosciurus erythraeus*), native to East Asia, has been introduced into France, Italy, the Netherlands and Belgium. Its introduction in the EU has been prohibited since 2012 and a national action plan against the species was launched in France the same year.

## ■ Council Regulation concerning use of alien and locally absent species in aquaculture

Council Regulation (EC) 708/2007 of 11 June 2007 concerning use of alien and locally absent species in aquaculture is part of the Commission action plan in favour of biological diversity. It complies with the guiding principles set by the CBD convention.

The first article of the regulation establishes that *“This Regulation establishes a **framework governing aquaculture practices in relation to alien and locally absent species** to assess and minimise the possible impact of these and any associated non-target species on aquatic habitats and in this manner contribute to the sustainable development of the sector.”* Article 2 sets the scope of the regulation and indicates that *“This Regulation shall apply to the introduction of alien species and translocation of locally absent species for their use in aquaculture in the Community...”*.

(<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2007:168:0001:0017:EN:PDF>)

The text makes necessary a permit to introduce non-native species in the EU and assigns to the Member States the responsibility of granting or refusing permits. Applicants must supply sufficient information to enable the Member States to determine the risks of an introduction. When the environmental impacts of an introduction are likely to affect several Member States, the decision is taken by the Commission.

([http://www.assemblee-nationale.fr/europe/dossiers\\_e/e3129.asp](http://www.assemblee-nationale.fr/europe/dossiers_e/e3129.asp))

## Regulations on the prevention and management of introductions of invasive alien species in the EU

### ■ Regulation of the European parliament and of the Council on the prevention and management of the introduction and spread of invasive alien species



This regulation was published in the EU official journal on 24 October 2014 and entered into force on 1 January 2015. It provides “a framework for action to prevent, minimise and mitigate the adverse impacts of IAS on biodiversity and ecosystem services” and “to limit social and economic damage”. These objectives are to be reached through “measures addressing the intentional introduction of IAS into the Union and their intentional release into the environment, the unintentional introduction and release of IAS, the need to set up an early warning and rapid response system, and the need to manage the IAS spread throughout the Union”.

([http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:JOL\\_2014\\_317\\_R\\_0003&from=EN](http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:JOL_2014_317_R_0003&from=EN))

This regulation meets EU international and European commitments undertaken in the framework of the Convention on biological diversity (article 8h and Aichi target 9) and the EU biodiversity strategy for 2020. It also fills a gap in EU legislation by creating a harmonised management system for IASs spanning the entire EU (coordinated action, information exchanges) that is deemed more effective than the current fragmented situation with national policies (Le Botlan and Deschamps, 2014).

The regulation focusses on implementation of a list of invasive alien species of Union concern. The list should include all types of organisms (fauna and flora) with selection based on risk assessments and scientific data. The importation, sale, purchase, use and release to the environment of the concerned species are prohibited in the EU.

On the basis of the list of species of Union concern, the regulation provides for three types of intervention.

■ **Prevention.** A number of prohibitions apply to the species on the Union list (introduction, reproduction, transportation, sale, use, exchange, holding and release to the environment). Action plans for specific introduction paths will be prepared to prevent non-intentional introductions.

■ **Early warning and rapid response.** Member States must institute a surveillance, detection and monitoring system for invasive alien species. Border checks must be set up by the Member States to prevent the intentional introduction of these species. Member States detecting the installation of an IAS must take immediate measures to eradicate the species as soon as possible.

■ **Management of invasive alien species already established.** If one of the listed species has already spread widely, measures intended to reduce the damage to a minimum must be implemented by the Member States.

Following the debates held in the Council and the European parliament (see Figure 33), it was announced that the Member States would be fully involved in drafting the list. In line with the subsidiarity principle, the Member States will be able to establish their own additional list of species seen as alien and invasive in their country and take more rigorous countermeasures against the species on the Union list (Le Botlan and Deschamps, 2014).

Figure 33



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*The European parliament in Strasbourg.*

Member States submitted opinions on the regulation that was then examined by the Council and the Parliament, the institutions jointly charged with adopting the text. Amendments were proposed and voted by the Environment commission of the Parliament on 30 January 2014. Finally, the regulation was voted during a plenary session of the Parliament on 16 April 2014. Effective implementation should start in 2015.

Certain aspects of the regulation are still debated within the European institutions (Le Botlan and Deschamps, 2014) (see Figure 34). IAS management raises a number of questions, notably concerning:

- the types of impacts caused by these species and their prioritisation (biodiversity, ecosystem services, health, economy);
- the alien or native nature of the species placed on the Union list, as well as the areas of observed or potential establishment of these species;
- uniform application in all 28 Member States of the regulatory measures concerning the species on the Union list.

Figure 34



© N. Poulet

*The red swamp crayfish (Procambarus clarkii) is marketed under certain conditions. It is feared that the species may be established sustainably in the natural environment for commercial reasons or that it may escape unintentionally during transportation to processing centres.*

The regulation of the European parliament and of the Council on the prevention and management of the introduction and spread of invasive alien species is accompanied by an implementation plan.

This document lists the implementation objectives of the regulation on IASs and also mentions the issues at hand;

- shift from a fragmented approach to joint action on priority species:

- focus on priority IASs,
- assess risks;

- shift from reactive efforts to prevention:

- more preventive work,
- reinforce surveillance and monitoring,
- enhance management of introduction paths;

- increase communication and raise awareness of stakeholders.

For each issue, the implementation plan proposes support measures and deadlines for the Commission and the Member States.

([http://ec.europa.eu/environment/nature/invasivealien/index\\_en.htm](http://ec.europa.eu/environment/nature/invasivealien/index_en.htm))

## European directives addressing the risks of IAS introduction in the EU

### ■ European Council directive on the conservation of wild birds

Directive 79/409/EEC, voted by the Council on 2 April 1979, commonly called the “Birds directive”, provides for the protection and long-term conservation of bird species (including their eggs, nests and habitats) living naturally in a wild state in the European parts of the Member States (with the exception of Greenland).

Article 11 of the directive stipulates that *“Member States shall see that any introduction of species of bird which do not occur naturally in the wild state in the European territory of the Member States does not prejudice the local flora and fauna. In this connection they shall consult the Commission.”*

(<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:1979:103:0001:0018:EN:PDF>)

## Regulations, directives, decisions and recommendations

In carrying out their missions, the European institutions may adopt, as per article 288 of the Treaty on the functioning of the European Union, regulations, directives, decisions, recommendations and opinions:

- *"A regulation shall have general application. It shall be binding in its entirety and directly applicable in all Member States";*
- *"A directive shall be binding, as to the result to be achieved, upon each Member State to which it is addressed, but shall leave to the national authorities the choice of form and methods";*
- *A decision shall be binding in its entirety. A decision which specifies those to whom it is addressed shall be binding only on them";*
- *"Recommendations and opinions shall have no binding force".*

Each act thus has a number of specific characteristics. A regulation is directly applicable in all Member States, which means it creates rights for individuals without requiring national transposition measures. In theory, consequently, a regulation is a precise act that is in itself sufficient. A directive, on the other hand, imposes mandatory results on Member States, but allows them to decide how to achieve those results. Recommendations and opinions are of limited use in that they are not binding.

([http://europa.eu/eu-law/decision-making/legal-acts/index\\_en.htm](http://europa.eu/eu-law/decision-making/legal-acts/index_en.htm)).

## ■ European Council directive on the conservation of natural habitats and wild fauna and flora

Directive 92/43/EEC, voted by the Council on 21 May 1992, commonly called the "Habitats directive", aims to maintain biodiversity through the conservation of natural habitats and of wild fauna and flora of community interest.

Article 22.b) of the directive stipulates that *"In implementing the provisions of this Directive, Member States shall ensure that the deliberate introduction into the wild of any species which is not native to their territory is regulated so as not to prejudice natural habitats within their natural range or the wild native fauna and flora and, if they consider it necessary, prohibit such introduction"*.

(<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:1992:206:0007:0050:EN:PDF>)

## ■ European Council directive on protective measures against the introduction into the Community of organisms harmful to plants or plant products and against their spread within the Community

Directive 2000/29/EC, voted by the Council on 8 May 2000, aims to protect the Member States against the introduction of organisms harmful to plants or plant products from other Member States or from other countries.

(<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2000:169:0001:0112:EN:PDF>)

By “harmful organism”, the directive means any species, strain or biotype of plants, animals or pathogens that can harm plants or plant products. This definition includes insects, acari, bacteria, fungi, viruses and parasite plants. Annexes I and II list the organisms that are prohibited in the EU, either the organisms themselves or when they are present on certain plants or plant products. Annex III lists the plants and plant products that may not be imported from certain non-EU countries.

([http://europa.eu/legislation\\_summaries/food\\_safety/plant\\_health\\_checks/f85001\\_en.htm](http://europa.eu/legislation_summaries/food_safety/plant_health_checks/f85001_en.htm))

Directive 2000/29/EC, in article 16, paragraph 3, enables the necessary measures if new organisms harmful to plants are detected. This option was put to use in November 2012 for a plant-eating aquatic mollusc (Commission implementing decision of 8 November 2012 as regards measures to prevent the introduction into and the spread within the Union of the genus *Pomacea* (Perry).

(<http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32012D0697&rid=1>)

## ■ European water framework directive (WFD)

Directive 2000/60/EC of the European parliament and of the Council of 23 October 2000 establishing a framework for community action in the field of water policy, also known as the Water framework directive (WFD), aims to prevent and reduce pollution, promote sustainable use of water, protect the environment, improve the status of aquatic ecosystems and mitigate the effects of flooding and droughts. The objective is good ecological and chemical status of all EU waters by 2015.

(<http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1454786519547&uri=CELEX:32000L0060>).

To assess the good ecological status of water bodies, the WFD calls on indices for the quality of various biological communities, e.g. benthic invertebrates (IBGN, IBGA), fish (IPR), macrophytes (IBMR), diatoms (IBD) and oligochaeta (IOBS). Given that IASs can alter the structure and functioning of aquatic environments, a work group held several meetings in 2008 and 2009 to discuss the possibility of including these species in the ecological assessment required by the WFD.

The directive does not require the Member States to take alien species into account in assessing the ecological status of their surface water bodies. This lack of any clear reference means that most assessment tools for ecological status do not explicitly include IASs.

On the other hand, the WFD requires that the assessments of ecological status signal any divergence from high status, which means that, practically speaking, IASs and their impacts on communities should be included in the WFD assessment. That is why the work group put so much work into the topic.

The meetings did not produce an immediately applicable, common approach. In fact, the opinions on the topic of the various Member States represented diverged significantly.

No majorities could be found for any of the main options, i.e. 1) create an IAS-specific index (biopollution index), 2) adopt the position that certain indices currently available in fact already include IASs or 3) create and include IAS-specific metrics in the existing methods.

Above and beyond these formal proposals, a concern of some Member States (including France) was that IAS-integration in the assessment of the ecological status of water bodies might result, if a single IAS was present in the water body, in the systematic disqualification of the water body, even though no assessment of the actual ecological impacts of IASs has yet been carried out.

In the absence of any concrete proposals following the meetings and in as much as agreement on invasive species and the ecological classification of water bodies in Europe was deemed necessary, the topic was added to the 2010-2012 work list of the ECOSTAT work group, but to date no particular progress has been made.



## National level

For continental France, the main regulations governing invasive alien species are contained in the Environmental code and the related enacting documents. Phytosanitary and plant-protection regulations are not discussed in detail here.

A summary of the various texts applicable in France is presented in Table 5, page 68.

### Regulations on the introduction of invasive alien species

#### ■ Law reinforcing environmental protection (Barnier law)

■ **Article 56** in Law 95-101 (2 February 1995) modified the New Rural code by including article L.211-3: “To avoid harm to natural environments and to wild fauna and flora, it is **prohibited to introduce** into the natural environment, voluntarily, through negligence or imprudence:

1° any specimen of an animal species that is non-native to the area and not domesticated;

2° any specimen of a plant species that is non-native to the area and not cultivated;

3° any specimen of the plant and animal species designated by the administrative authorities.”

[...] “When an offence takes place, the administrative authorities may immediately proceed with or order the capture, withdrawal, detention or destruction of the specimens of the introduced species.”

(<http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000000551804#LEGIARTI000006848476>)

■ **Article L.211.3** in the New Rural code was abrogated by Ordinance 2000-914 (18 September 2000).

([http://www.legifrance.gouv.fr/affichTexteArticle.do;jsessionid=E5BE262F23EC00948018C773471B45E4.tpdjo13v\\_3?cidTexte=JORFTEXT000000401865&idArticle=LEGIARTI000006849354&dateTexte=20000921&categorieLien=id](http://www.legifrance.gouv.fr/affichTexteArticle.do;jsessionid=E5BE262F23EC00948018C773471B45E4.tpdjo13v_3?cidTexte=JORFTEXT000000401865&idArticle=LEGIARTI000006849354&dateTexte=20000921&categorieLien=id))

The new, applicable text is contained in article L411-3 of the Environmental code, presented in the next section.

#### ■ Environmental code

■ **Article L411-3**, modified by Law 2010-788 (12 July 2010), art. 241, sets the general rules governing the introduction of non-native species into natural environments.

“I. To avoid harm to natural environments, to their uses and to wild fauna and flora, it is prohibited to introduce into the natural environment, intentionally, through negligence or imprudence:

1° Any specimen of an animal species that is non-native to the area and not domesticated, listed in the joint decree published by the Ecology minister and either the Agriculture minister or, for marine species, the Marine fisheries minister;

2° Any specimen of a plant species that is non-native to the area and not cultivated, listed in the joint decree published by the Ecology minister and either the Agriculture minister or, for marine species, the Marine fisheries minister;

3° Any specimen of the plant and animal species designated by the administrative authorities.

II. However, the introduction of said species into the natural environment may be authorised by the administrative authorities for agricultural, fisheries or forestry purposes or in the general interest, following an assessment of the consequences of the introduction.

III. When the presence in the environment of a species listed in section I has been observed, the administrative authorities may immediately proceed with or order the capture, withdrawal, detention or destruction of the specimens of the introduced species. The stipulations of section II in article L. 411-5 apply to this type of intervention.

IV. When a person has been found guilty as pertains to this article, the court may assign to that person the costs incurred for the necessary capture, withdrawal, detention or destruction.

IV (2). When the need to preserve the biological heritage, natural environments and their uses justifies a prohibition of dissemination, it is forbidden to transport, trade, use, market, sell or buy the plant and animal species in the list established by the joint decrees published by the Ecology minister and either the Agriculture minister or, for marine species, the Marine fisheries minister.

V. A decree by the State council shall determine the enacting conditions of this article and notably those governing how the public is informed in advance of the introductions into the natural environment mentioned in section II."

([http://www.legifrance.gouv.fr/affichCodeArticle.do?sessionId=265C271B1FEE450BEB722E3D4EDE61F6.tpdjo15v\\_2?idArticle=LEGIARTI000022496815&cidTexte=LEGITEXT000006074220&dateTexte=20130726](http://www.legifrance.gouv.fr/affichCodeArticle.do?sessionId=265C271B1FEE450BEB722E3D4EDE61F6.tpdjo15v_2?idArticle=LEGIARTI000022496815&cidTexte=LEGITEXT000006074220&dateTexte=20130726))

■ **Article L415-3** modified by Ordinance 2012-34 (11 January 2012), art. 10, sets the penalties for violations of L. 411-3:

*"Shall be punished by one year of imprisonment and a fine of 15 000 euros: [...]"*

2° The intentional introduction into the natural environment, transportation, trade, use, marketing, sale or purchase of a specimen of a plant or animal species in violation of article L. 411-3 or of the regulations and individual decisions instituted for its application [...]"

([http://www.legifrance.gouv.fr/affichCodeArticle.do?sessionId=AAE87F623F21F08329A5BCA71FD86CC5.tpdjo14v\\_2?idArticle=LEGIARTI000006833760&cidTexte=LEGITEXT000006074220&dateTexte=20090911](http://www.legifrance.gouv.fr/affichCodeArticle.do?sessionId=AAE87F623F21F08329A5BCA71FD86CC5.tpdjo14v_2?idArticle=LEGIARTI000006833760&cidTexte=LEGITEXT000006074220&dateTexte=20090911))

The fine is doubled if the offence takes place in a national park or nature reserve. The same penalties apply to offences committed by economic entities raising, selling, renting or transporting non-domestic animal species. The court may assign to a condemned person the costs incurred for the necessary capture, withdrawal, detention or destruction.

■ **Article R415-1** modified by Decree 2007-15 (04 January 2007), art. 1, published in the Official Journal on 05 January 2007, sets the fines for violations of L. 411-3:

*"Shall be punished by a fine for a Class 4 offence: [...]"*

2° Introduction into the natural environment, through negligence or imprudence, of any specimen of a plant or animal species mentioned in article L. 411-3 [...]"

([http://www.legifrance.gouv.fr/affichCode.do?sessionId=3CCA81AFC128F75E340FB5F2E43F96BA.tpdjo14v\\_2?idSectionTA=LEGISCTA000006188811&cidTexte=LEGITEXT000006074220&dateTexte=20090911](http://www.legifrance.gouv.fr/affichCode.do?sessionId=3CCA81AFC128F75E340FB5F2E43F96BA.tpdjo14v_2?idSectionTA=LEGISCTA000006188811&cidTexte=LEGITEXT000006074220&dateTexte=20090911))

■ **Article R432-5** lists the animal species for which the introduction in aquatic environments is prohibited (see Box 7): *"Below is the list of fish, crustacean and frog species likely to provoke biological imbalances in the water bodies mentioned in this section and whose introduction is therefore prohibited."*

## Fish

Black bullhead: *Ameiurus melas* ;

Pumpkinseed: *Lepomis gibbosus*.

## Crustaceans

Chinese mitten crab: *Eriocheir sinensis*.

Crayfish species other than:

*Astacus astacus* : noble crayfish;

*Astacus torrentium* : stone crayfish;

*Austropotamobius pallipes* : white-clawed crayfish;

*Astacus leptodactylus* : narrow-clawed crayfish.

## Frogs

Frog (*Rana* sp.) species other than:

*Rana arvalis* : moor frog;

*Rana dalmatina* : agile frog;

*Rana iberica* : Iberian frog;

*Rana honnorati* : European frog;

*Rana esculenta* : edible frog;

*Rana lessonae* : pool frog;

*Rana perezi* : Perez's frog;

*Rana ridibunda* : marsh frog;

*Rana temporaria* : common frog;

*Rana groupe esculenta* : Corsican green frog.”

(<http://www.legifrance.gouv.fr/affichCodeArticle.do?idArticle=LEGIARTI000006838439&cidTexte=LEGITEXT000006074220&dateTexte=20120402>)

Box 7

## Changes in regulations and popular misconceptions

Prior to article R432-5 in the Environmental code listing the species “likely to provoke biological imbalances”, regulations up to 1984 prohibited the introduction of fish and crustaceans seen as “particularly harmful” (article L439-1). Article 29 stipulated that “Are acknowledged as particularly harmful, notably in application of article 439-1 of the Rural code, the nase, pumpkinseed, black bullhead, Chinese mitten crab and, in Category 1 waters, the eel”. At that time, the engineers of the High council on fisheries and the Fishing federations were of the opinion that the nase and eel, even though native to continental France (the nase is native to the Rhine basin), were a source of harmful predation for the other species. We now know that that was not the case. Though there is not necessarily a relation of cause and effect, we observe that the IUCN sees the eel in critical danger of extinction and a European management plan now exists for the species.

Subsequently, the 1984 Fishing law, via de decree dated 8 November 1985, introduced the notion of species “likely to provoke biological imbalances” and the list of those species is the same even today (even though the text was later inserted in the Rural code in 1989 and then in the Environmental code in 2005). On the other hand, at that time, article L432-11 stipulated that the transport of live animals of the listed species was prohibited without an authorisation issued under the conditions set by a decree of the State council. In the 2006 Law on water and aquatic environments, that prohibition was lifted because it was seen by lawmakers as an obstacle to trade in those species and trade was seen as a means to regulate the situation. That being said, the transport of certain species remains subject to an authorisation in order to protect native species. That is the case for the decree (21 July 1983) protecting native crayfish (see page 66) and requiring an authorisation for the sale and transport of the red swamp crayfish (this text will probably be modified at some point).

(<http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=LEGITEXT000006064747&dateTexte=>)

Other articles in the Environmental code may also be useful for regulating invasive alien species:

- articles L411-1, L411-2 and L411-3 on the preservation of biological heritage;
- article L412 on activities subject to authorisation;
- articles L413-2 and L413-3 on economic entities in possession of non-domestic animal species;
- article R411-41 on the applicable procedure for emergency measures.

(Environmental code: <http://www.legifrance.gouv.fr/affichCodeArticle.do?idArticle=LEGIARTI000006837756&cidTexte=LEGITEXT000006074220&dateTexte=20130531>)

Some articles of the Rural code may also concern IASs as pertains to national surveillance:

- animal-health epidemiology: article L201-1 and the following articles;
- biological surveillance: article L251-1 and following, notably article L251-3-1 which stipulates that “All means must be employed to limit the populations of muskrats and nutria”;
- organisations defending against harmful organisms: articles L252-1 and following.

(<http://www.legifrance.gouv.fr/affichCodeArticle.do?cidTexte=LEGITEXT000006071367&idArticle=LEGIARTI000006582982&dateTexte=&categorieLien=cid>)

## ■ Enacting texts for the Environmental code and/or the Rural code

- Decree (2 May 2007) prohibiting the sale, use and introduction into the natural environment of *Ludwigia grandiflora* and *Ludwigia peploides*.

(<http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000000465704&dateTexte=>)

- Decree (30 July 2010) prohibiting in continental France the introduction into the natural environment of certain vertebrates:

Article 2.1 : “It is prohibited throughout continental France and at all times to introduce into the natural environment, intentionally, through negligence or imprudence, living specimens of the following vertebrate species:

### Mammals

Red-necked Wallaby (*Macropus rufogriseus* [Desmarest, 1817])

Raccoon dog (*Nyctereutes procyonoides* [Gray, 1834])

American mink (*Neovison vison* [Schreber, 1777])

Northern raccoon (*Procyon lotor* [Linné, 1758])

Sika deer (*Cervus nippon* [Temminck, 1838])

All types of *Sciuridae* except the two following species:

Alpine marmot (*Marmota marmota* [Linné, 1758])

Red squirrel (*Sciurus vulgaris* [Linné, 1758])

North American beaver (*Castor canadensis* [Kuhl, 1820])

Muskrat (*Ondatra zibethicus* [Linné, 1766])

Coypu (*Myocastor coypus* [Molina, 1782])

Brown rat (*Rattus norvegicus* [Berkenhout, 1769])

Eastern cottontail rabbit (*Sylvilagus floridanus* [J.A. Allen, 1890]).

### Birds

Ruddy duck (*Oxyura jamaicensis* [Gmelin, 1789])

Sacred ibis (*Threskiornis aethiopicus* [Latham, 1790])

Canada goose (*Branta canadensis* [Linné, 1758])

Egyptian goose (*Alopochen aegyptiacus* [Linné, 1766])

Rose-ringed parakeet (*Psittacula krameri* [Scopoli, 1769])

## Reptiles

*All species belonging to the following genera:*

Chrysemys spp.

Pseudemys spp.

Trachemys spp.

Graptemys spp.

Clemmys spp.

## Amphibiens

*African clawed frog (Xenopus laevis [Daudin, 1802])*

*American bullfrog (Lithobates catesbeianus [Shaw, 1802])*

*Levant water frog (Pelophylax bedriagae [Camerano, 1897])*

*Balkan water frog (Rana kurtmuelleri [Gayda, 1940]). »*

(<http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000022806788&categorieLien=id>)

■ **The decree dated 17 December 1985** lists the species of fish, crustaceans and frogs present in the waters covered by article 413 of the Rural code. Article 1 (applicable version since 1 January 1986): *"In application of article 413 (2°) of the Rural code, it is prohibited to introduce without authorisation into the waters covered by this article fish, frogs and crustaceans belonging to species not already present in those waters."*

The list of species present is provided in the same article.

([http://www.legifrance.gouv.fr/jopdf/common/jo\\_pdf.jsp?numJO=0&dateJO=19860126&numTexte=01464&pageDebut=01464&pageFin=](http://www.legifrance.gouv.fr/jopdf/common/jo_pdf.jsp?numJO=0&dateJO=19860126&numTexte=01464&pageDebut=01464&pageFin=))

■ **The decree dated 20 March 2013 in application of article R. 432-6 of the Environmental code** lists the fish species not present whose introduction for scientific purposes may be authorised by the prefect.

Article 2 : *"The list of fish species not present, mentioned in article R. 432-6 of the Environmental code, whose introduction for purposes other than scientific may be authorised by the prefect, is the following:*

*1° The Acipenseriforme species mentioned in the Annex to the above-mentioned decree (23 February 2007), with the exception of the European sturgeon Acipenser sturio (Linnaeus, 1758);*

*2° The grass carp Ctenopharyngodon idella (Cuvier and Valenciennes, 1844)."*

(<http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000027243221&categorieLien=id>)

■ **The decree dated 22 January 2013 prohibits the introduction in France of the Asian hornet Vespa velutina.**

Article 2 : *"It is prohibited throughout France and at all times to intentionally introduce into the natural environment living specimens of the Asian hornet Vespa velutina."*

(<http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000027048139>)

## ■ Enacting text for Council directive 2000/29/EC

■ **The decree (24 May 2006) on sanitary requirements for plants, plant products and other objects** lists the organisms harmful to plants for which the introduction and dissemination are prohibited throughout the European community.

(<http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000000637300&dateTexte=vig>)

■ **The decree (3 September 1990) on sanitary inspections of plants and plant products** lists the species for which the importation is prohibited in the overseas territories. The technical annexes for continental France (Annexes A) were abrogated following the regulatory modifications that resulted in the decree dated 24 May 2006, however the annexes for the overseas territories (Annexes B) remain in force.

(<http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=LEGITEXT000006076933>)

## Regulations on the holding, trade and presentation of invasive alien species

### ■ CITES enacting texts

■ The decree dated 30 June 1998 sets the enacting conditions for the Convention on international trade in endangered species of wild fauna and flora, Council regulation (EC) 338/97 and Commission regulation (EC) 939/97.

The species for which trade must be authorised in France are those listed in the CITES implementation regulations ((EU) 578/2013).

### ■ Enacting texts for the Environmental code and/or the Rural code

■ The decree dated 10 August 2004, again pertaining to the CITES convention, sets the general operating rules for persons breeding species of non-domestic animals.

(<http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=LEGITEXT000018810562>)

■ A second decree dated 10 August 2004, toujours en lien avec la CITES, fixe les règles générales de fonctionnement des installations d'élevage d'agrément d'animaux d'espèces non domestiques.

(<http://legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000000443942&fastPos=1&fastReqId=2009995165&categorieLien=cid&oldAction=rechTexte>)

■ The decree dated 21 November 1997 defines dangerous species, e.g. the common snapping turtle (*Chelydra serpentina*).

(<http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000000387290&dateTexte=29990101>)

■ The decree (21 July 1983) on the protection of native crayfish (now being abrogated in view of replacement by a more general decree) makes necessary an authorisation for the transportation and sale of red swamp crayfish: Article 2 : *"Authorisation is required, under the conditions set by Decree 77-1296 (25 November 1977) mentioned above, for the importation, under all customs systems with the exception of transit from border to border without trans-shipment, the transport and the sale of living crayfish (no. 03-03 A III ex b customs tariff) of the Procambarus clarkii (Girard) 1852 species, called the red marsh crayfish or the red swamp crayfish."*

([http://www.auvergne.developpement-durable.gouv.fr/IMG/pdf/Arrete\\_ecrevisses\\_21\\_juillet\\_1983\\_cle0281bf.pdf](http://www.auvergne.developpement-durable.gouv.fr/IMG/pdf/Arrete_ecrevisses_21_juillet_1983_cle0281bf.pdf))

## Regulations on the management of invasive alien species

### ■ Grenelle environmental agreement



Article 23 of Law 2009-967 (3 August 2009) on programming implementation of the Grenelle environmental agreement set the objectives in view of stopping the loss of wild and domestic biodiversity and restoring and maintaining its evolutionary capacity. One of the objectives is the *"implementation of action plans against invasive alien species, both terrestrial and aquatic, to prevent their installation and expansion, and reduce their harmful impacts"*.

(<http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000020949548&dateTexte=&categorieLien=id#JORFARTI000020949605>)

### ■ Enacting texts for the Environmental code and/or the Rural code

■ The decree dated 26 June 1987 lists the wildlife species for which hunting is authorised. The species living in the corresponding aquatic environments are coypus (*Myocastor coypus*), muskrats (*Ondatra zibethicus*), Northern raccoons (*Procyon lotor*), raccoon dogs (*Nyctereutes procyonoides*) and American mink (*Neovivon vison*). Also included in the list are Sika deer (*Cervus nippon*) and fallow deer (*Dama dama*).

(<http://legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000000296288&dateTexte=vig>)

■ **The decree dated 31 July 2000 lists the organisms harmful to plants, plant products and other objects that are subject to mandatory countermeasures.** The lists deal with plant diseases and pests, and include in Annex B (mandatory countermeasures under certain conditions) two rodents living in aquatic environments, coypus (*Myocastor coypus*) and muskrats (*Ondatra zibethicus*).

(<http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000000584174>)

■ **The decree dated 11 August 2006 lists the species, races and varieties of domestic animals** of which some are occasionally considered invasive alien species (e.g. black swan, Egyptian goose) if they return to the natural environment.

(<http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000000789087>)

■ **The decree dated 6 April 2007 concerns the control of coypu and muskrat populations.**

(<http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=LEGITEXT000006056474>)

■ **The decree dated 23 December 2011 authorises hunting of the Canada goose (*Branta canadensis*)** jusqu'en 2015.

(<http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000025023620>)

■ **The annual decree dated 24 March 2014**, in application of article R. 427-6 of the Environmental code, lists the periods and conditions under which alien species of animals deemed harmful shall be destroyed throughout continental France.

(<http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000028814668&categorieLien=id>)

The species in question are coypus (*Myocastor coypus*), muskrats (*Ondatra zibethicus*), Northern raccoons (*Procyon lotor*), raccoon dogs (*Nyctereutes procyonoides*), American mink (*Neovivon vison*) and Canada goose (*Branta canadensis*).

■ **The decree dated 12 November 1996 authorises the shooting of the ruddy duck (*Oxyura jamaicensis*)** by authorised persons, in conjunction with the recommendations made by the Bern convention.

(<http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=LEGITEXT000005622132>)

In addition, (non-invasive) alien species may be preventively removed from the natural environment on the basis of texts pertaining to sanitary conditions, e.g. the prohibited importation of prairie dogs (*Cynomys* spp.) from the U.S. to prevent the introduction of monkeypox (Commission decision dated 20 June 2003). Prefectoral orders or municipal bylaws may be implemented to ensure public safety and health.

Locally, numerous prefectoral orders are issued for IAS management, in application of various laws and enacting texts for the Environmental code and the Rural code. The orders pertain primarily to the destruction (administrative hunts) of invasive alien fauna, e.g. sacred ibis and Canada goose.

The list of decrees and articles presented here is not complete, but provides an idea of the current status of French legislation (see Table 5). There is a clear imbalance in the regulatory texts between animal and plant species. To date, only one decree (2 May 2007) concerns plant species. Many regulatory aspects enter into play when management operations for invasive species are set up, e.g. the regulations concerning the management of green waste (see Box 8).

**Table 5** Main regulatory texts governing the introduction, holding, trade and management of invasive alien species in aquatic environments in continental France.

Scope	Text	Biological group or species	IAS in aquatic environments (partial list)
Introduction	MD 2010/07/30	Mammals, reptiles, amphibians	Red-necked Wallaby Raccoon dog American mink Northern raccoon North American beaver Muskrat Coypu Brown rat Ruddy duck Sacred ibis Canada goose Egyptian goose All species belonging to the genera Chrysemys, Pseudemys, Trachemys, Graptemys, Clemmys, African clawed frog, American bullfrog, Levant water frog, Balkan frog
	MD 2013/01/22	Asian hornet	<i>Vespa velutina</i>
	R. 432-5 Environmental code	Fish, amphibians and crayfish	Black bullhead Pumpkinseed All alien crayfish, Chinese mitten crab, Bullfrog
	MD 2007/05/02	Water primrose	<i>Ludwigia grandiflora</i> and <i>Ludwigia peploides</i>
	MD 2006/05/26	Invertebrates, micro-organisms and parasitic plants	Listed organisms in annexes of Directive 2000/29/EC (08 May 2000)
	Decision 2012/697/EU	Molluscs	<i>Pomacea</i> sp.
	MD 1990/09/03 (Overseas departments)	Invertebrates, micro-organisms and plants harmful to plants	See the list appended to MD 1990/09/03 <i>Altamanthera phylloxeroïdes</i> <i>Elodea</i> spp. <i>Salvinia molesta</i>
Trade	MD 2007/05/02	Water primrose	<i>Ludwigia grandiflora</i> and <i>Ludwigia peploides</i>
	MD 1998/06/30 (CITES)	Birds, mammals, reptiles and amphibians	Ruddy duck Painted turtle American bullfrog Red-eared slider turtle
Holding Farming Presentation to the public	MD 1983/07/21	Red swamp crayfish	<i>Procambarus clarkii</i>
	MD 2004/08/10	Fauna	See ONCFS review (Sarat, 2012)
	MD 1997/11/21	Fauna	Species considered dangerous
	MD 2006/06/11	Birds	Black swan Egyptian goose
Hunting	MD 2011/12/23	Canada goose	<i>Branta canadensis</i>
	MD 1987/06/26	Mammals	Coypu Muskrat Northern raccoon Raccoon dog
Pest	MD 2014/03/24	Mammals, birds	American mink Muskrat Northern raccoon Raccoon dog American mink Canada goose
Mandatory countermeasures	MD 2000/07/31	Micro-organisms, plants and animals harmful to plants	Coypu Muskrat See the list appended to DM 2000/07/31
Control	MD 2007/04/06	Rodents	Coypu Muskrat
	MD 1996/11/12	Ruddy duck	<i>Oxyura jamaicensis</i>

MD: ministerial decree

## Partial list of regulations governing the management of green waste

Plants withdrawn from the environment are considered a form of organic waste and, more precisely, green waste (article R 541-8 in the Environmental code). General regulations for waste management apply to organic waste. Plant waste can therefore be put into a number of existing waste elimination and recovery systems.

### Storage

Prior to 1 July 2002, it was possible to send this type of waste to landfills (waste storage centres) (Council directive dated 26 April 1999). Green waste could be sent to Class 2 storage centres (non-dangerous waste). Since 1 July 2002 (article L541-24 Environmental code), only ultimate waste may be placed in landfills, i.e. green waste is excluded.

### Composting

Green waste may be sent to composting centres (Nomenclature of regulated installations for environmental protection, ICPE 2780) (for use as organic conditioner, crop supports or fertiliser according to precise standards) or transferred to towns or individuals (volumes greater than 5 cubic metres and above the ICPE threshold are subject to departmental health regulations).

### Incineration

Incineration of green waste is possible in certified centres compliant with section 2771 of the ICPE nomenclature. However, this solution is not advised due to the atmospheric pollution and the often high level of humidity in the waste.

In that green waste is considered household waste, burning in the open air is prohibited (except with approval by the prefecture following an advisory opinion by the CODERST) by article 84 in the standard departmental health regulations and the interministerial circular dated 18 November 2011.

### Spreading on fields

The circular dated 10 January 2012 on the implementation conditions of biowaste sorting at the source by large producers (article L 5541-21-2 Environmental code) sets as the main objective the return to the soil of organic matter that is compatible with environmental-preservation requirements, without excluding other techniques making use of the waste.

This means the biowaste must be sorted at the source for its organic reuse. Plant waste falls under the category of green waste, which itself is part of biowaste (defined by article R 541-8 in the Environmental code). This means that the circular mentioned above is applicable. The only exceptions in terms of the mandatory sorting are pruning and trimming materials that are used for energy generation.

In addition, the circular requires prior treatment of the waste, e.g. composting or methanisation. It is important to note the composting may be carried out by a local government or an individual, with prior temporary storage for drying.

The spreading or plowing under of “fresh” waste (without prior treatment) is not authorised.

These requirements become applicable above certain thresholds (decree dated 12 July 2011 and R. 543-225), i.e. 80 metric tons per year in 2013.

For local governments, the requirement concerning sorting and prior treatment applies only to the quantities over and above the threshold.

Consequently, compost (primarily of green waste, even if not certified) or digestate (methanisation residue) may be directly spread or plowed under in fields (a spreading plan is mandatory for ICPE waste (authorisation or declaration)).

### **Methanisation**

Use of green waste for methanisation is regulated by ICPE 2781 or subject to the Waste & health network (RSD), depending on the volume.

*See articles L 541-1, R 541-8 Environmental code, Voynet circular (28 April 1998) on implementation and changes in departmental plans for the elimination of household and similar waste, circular (28 June 2001) on the management of organic waste, circular (6 June 2006) on installations for the storage of household waste and circular (25 April 2007) on the management plan for household waste, circular (10 January 2012) on the application of biowaste sorting at the source by large producers, interministerial circular (18 November 2011) prohibiting burning in the open air, regulatory and legal framework for agricultural methanisation and composting activities (technical guide, ADEME, 2012).*

Roland Matrat, Pays-de-la-Loire regional environmental directorate





## Further progress required

### Difficulties and needs

Increased trade and international exchanges raise the risk of new species being introduced into continental France. Only a very small proportion of introduced species become invasive, but they can cause considerable impacts in terms of the ecology and/or the economy and/or health. The progression of invasive species ignores all administrative borders and prevention remains the best barrier to new invasions (Lévêque et al., 2012).

The international scope of biological invasions has made it necessary to establish management systems based on legal documents capable of producing results on the international level. Currently, an array of international and regional regulatory texts, more or less binding (see Figure 35), address various aspects ranging from the introduction of alien species to their eradication and control (Shine et al., 2000, 2008). However, to achieve effective results in France, this legislation must be applied throughout the European continent with an equal degree of severity (Lévêque et al., 2012).

In France, similar to many other countries, the rules and regulations concerning alien species are scattered throughout the legislation on nature conservation and biodiversity, on management of water resources, on agriculture and forestry, on fishing and on quarantine measures, a situation that limits their effectiveness in regulating biological invasions (see Box 9) (Shine et al., 2000 and Shine, 2008).

Figure 35

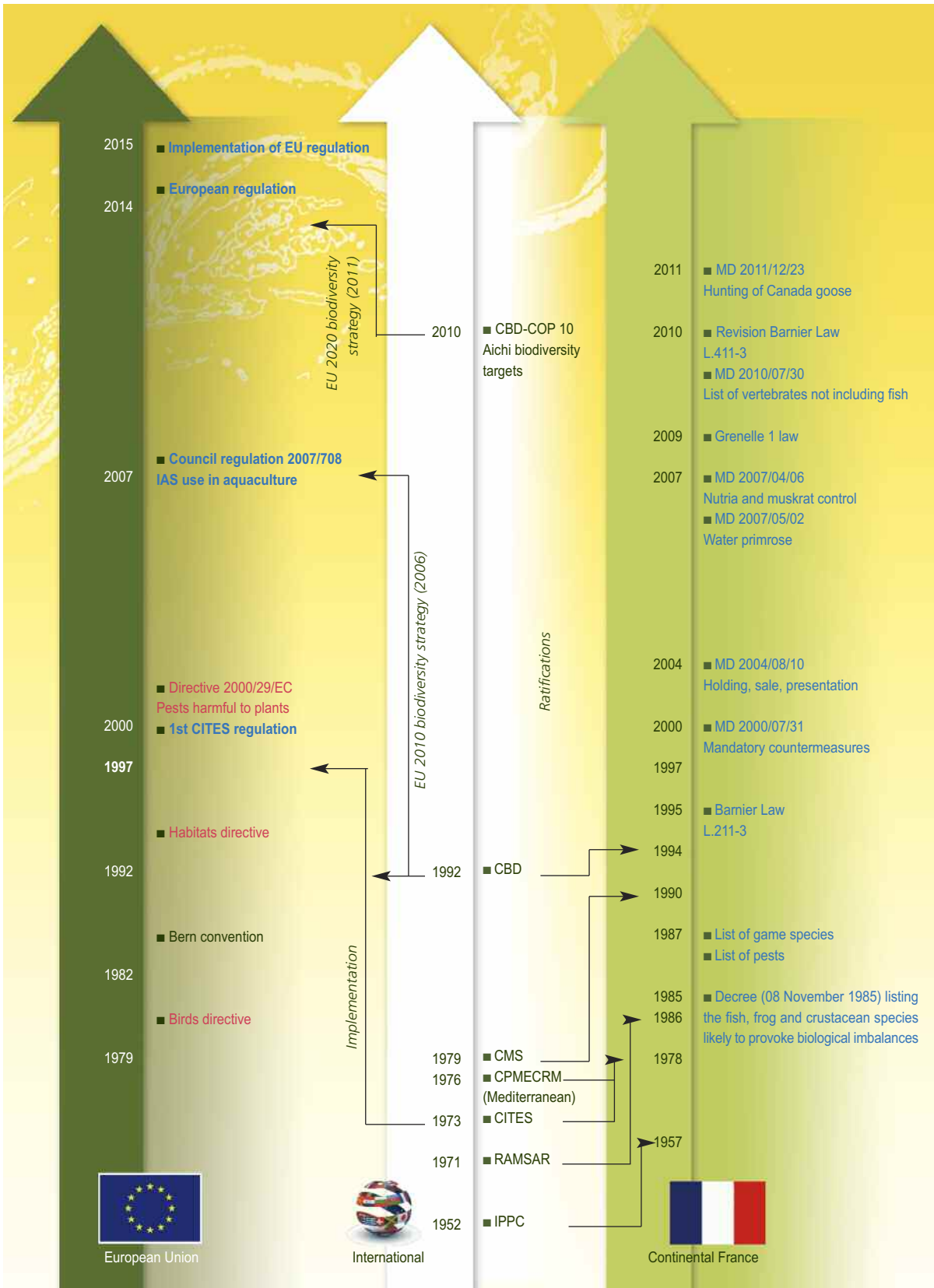


Diagram by Emmanuelle Sarat, IUCN French committee, 11 June 2014

Legislation and regulations governing invasive alien species. Texts, key dates and links between the institutional levels.

## Excerpt from the guide on establishing a legal and institutional framework for invasive alien species

*"The reasons for this fragmentation [of regulations on biological invasions] are often more historical and administrative in nature than scientific or technical. Generally speaking, the most frequently encountered problems may be grouped in a number of large categories.*

### ■ Fragmentation of legal and institutional systems

- *Absence of a strategic approach, issues involving alien species are often poorly understood or perceived as minor in the overall framework of territorial planning or the protection of biodiversity.*
- *Lack of awareness or insufficient coordination among organisations in charge of plant-protection issues, trade, conservation of natural resources and biodiversity, among other aspects, concerning the international standards and the formulation/implementation of national laws and regulations.*
- *Fragmentation of the applicable systems and inconsistency in legislative approaches, resulting in an array of institutions and great diversity in definitions, criteria, standards and procedures.*
- *Insufficient coordination between the central and local governments, particularly in some federal and decentralised systems..*

### ■ Insufficient precision in terms of scope, definitions and terminology

- *Taxonomy: legislation often does not indicate whether the stipulations are applicable beyond the species or subspecies.*
- *Scope of policy: alien fish and micro-organisms, as well as introductions in certain types of ecosystems are often forgotten.*
- *Lack of clear objectives, which reflects a lack of awareness or precision in how IASs should be handled, or excessively limited objectives. In some countries, there is no legal basis for prohibiting the introduction of IASs if they are not directly detrimental to agriculture, forestry or fishing.*
- *No definitions or inconsistency in the definitions of key words.*

### ■ Difficulties in terms of compliance with regulations, their implementation and legal remedies

- *Dominance of a purely regulatory approach, relatively few incentives and dissuasive measures, financial or otherwise, intended to discourage the introduction of undesirable species, few measures to eradicate or control them.*
- *Lack of measures concerning paths and vectors of unintentional introductions.*
- *Cumbersome, long and costly authorisation and risk-analysis procedures.*
- *Lack of legal documents enabling the creation of continuous-surveillance systems.*
- *Lack of clearly defined powers and obligations in terms of the eradication, containment and control of invasive species, fall back on crisis-management techniques when invasions occur.*
- *Insufficient application of legislation (regulations often not observed, lack of means to determine responsibilities) because standard civil and penal procedures are difficult to apply in situations involving alien species."*

*Similar observations were made on the national level (Shine, 2008).*

*([http://especies-envahissantes-outremer.fr/pdf/clare\\_shine\\_analyse\\_reglementation\\_2008.pdf](http://especies-envahissantes-outremer.fr/pdf/clare_shine_analyse_reglementation_2008.pdf))*

This kaleidoscope of texts from different ministries makes it relatively complex to grasp and effectively use the regulations on IASs. Managers of aquatic environments can also encounter difficulties in interpreting the texts, as well as in finding contact persons for assistance in applying the regulations. Effective coordination between the various public organisations in charge of trade, conservation of natural resources, management of pests, etc. would considerably improve the implementation of the regulations.

In addition, a number of gaps exist in the national regulations (see Box 10), in particular concerning aquatic plants for which only one decree is currently applicable, i.e. the decree (2 May 2007) prohibiting the trade and transportation of two invasive species of water primrose (*Ludwigia grandiflora* and *Ludwigia peploides*). The initial list that had circulated among the network of experts included at least 20 species, but only the two primrose species, among the most common in France, were mentioned in the decree (Dutartre et al., 2012).

However, the situation should soon improve with impending regulatory upgrades in the framework of the European regulation and the national strategy for invasive species having an impact on biodiversity, implemented by the Ecology ministry (see Chapter 3) (Dutartre et al., 2012).

One of the main means to improve the implementation of regulations would be to reinforce the human, technical and financial resources allocated to controlling voluntary imports (e.g. the sale of species for ornamentation and aquariums).

### Improvements required to meet the needs of managers

The necessary improvements are listed below.

- Avoid duplicate texts in different regulations, particularly concerning animal species (e.g. aquatic rodents, coypus and muskrats, are the topic of regulations concerning plant protection and those concerning hunting, wildlife and pests).
- Improve the interpretation of certain regulatory texts.
- Use common terms in texts (introduced species, non-native species, species likely to provoke biological imbalances, etc.).
- Identify sources for selection of species lists (INPN, DAISIE, regional lists, regulatory lists, etc.).
- Improve interministerial coordination on the national level and take into account all the existing networks of stakeholders.
- Prepare regulations on procedures for early detection and rapid intervention.
- Improve the dissemination of information on recent additions to regulations (e.g. the lists of regulated animal species).
- Facilitate access to and interventions on private property (see Figure 36).
- Set up pragmatic regulations and control methods for captive wildlife whose past escapes have led to numerous populations (northern raccoons, black swans, sacred ibis, ruddy ducks, etc.).
- Enhance the responsibility of people holding captive animals (mandatory chipping of animals, application of the “polluter pays” principle).
- Simplify regulations and make possible consistent prefectural orders (create the legal basis and similar management conditions in all departments).
- Enhance responsibility, consistency and national solidarity, e.g. the eradication of a species must be carried out in the concerned region and in the neighbouring regions (the case of the sacred ibis).
- Define a widely acknowledged precautionary principle to encourage fast reactions, seen as an essential factor by all stakeholders.

Figure 36



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*Difficulties in accessing and taking action on private properties can hinder the management of invasive alien species. That is the case for ponds in Sologne where a management plan for American bullfrogs (*Lithobates catesbeianus*) has been set up.*

## Sources of information

Numerous discussions with the managers of aquatic environments have made clear their constant need for practical manuals and guides on regulations governing IASs. The information below is not a manual or guide, but simply a list of reference documents providing information on IAS regulations on different administrative levels.

### ■ Légifrance

Légifrance, the public service for internet access to laws, provides access to French legal documents. The codes, laws, regulations, ministerial decrees and conventions concerning IASs may all be consulted on the site [www.legifrance.gouv.fr](http://www.legifrance.gouv.fr).

### ■ Site of the Biological invasions in aquatic environments work group

The chapter in this book on applicable regulations may be consulted on the IBMA site and is regularly updated.

(<http://www.gt-ibma.eu/base-documentaire/reglementation/>)



### ■ EauFrance, the water-information portal

The portal of the Water-information system in France (WIS-FR) presents vast amounts of information on water, aquatic environments and their functions, the threats weighing on them and the applicable laws and regulations. A page is devoted to regulations governing IASs in aquatic environments.

(<http://www.zones-humides.eaufrance.fr/reglementation/faune-et-flore-des-milieux-humides>).



### ■ Guide to designing legal and institutional frameworks for alien invasive species (Shine *et al.*, 2000)

This guide presents an overview of the legal instruments and the regional and international institutions dealing with IASs, with the relevant texts, decisions, activities and programmes pertaining to those legal instruments. ([http://www.issg.org/pdf/publications/GISP/Guidelines\\_Toolkits\\_BestPractice/Shine\\_et\\_al\\_2000\\_EN.pdf](http://www.issg.org/pdf/publications/GISP/Guidelines_Toolkits_BestPractice/Shine_et_al_2000_EN.pdf))

### ■ Sites of the various French ministries

On the site of the Ecology ministry (not updated):

<http://www.developpement-durable.gouv.fr/Un-engagement-international,13025.html>

On the site of the Agriculture ministry:

<http://agriculture.gouv.fr/actualites-reglementaires>.

<http://agriculture.gouv.fr/actualites-reglementaires>

Regulatory information on the site of the General food directorate (DGAL):

<http://galateepro.agriculture.gouv.fr/>

### ■ Review of regulations on invasive alien vertebrate species in the Loire basin (Sarat (coord.), 2012)

This review was drafted by the Centre - Île-de-France regional office of the National agency for hunting and wildlife (ONCFS), in the framework of the *Loire grandeur nature* plan. It presents the main elements of applicable regulations concerning invasive alien vertebrate species in the Loire basin. It does not cover all species or all aspects, but will be updated over time, in step with legal developments.

The guide is available on the ONCFS site:

<http://www.oncfs.gouv.fr/laconnaissance-et-la-gestion-des-vertébres-amp-nbsp-ru526/La-connaissance-et-gestion-des-vertébres-envahissants-ar1376>



■ **Management manual for invasive alien plants in aquatic environments and on river banks in the Loire-Bretagne basin (Haury et al., 2010)**

This manual presents the applicable regulations on invasive aquatic and riparian plant species, divided along the legal notions of prevention, introduction into natural environments and management. It also reviews the obligations of managers concerning management work (access to the environment, relations with the water police, work sites for plant removal) and the instruments the site owner must obtain for the management work. The manual is available on the site of the Loire Nature resource centre:

[http://www.centrederessources-loirenature.com/mediatheque/especes\\_inva/manuel/manuel\\_complet.pdf](http://www.centrederessources-loirenature.com/mediatheque/especes_inva/manuel/manuel_complet.pdf).

■ **Current situation and recommendations on the legal instruments addressing invasive alien species in the French overseas territories (Shine, 2008)**

This report discusses the current situation and proposes recommendations on the legal instruments addressing invasive alien species in the French overseas territories. It comprises a general section and more specific information on the national legal system and on each local government. It includes:

- a summary of the relevant legal instruments, on the international level and for the local governments, that contain the obligations accepted by France;
- an inventory of existing measures on the national level and in each local government, with an assessment of their effectiveness;
- practical recommendations for the country and each local government on how to improve management of IASs in regulatory texts and the effectiveness of implementation.

([http://especes-envahissantes-outremer.fr/pdf/clare\\_shine\\_analyse\\_reglementation\\_2008.pdf](http://especes-envahissantes-outremer.fr/pdf/clare_shine_analyse_reglementation_2008.pdf))

■ **National list of natural heritage**



The National list of natural heritage (INPN) manages and disseminates on the internet information on the national aquatic and terrestrial natural heritage (present and former plant and animal species, natural habitats, protected areas, geological sites) in continental France and the overseas territories. The data are provided by numerous

partners and the National museum of natural history is in charge of data management, validation and dissemination. INPN makes available information on the plant and animal species present in France, including introduced species, and presents part of the applicable regulations.

(<http://inpn.mnhn.fr>)

■ **State services and other agencies**

In spite of the diversity of the applicable legal texts and the difficulties in disseminating the information, the various State services, the water police (Onema, ONCFS, DDT(M)) and all the other entities charged with enforcing the law must be familiar with the laws and regulations. They are therefore the first institutions to contact for information on regulations.