

A new template for invasive species risk analysis: a support for decision makers

*Etienne Branquart, Tim Adriaens, Sonia Vanderhoeven, Hans van Gossum, Bram D'hondt...
... and many other colleagues!*



Cellule
interdépartementale
Espèces invasives



DIRECTION GÉNÉRALE OPÉRATIONNELLE
DE L'AGRICULTURE, DES RESSOURCES NATURELLES ET DE L'ENVIRONNEMENT

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1. Risk analysis standards Prevention in SPS Agreement



What?

WTO Agreement on the application of (phyto-) sanitary measures (“*prevention is better than cure*” principle);

Aim?

Adoption of measures to protect human, animal and plant life **without creating arbitrary discrimination or disguised restriction on trade**;

How?

Use of **international standards** and available scientific evidence to justify trade restrictions (focus on risk analysis tools).

1. Risk analysis standards

National measures



European Commission

ENTERPRISE ANL

European Commission > Enterprise and Industry > TRIS

Word - 50.2 Ko

Click on the link to download and view the draft proposal

120110208EN.DOC

Last update

Brief statement of grounds:

- Necessary
- Non-discriminatory
- Proportionality

Directive 98/34/EC, provision of information in the field of technical standards and regulation.

2011/0208/NL

Staatsblad van het Koninkrijk der Nederlanden

Jaargang 2011

410

Besluit van 2 september 2011, houdende wijziging van het Besluit aanwijzing dier- en plantensoorten Flora- en faunawet inzake de aanwijzing van eekhoornsoorten als soorten in de zin van art 14, derde lid, Flora- en faunawet (Bezit en handelsverbod exotische eekhoornsoorten)

Wij Beatrix, bij de gratie Gods, Koningin der Nederlanden, Prinses van Oranje-Nassau, enz. enz. enz.

Op de voordracht van de Staatssecretaris van Economische Zaken, Landbouw en Innovatie van 8 april 2011, no. 125531; Gelet op artikelen 14, derde lid, 75, eerste lid, en 76 van de Flora- en faunawet;

De Afdeling advisering van de Raad van State gehoord (advies van 20 juli 2011, W15.11.0236/IV);

Gezien het nader rapport van de Staatssecretaris van Economische Zaken, Landbouw en Innovatie van 30 augustus 2011, no. 225838;

Hebben goedgevonden en verstaan:

ARTIKEL I

Artikel 6, tweede lid, van het Besluit aanwijzing dier- en plantensoorten Flora- en faunawet komt te luiden:

2. Als diersoort als bedoeld in artikel 14, derde lid, van de wet zijn aangewezen de:

- Amerikaanse voseekhoorn
- grijze eekhoorn
- muntjak
- Pallas' eekhoorn

Sciurus niger;
Sciurus carolinensis;
Muntiacus reevesi;
Callosciurus erythraeus



S ET DE L'ENVIRON



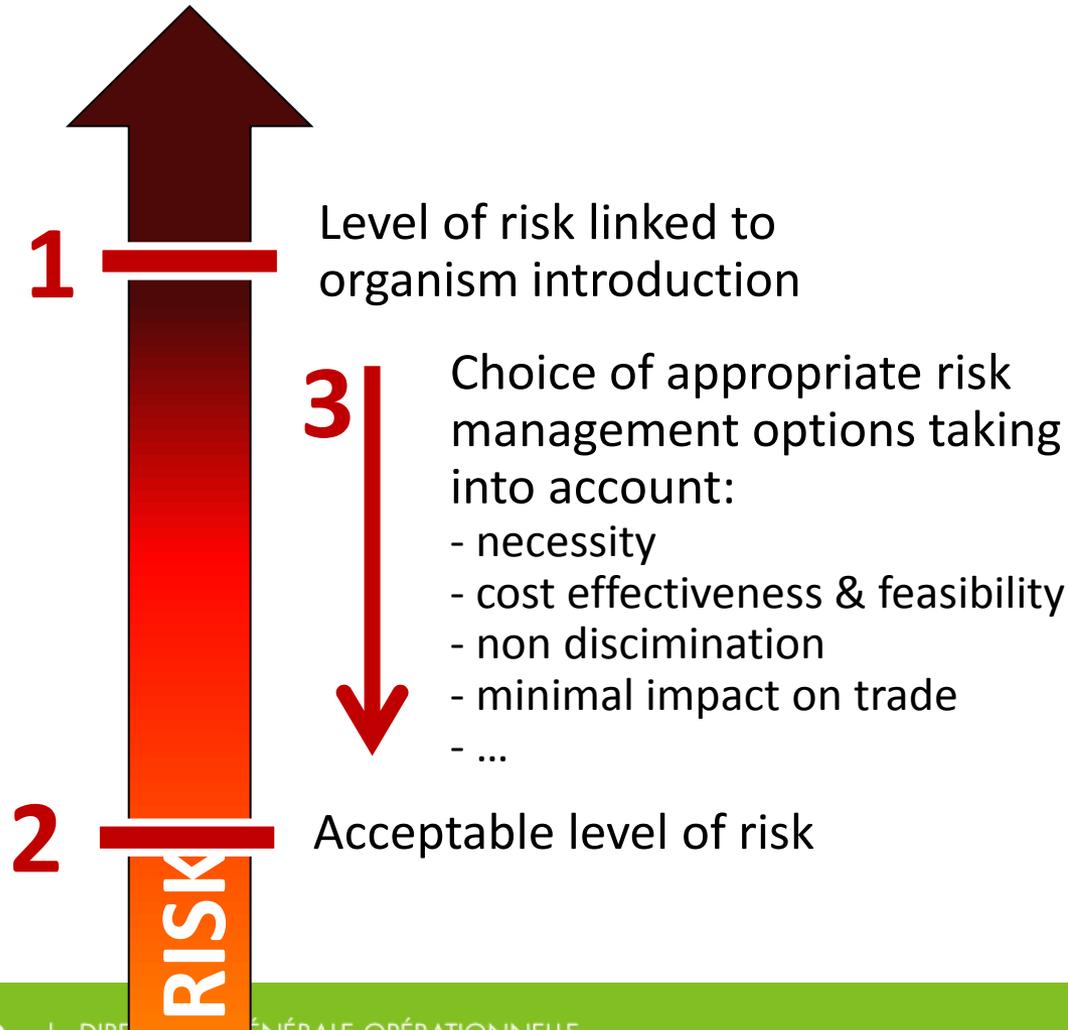
Wallonie



Service public de Wallonie

1. Risk analysis standards

Logical framework



2. The Belgian risk analysis scheme

Support for the development of regulatory tools



Adoption of the “prevention is better than cure” principle

Preparation of detailed risk analysis reports to justify risk management measures:

- > import limitations (federal)
- > trade restrictions (regions)
- > holding conditions (regions)

Result of a joint effort provided by **numerous scientists and policy makers** in Belgium.

2. The Belgian risk analysis scheme

Large partnership between scientific institutes



RISK ANALYSIS REPORT OF NON-NATIVE ORGANISMS IN BELGIUM

Risk analysis of the perennial water primrose *Ludwigia grandiflora* (Michx.) Greuter & Burdet.

Wallonie Biodiversity.be

museum
www.naturalsciences.be

federal public service
HEALTH, FOOD CHAIN SAFETY AND ENVIRONMENT

Photo: Mike Murphy

Risk analysis of the Louisiana Crayfish *Procambarus clarkii*
Risk analysis report of non-native organisms in Belgium

Developed by:
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Adopted in date of: 11 March 2013

INBCR.2013.41

Waarschuwdocument voor
niet-inheemse soorten

inbo
Instituut voor
Natuur- en Bosbeheer

Risk analysis report of non-native organisms in Belgium - American bullfrog *Lithobates catesbeianus* (Shaw)

Tim Adriaens, Sander Devisscher and Gerald Louette

2. The Belgian risk analysis scheme

More than 20 non-native species covered



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Risk Analysis

A detailed risk analysis report has been prepared for the following suite of emerging non-native species in Belgium in order to gather scientific information that may justify a potential restriction of their trade. Conclusions are relevant for Belgium and neighbouring areas with similar eco-climatic conditions.

The risk analysis tool that was used to produce those reports follows an original simplified scheme elaborated on the basis of the recommendations provided by the international standard for pest risk analysis for organisms of quarantine concern produced by the Secretariat of the International Plant Protection Convention.

Those reports have been prepared by Belgian experts from the Belgian Biodiversity Platform, the Flemish Institute for Nature and Forest, the Royal Belgian Institute for Natural Sciences, the University of Liège and the Walloon Research Department for Nature and Agricultural Areas. They can be downloaded from here:

Scientific Name	Common Name EN ▾	Taxonomic Group	Category	Report
<i>Callosciurus erythraeus</i>	Pallas's squirrel, Red-bellied tree squirrel	Mammals	A1	
<i>Carpobrotus spp.</i>	Hottentot fig	Vascular plants	A0	
<i>Cervus nippon</i>	Sika deer	Mammals	A0	
<i>Crassula helmsii</i>	New zealand pigmyweed	Vascular plants	A1	
<i>Egeria densa</i>	Brazilian waterweed	Vascular plants	A1	
<i>Hydrocotyle ranunculoides</i>	Water pennywort	Vascular plants	A2	
<i>Lagarosiphon major</i>	Curly waterweed	Vascular plants	A1	
<i>Ludwigia grandiflora</i>	Water primrose	Vascular plants	A2	
<i>Ludwigia peploides</i>	Water primrose	Vascular plants	A1	



http://ias.biodiversity.be



2. The Belgian risk analysis scheme

A new scheme derived from ISPM 11 (IPPC)

STAGE 1: INITIATION

- Organism identity
- Organism distribution

STAGE 2: RISK ASSESSMENT

- Introduction in Belgium
- Establishment capacity
- Spread capacity
- Consequences of establishment



STAGE 3: RISK MANAGEMENT

- Relative importance of introduction pathways
- Effect of preventive actions (incl. trade restriction)
- Effects of control and eradication actions

3. The risk assessment exercise

Examples derived from 5 test species

- Pre-identification of 23 non-native plant and animal species
- Trade restriction identified as an adequate risk management option for at least 19 organisms (80%)



N. Borel

Water primrose
(*Ludwigia grandiflora*)



R. Mutch

American bullfrog
(*Lithobates catesbeianus*)



J.C. Schou

Raccoon dog
(*Nyctereutes procyonoides*)



wikipedia

Louisiana crayfish
(*Procambarus clarkii*)

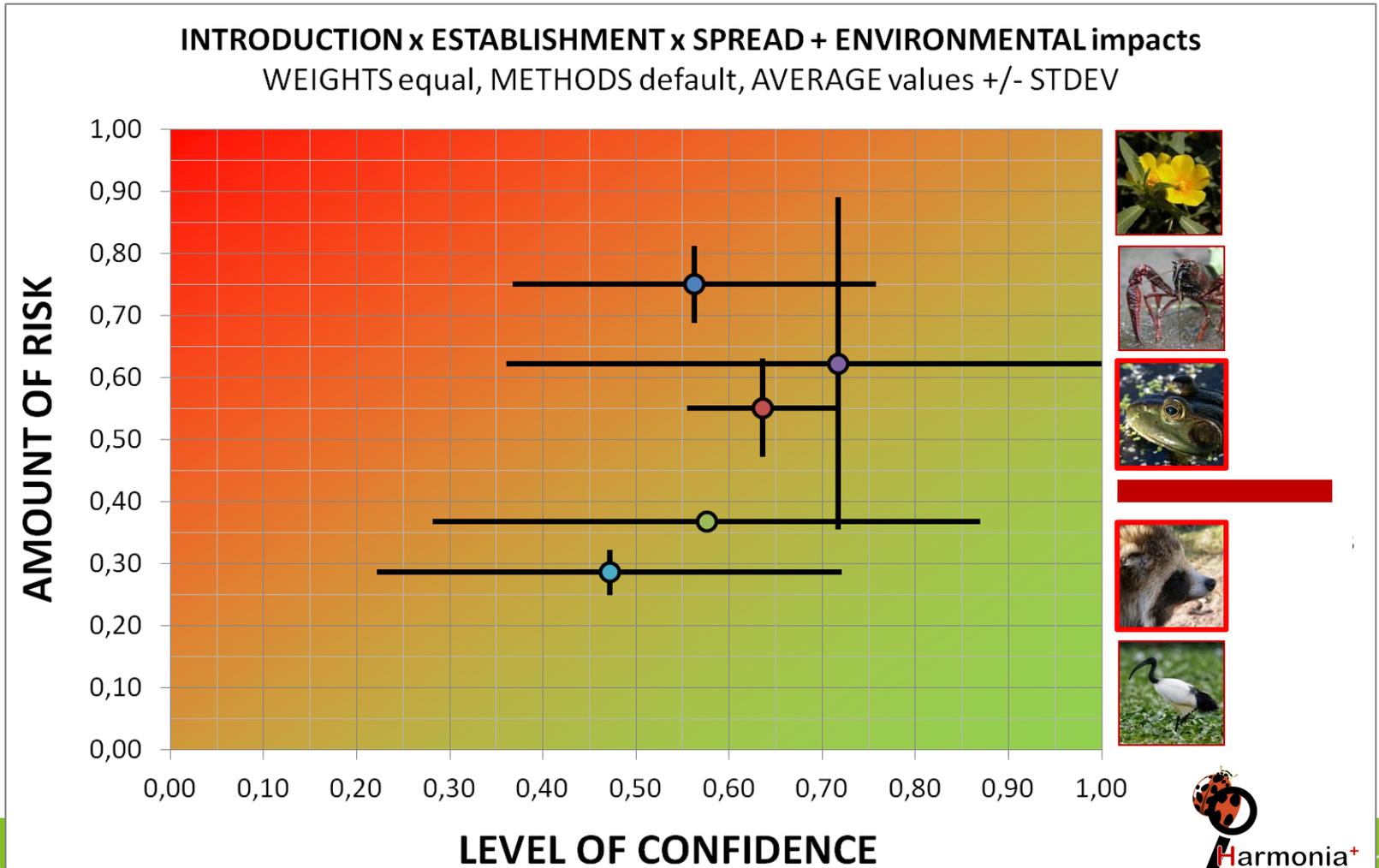


V. Onishchenko

Sacred ibis
(*Threskiornis aethiopica*)

3. The risk assessment exercise

Scoring environmental risks with Harmonia+





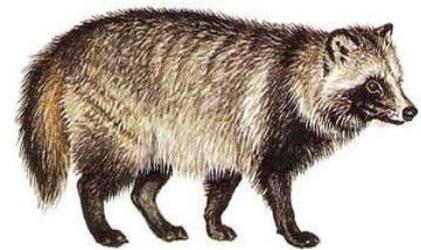
3. The risk assessment exercise

Impact of predation by the raccoon dog (textual)

The raccoon dog is an opportunist and generalist omnivorous carnivore, characterized as collector or gatherer. **Concerns about its harmfulness on bird and amphibian populations were raised after its arrival in Central Europe (...).**

Hunters have suspected for a long time that raccoon dogs may destroy the nests of many game bird species. This assertion was however not based on hard facts. In addition, most studies dealing with the effects of predation are based on the analysis of scats or stomach content, where it is difficult to make the distinction between remains from actual predation or from scavenging. **Today robust scientific studies clearly demonstrating damage caused to native birds are scarce or contradictory, even in insular environments (...).**

Its impact on prey species is lower than this due to the activity of native predators as the red fox*; there is also a general agreement that the raccoon dog behaves rather as a scavenger or a gatherer than as an active predator.



3. The risk assessment exercise

Impact of predation by the racoon dog (scoring)

A13. *The Organism* has a(n) [inapplicable low medium high] effect on the local decline of native species diversity, through predation, parasitism or herbivory.

Acert8. Answer provided with a [low medium high] level of confidence.

Abox13. Comments :

More info:

Indicate whether *The Organism* can affect particular native species through its feeding habits (predation, parasitism, or herbivory).

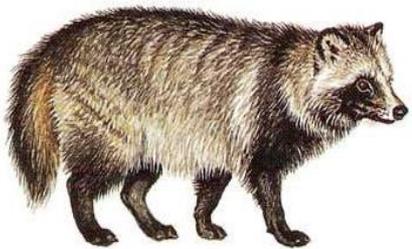
Assume that *The Area* is fully exposed to *The Organism*. Then, estimate the consequence of it feeding.

Low : at worst, *The Organism* causes limited population declines in species that are not of conservation concern

Medium : at worst, *The Organism* causes severe population declines in species that are not of conservation concern, or limited population declines in species that are of conservation concern

High : at worst, *The Organism* causes severe population declines in species that are of conservation concern

The effect on local decline of native species diversity through predation is scored as **medium** (i.e. may only cause limited decline in species of conservation concern).





3. The risk assessment exercise

Impact of predation by the bullfrog (textual)

Adult bullfrogs are **voracious carnivores, eating any animal smaller than themselves**, mainly crustaceans and insects, but also rodents, bats, frogs, birds, fish and reptiles (...).

Predation by bullfrog can result in reduction, elimination or displacement of native species, as has been shown by numerous authors. Introduced bullfrogs have been blamed for amphibian declines in much of western North America. Its predatory habits have been implicated in the decline of several native ranid frog species and one snake species (...).

Several removal experiments have also shown **spectacular recovery of native species after bullfrogs were removed or eradicated** from a site, which could be attributed to both behavioural changes and increased population sizes of native species.



3. The risk assessment exercise

Impact of predation by the bullfrog (scoring)

A13. *The Organism* has a(n) [inapplicable low medium high] effect on native species, through predation, parasitism or herbivory.

Acert9. Answer provided with a [low medium high] level of confidence.

Abox13. Comments :

More info:

Indicate whether *The Organism* can locally affect native species through its feeding habits (predation, parasitism or herbivory).

Assume that *The Organism* becomes widespread within *The Area*. Then, estimate the consequence of it feeding on targets.

Low : at worst, *The Organism* causes limited population declines in species that are not of conservation concern.

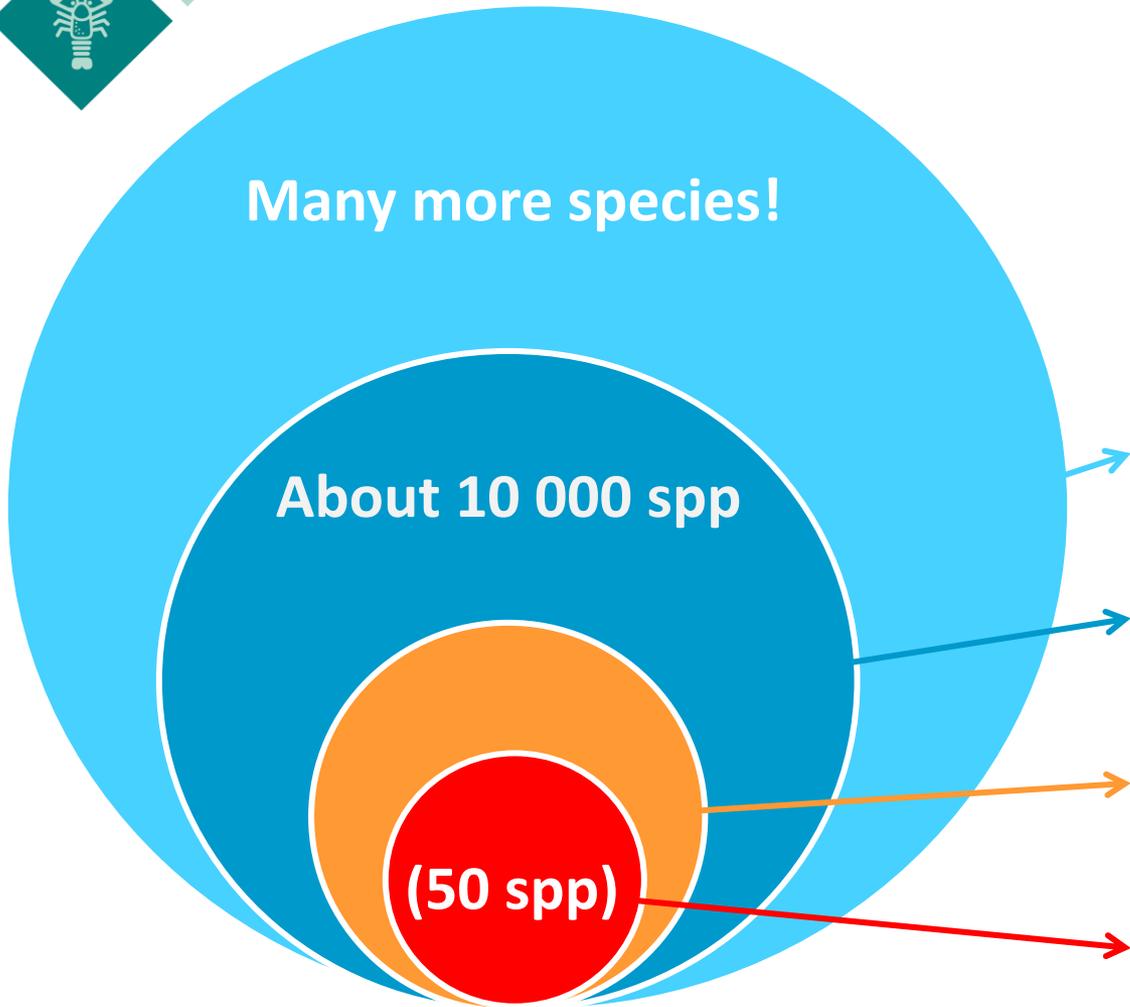
Medium : at worst, *The Organism* causes severe population declines in species that are not of conservation concern, or limited population declines in species that are of conservation concern. **High** : at worst, *The Organism* causes severe population declines in species that are of conservation concern.

The effect on local decline of native species diversity through predation is scored as **high** (i.e. may cause severe population decline in species of conservation concern).



4. Horizon scanning

Harmonia+ as a screening tool



Alien species not yet established in Europe

Alien species established in Europe

IAS of regional and MS concern

IAS of Union concern



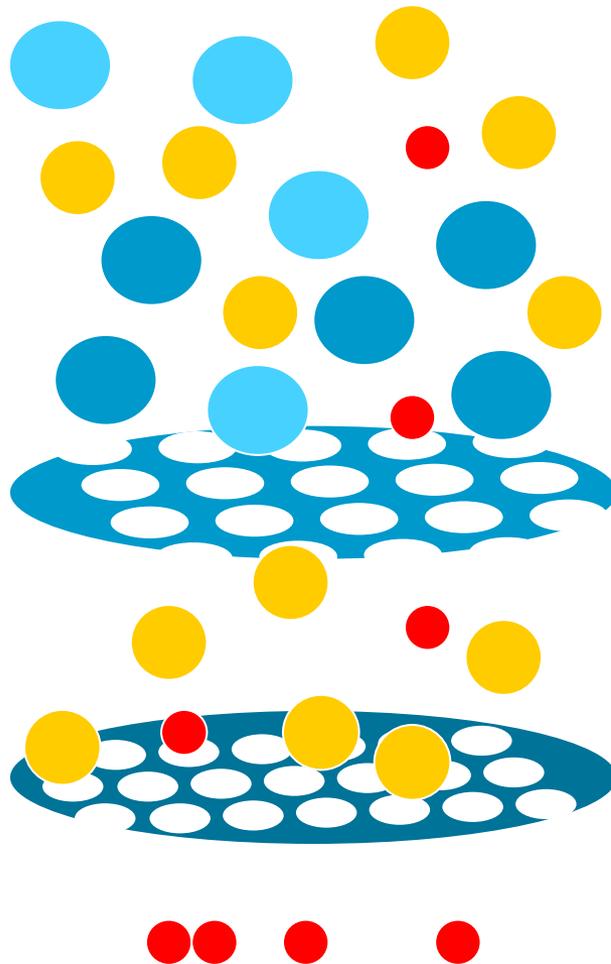
4. Horizon scanning

Harmonia+ as a screening tool



Horizon scanning and prioritization tools (e.g. Harmonia+)

Detailed risk assessment



Alien species

(established or not yet established in Europe)

List of priority species for risk assessment

List of species of EU concern

5. General conclusions

- The identification of non-native species to be submitted to trade restrictions have to be justified by sound scientific information;
- Both quick screening tools and detailed risk analyses are needed at that level (two step approach);
- New tools were developed in Belgium to meet these goals and facilitate the development of national and European regulation aiming at curbing the introduction of detrimental species;
- Regional cooperation for prioritization and risk analysis deserves to be emphasized to reduce work redundancy and share expertise, as advised by the new EU Regulation.

North West Europe Cooperation Area





Thank you very much for your attention!