

***Harmonia*, an information system dedicated to non-native invasive species in Belgium**

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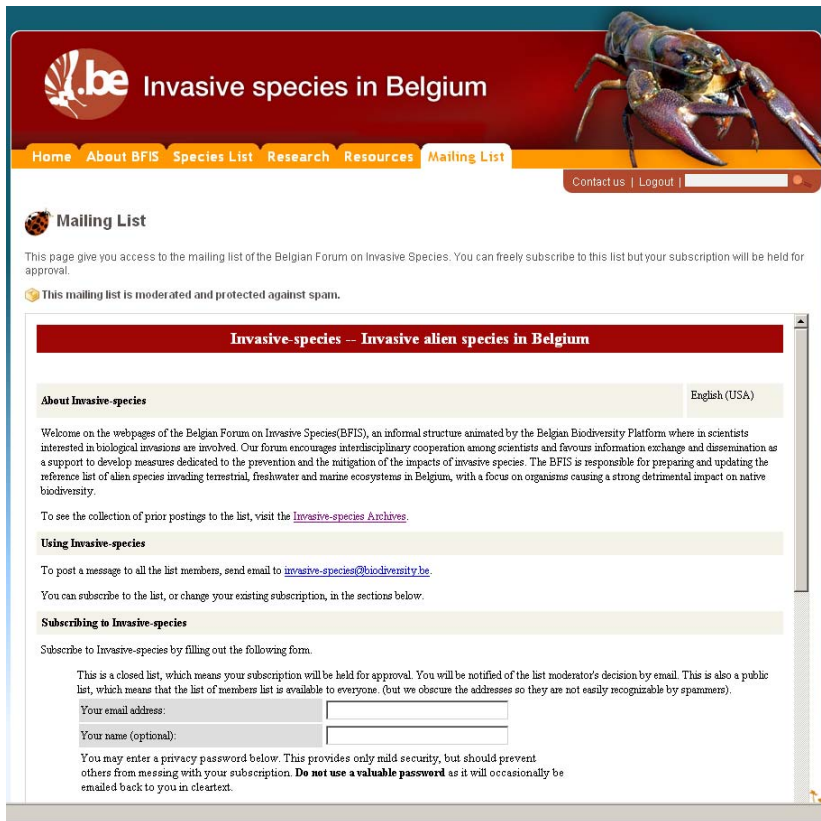
An initiative of the Belgian Forum on Invasive Species (BFIS)

The BFIS

The BFIS favours information exchange and dissemination as a support to develop measures dedicated to the prevention and the mitigation of the impacts of invasive species.

It is responsible for preparing and updating the reference list of alien species invading terrestrial, freshwater and marine ecosystems in Belgium, with a focus on organisms causing a strong detrimental impact on native biodiversity.

The BFIS is the national node of the IUCN Invasive Species Specialist Group.



The screenshot shows the website for the Belgian Forum on Invasive Species (BFIS). The header features the logo 'Invasive species in Belgium' with a crab image. A navigation bar includes links for Home, About BFIS, Species List, Research, Resources, and Mailing List. Below the navigation, there is a 'Mailing List' section with a welcome message and a note that the list is moderated. A form titled 'Invasive-species -- Invasive alien species in Belgium' is displayed, containing sections for 'About Invasive-species', 'Using Invasive-species', and 'Subscribing to Invasive-species'. The subscription form includes fields for email address, name, and a privacy password, with a note that the list is closed and held for approval.



- 1. Risk assessment of invasive species**
2. The ISEIA protocol
3. The Harmonia information system

The process of biological invasion

Stages

Management

Assessment

Introduction

Establishment

Spread

Impact

Prevention

Predicting potential invasive
species and impacts

1. Predictive risk assessment methods

(preventing species introduction in new environments)

Methodology

Evaluation of the likelihood a species will transit all invasion stages and cause detrimental impact on biodiversity, based on **species' intrinsic attributes** (biological profiles) and on environmental characteristics.

Accuracy

60-90 % correct predictions (Daelher & Carino 2000, Krivanek & Pysek 2006).

Examples

Governmental pest or weed risk assessment protocols (EPA, EPPO & IPCC standards);
Quantitative predictive models (e.g. Kolar & Lodge 2002).

The process of biological invasion

Stages

Management

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Spread

Impact

Eradication

Containment

Mitigation

Assessing impact
based on organism's
invasion histories

2. Impact assessment methods

(prioritization of management actions in the field)

Methodology

Documenting **impact histories** in target areas and neighbour areas with similar eco-climatic conditions, through a standardised conceptual framework to quantify species' negative impact on biodiversity (e.g. Ricciardi & Rasmussen 1998).

Accuracy

High level providing that impacts are documented and invasion mechanisms are well understood.

Examples

Morse et al. 2004

Invasive species assessment protocol,

Branquart et al. 2006

Invasive species environmental impact assessment (ISEIA).



1. Risk assessment of
invasive species

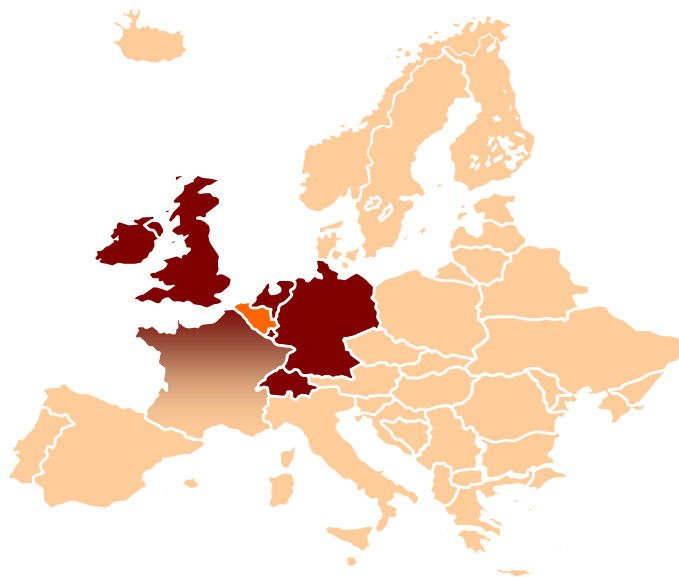
2. The ISEIA protocol

3. The Harmonia infor-
mation system

ISEIA protocol: main purposes

(Invasive Species Environmental Impact Assessment)

The ISEIA protocol is a simple and low-cost tool dedicated to the identification of non-native species that are likely to exert a strong detrimental impact on biodiversity in Belgium. It provides the scientific background to help managers to set priorities for eradication and mitigation actions.



Desirable properties of the protocol

(Invasive Species Environmental Impact Assessment)

- **Based on scientific knowledge**
As far as possible, information used for impact assessment should be based on published data;
- **Standardisation & objectivity**
Minimise the use of subjective opinions;
- **Transparency**
Easy to see why a species is identified as detrimental;
- **Repeatability**
Different assessors should reach similar conclusions;
- **Universality**
Usable for organisms from different taxonomic groups and ecosystems.

Four main sections of the protocol

(Invasive Species Environmental Impact Assessment)

1. Ability to **disperse in the environment** readily
Species' potential for long distance dispersal by human and natural means?
2. Ability to **colonise high conservation value habitats**
Species' potential to invade "undisturbed" communities?
3. Ability to **cause substantial impacts on indigeneous species**, with a focus on rare and threatened species;
Species' potential to cause species replacement at local and regional scales through various mechanisms?
4. Ability to **alter ecosystem structure and processes** in ways that significantly decrease survival of native species (nutrient cycling, hydrology, natural successions, food webs, etc).

Calculating the ISEIA index

(Invasive Species Environmental Impact Assessment)

Parameter	Score
[Establishment]	
Dispersion potential	1-3
Colonisation of natural habitats	1-3
Impact on native species	1-3
Impact on ecosystems	1-3
ISEIA index	4-12

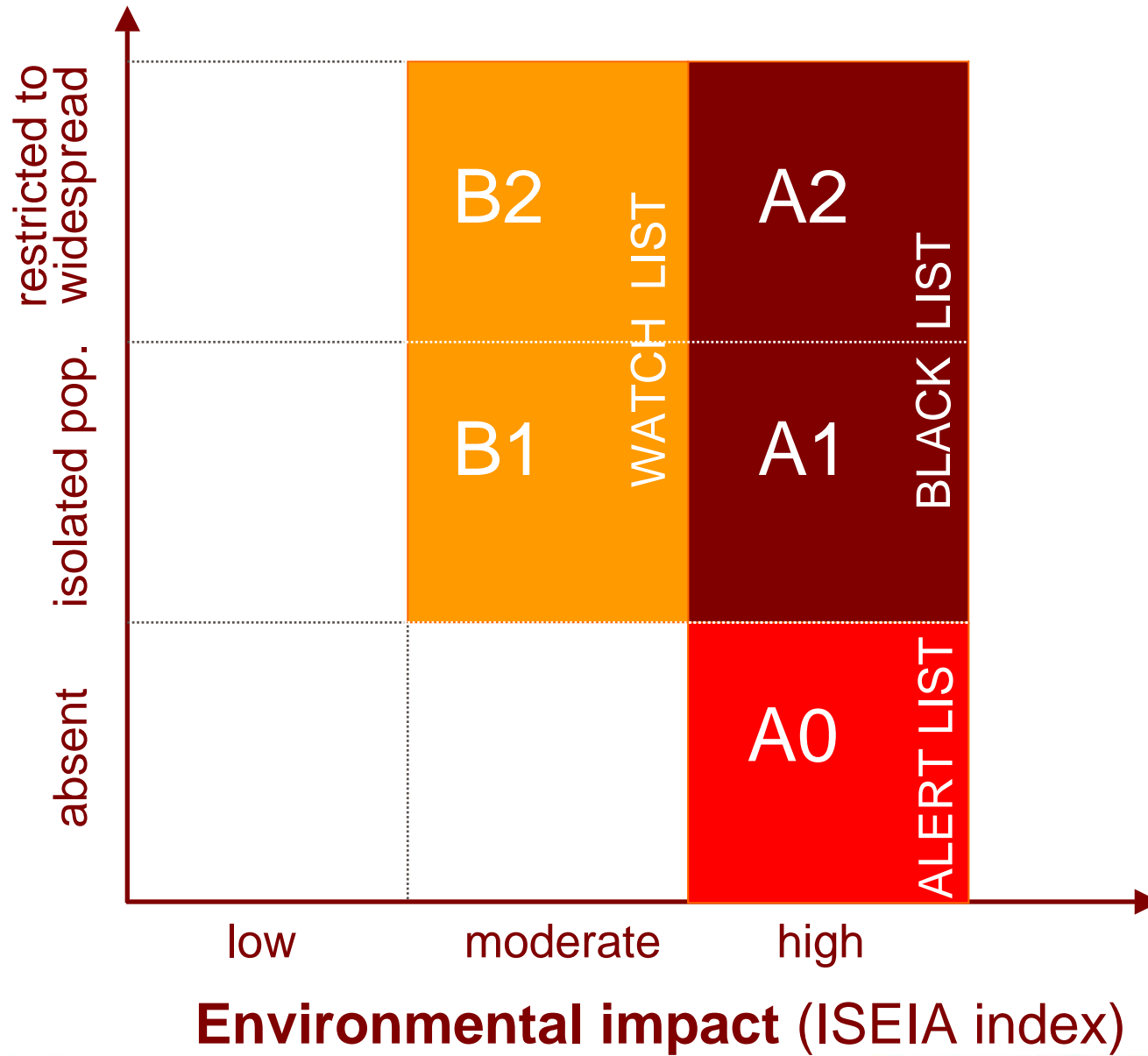


black list: ISEIA index = 11-12



watch list: ISEIA index = 9-10

Invasion stage in Belgium



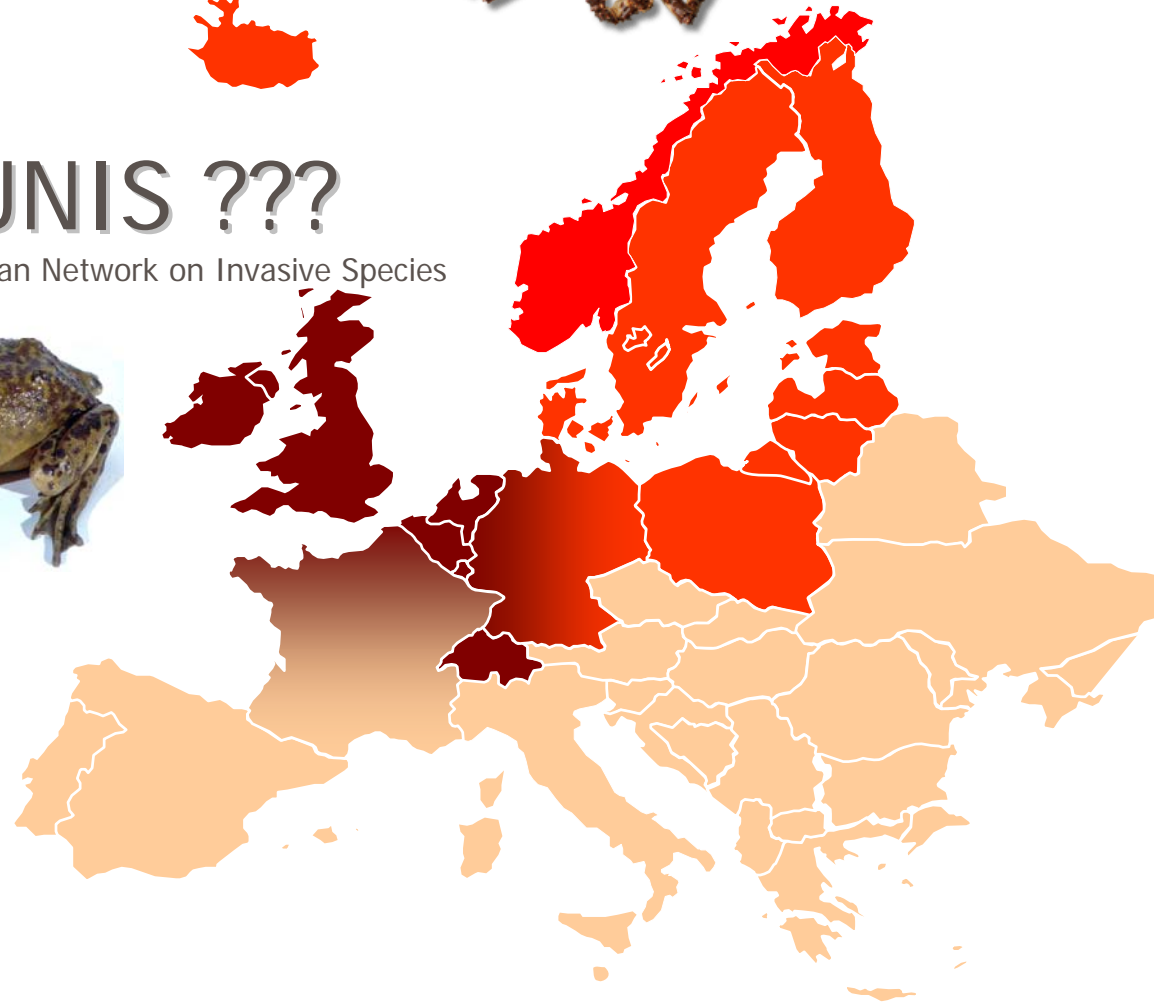
NOBANIS

North European and Baltic Network on Invasive Species



WEUNIS ???

West European Network on Invasive Species



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Invasive species in Belgium



- Home
- About BFIS
- Species List
- Research
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- Mailing List

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Sander lucioperca - Zander, Pike-perch

This species was observed in the wild for the first time in 1890. Today it is widespread all over Belgium. It is recorded on the Belgian **watch list** of invasive species.

[more information](#)

More and more species are introduced outside their natural geographic range due to the increasing rate of trade in the world. Some of them are able to establish in their new environment and to develop dense populations where they can outcompete native species or disrupt ecosystem functioning. They are called invasive alien species.

The **Belgian Forum on Invasive Species** gathers scientific information on presence, distribution, auto-ecology, adverse impacts and management of invasive alien species. It regularly updates a reference list of exotic species in Belgium and is responsible for the elaboration of a black list gathering species with a strong detrimental impact on biodiversity.

Information exchange on exotic species is promoted through this website and by occasional forum meetings. The Belgian Forum on Invasive Species supports activities of the Belgian Contact Group on Invasive Species and is the national node of the IUCN Invasive Species Specialist Group.

Go to the "SOS *invasions*" Conference
(Brussels, 9 & 10 March 2006)



News

Events

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Paradox lost: genetic diversity and the success of aquatic invasions
Trends in Ecology & Evolution
Posted on 09 Aug 2007

Ecological and evolutionary insights from species invasions
Trends in Ecology & Evolution
Posted on 09 Aug 2007

Do alien plant invasions really affect pollination success in native plant species?
Biological Conservation
Posted on 21 Jun 2007

The impact of an alien plant on a native plant-pollinator network: an experimental approach
Ecology Letters
Posted on 21 Jun 2007



Ludwigia grandiflora - Mozilla Firefox

Eichier Édition Affichage Historique Marque-pages Outils ?

http://ias.biodiversity.be/ias/species/detail/11

Google

.be Invasive species in Belgium

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Ludwigia grandiflora - Water primrose

CPS

Synonym: *Ludwigia uruguayensis* **Group:** Vascular plants
French name: Jussie à grandes fleurs **Origins:** South America
Dutch name: Waterteunisbloem **Habitat:** freshwater
Family: Onagraceae **Introduction:** agri- and horticulture

A1 species

ISEIA Score : 12




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Naturalization in Belgium

First observation in the wild: 1983
Invasion stage: spread
Spatial distribution: isolated

Invasiveness

Reproduction in the wild: yes
Dispersion potential: high
Natural habitats: high

Habitat preferences: L. grandiflora lives in ponds, lakes, ditches, channels and slow-running rivers as well as in humid meadows. Its growth is favoured by water eutrophication but the plant is able to develop in oligotrophic environments.

Impacts on Species

Predation / Herbivory: low
Competition: high
Disease transmission: low
Genetic effects: unknown

Impacts on Ecosystems

Nutrient cycling: high
Physical alteration: high
Natural successions: high
Food web alteration: low

More on impacts: Water primroses are highly detrimental to the environment in Western Europe. They quickly develop and make very thick monospecific floating carpets at the surface of water bodies, altering the physico-chemical quality of water (reduction of light and dissolved oxygen), modifying water flow and causing wetland drying. Moreover, they outcompete most of native water plants and create an anoxic environment detrimental to many plant and animal species.

Data Source & References

Authors: Branquart Etienne, Vanderhoeven Sonia, Van Landuyt Wouter, Van Rossum Fabienne, Verloove Filip
Last update: 12 June 2007
References:
 Denys, L., Packet, J. & Van Landuyt, W. (2004)
Neofitén in het Vlaamse water : signalement van vaste en ruzende sterren

http://ias.biodiversity.be http://ias.biodiversity.be http://ias.biodiversity.be

Editions du Patrimoine du Jardin botanique national de Belgique, Meise.