



**Invasive Alien Plants  
and EPPO**

**Sarah Brunel**  
**Slovenian Plant Protection Organization**  
**22nd of June 2012**



# European and Mediterranean Plant Protection Organization



- Created in 1951 by 15 countries
- Now 50 Member Countries
- Under the International Plant Protection Convention (IPPC)
- International cooperation in plant protection (plant quarantine and plant protection products)
- Bilingual (English/French)



# Impacts of Invasive Alien Species



# Impact on agriculture



*Solanum elaeagnifolium* competes with many crops (cotton, maize, lucerne, wheat, olive, etc). In Morocco, losses of up to 64% in maize without treatment and 78% in cotton have been reported.







# Impact on land value



Agricultural land infested with *S. elaeagnifolium* loses considerable rental and resale value. In Morocco, the value of infested fields decreased by 25%. In the USA, farms have been abandoned because of infestation.



# Impact on biodiversity



*Carpobrotus* spp. outcompete other species, and threaten at least 27 plant species considered rare, endemic, or protected in the South of France.





*Crassula helmsii* outcompetes many native aquatic plants, in particular the rare starfruit *Damasonium alisma* (one of the rarest plants in UK).







# Costs of control

The management of 75 km of the Guadiana river in Spain invaded by *Eichhornia crassipes* cost 14,680,000 euros from 2005 to 2008.





In the UK, the estimate for control of the total area infested by *H. ranunculoides* by herbicides is between £250,000 and £300,000 per year.







# Impact on health

*Ambrosia artemisiifolia* provokes allergies. In the Rhone-Alpes region in France, 10% of the population is sensitive to this species.







A German study assessed the economic impact of *H. mantegazzianum* to be more than 12 million euros annually in the country, distributed among the health system (1.050.000 euros), nature reserves (1.170.000 euros), road management (2.340.000 euros), municipal management (2.100.000 euros) and district management (5.600.000 euros).





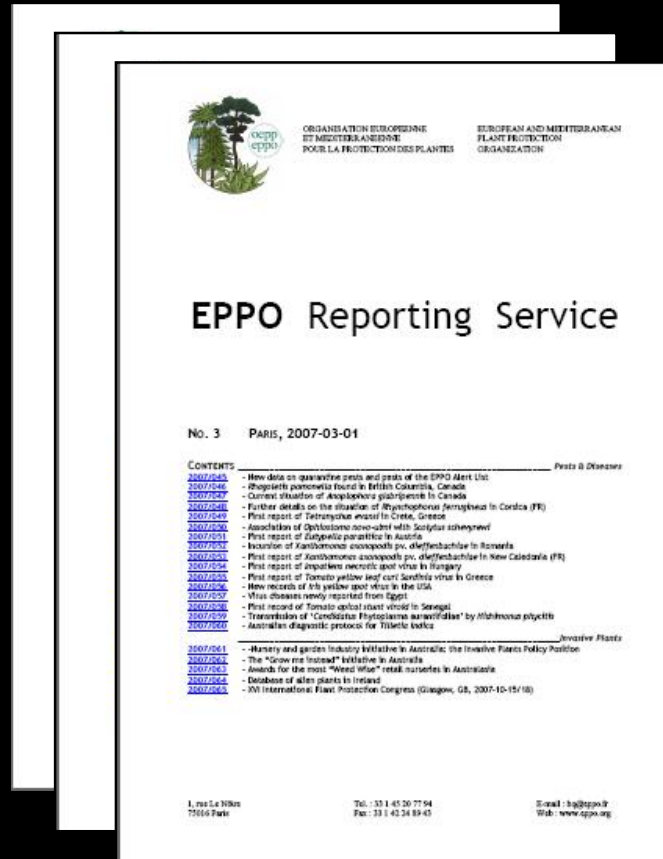


# EPPPO Information sharing





# Eppo Reporting Service



New outbreaks and alerts

Pathways of introduction

Eradication and management

Biology and research

Events: conferences

Register at:

[http://www.eppo.org/PUBLICATIONS/reporting/reporting\\_service.htm](http://www.eppo.org/PUBLICATIONS/reporting/reporting_service.htm)





# The EPPO Bulletin

Published 3 times a year, contains:

- Invited or submitted papers on all aspects of plant protection
- Papers presented at EPPO conferences (e.g. proceedings of the workshop on *Eichhornia crassipes*)
- EPPO Standards







# Eppo Network





# EPPO Panel on Invasive Alien Species

- Created in 2002 with the following tasks:
  - to collect data on invasive alien plants in the EPPO region,
  - to collect information on official control measures existing in the EPPO region for invasive alien plants,
  - to conduct pilot studies on pest risk assessment and pest risk management of specific invasive alien plants.
- About 20 Panel members nominated by the National Plant Protection Organization of their countries.
- Meets every year.



# Organizing Workshops



Workshop on  
*Eichhornia crassipes*  
(Water Hyacinth) in  
Merida, Spain in 2008  
40 participants from  
13 countries



Workshop on  
*Solanum elaeagnifolium*  
(Silverleaf nightshade) in  
Souss, Tunisia in 2006  
23 participants from 9  
countries







# Organizing Training Workshops



## Training on Pest Risk Analysis:

- In Cyprus in 2008
- For Russian speaking countries in 2009
- For French speaking countries in 2010



CSIRO/EPPO Trainings on CLIMEX in Spain in 2009 and in France in 2011





European Environment Agency



efsa

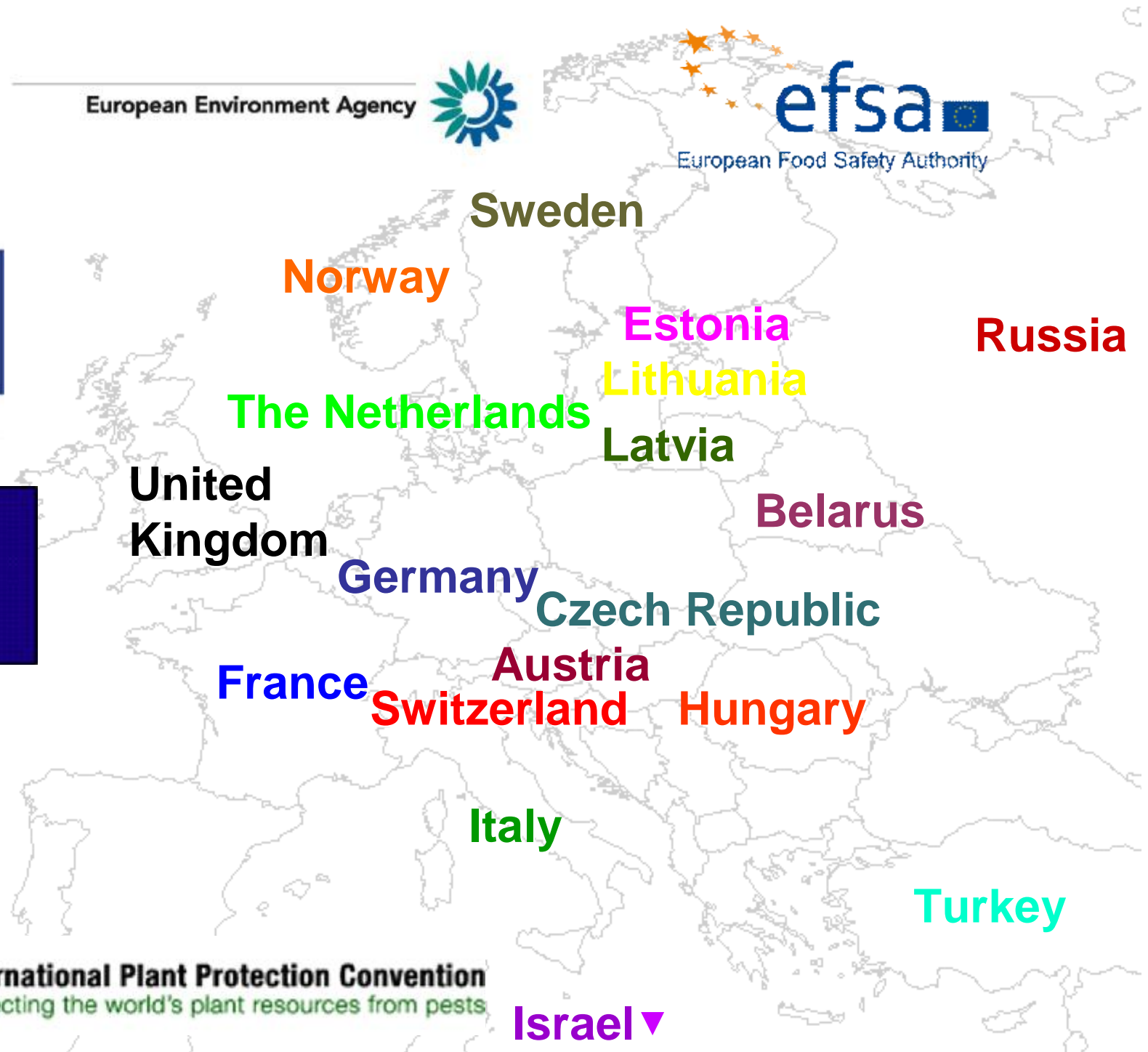
European Food Safety Authority



COUNCIL OF EUROPE  
CONSEIL DE L'EUROPE



International Plant Protection Convention  
Protecting the world's plant resources from pests





# Lists, prioritization of species and pest risk analysis



# Which species to consider?



Species present in the EPPO region



Species absent  
from the EPPO  
region

# Which species to consider?



Wide  
distribution

Limited  
distribution

Very limited  
distribution





# Eppo Alert List



*Andropogon virginicus*



*Asparagus asparagoides*



*Hygrophila polysperma*



*Limnophila sessiliflora*



*Miscanthus sinensis*

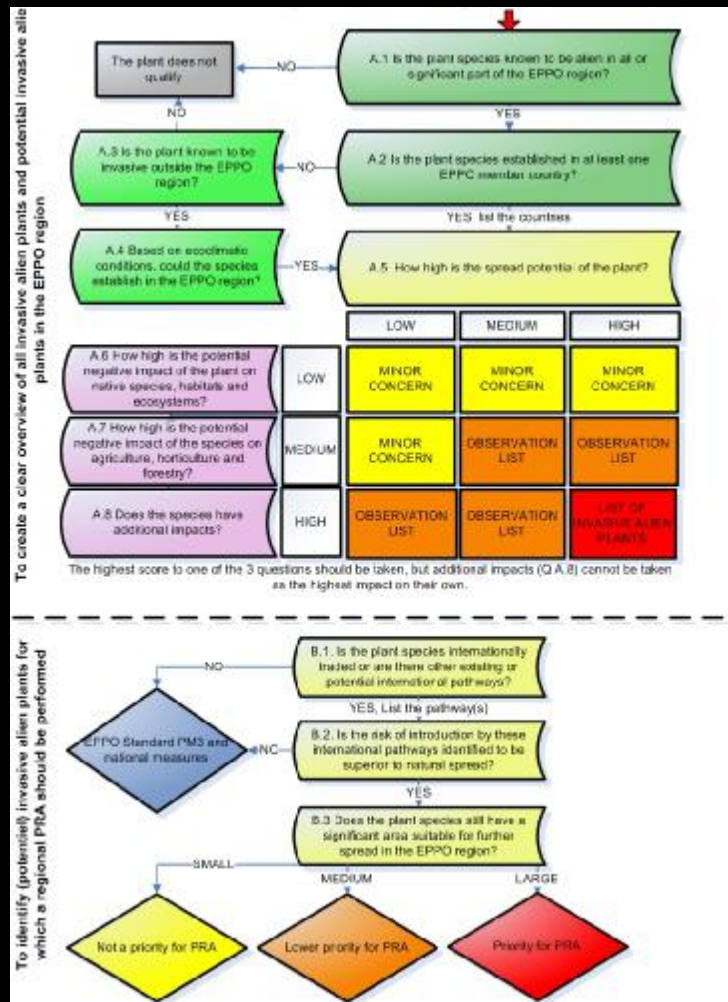


*Parthenium hysterophorus*



# EPPO prioritization process for IAP

## General principles



The EPPO process is designed:

- A. to produce a reference list of IAP that are established or could potentially establish in the EPPO region.
- B. to determine which Invasive Alien Plants (IAP) have the highest priority for an EPPO pest risk analysis (= quick screening tool to identify potential quarantine organisms);

Brunel *et al.* (2010) Article freely available on request

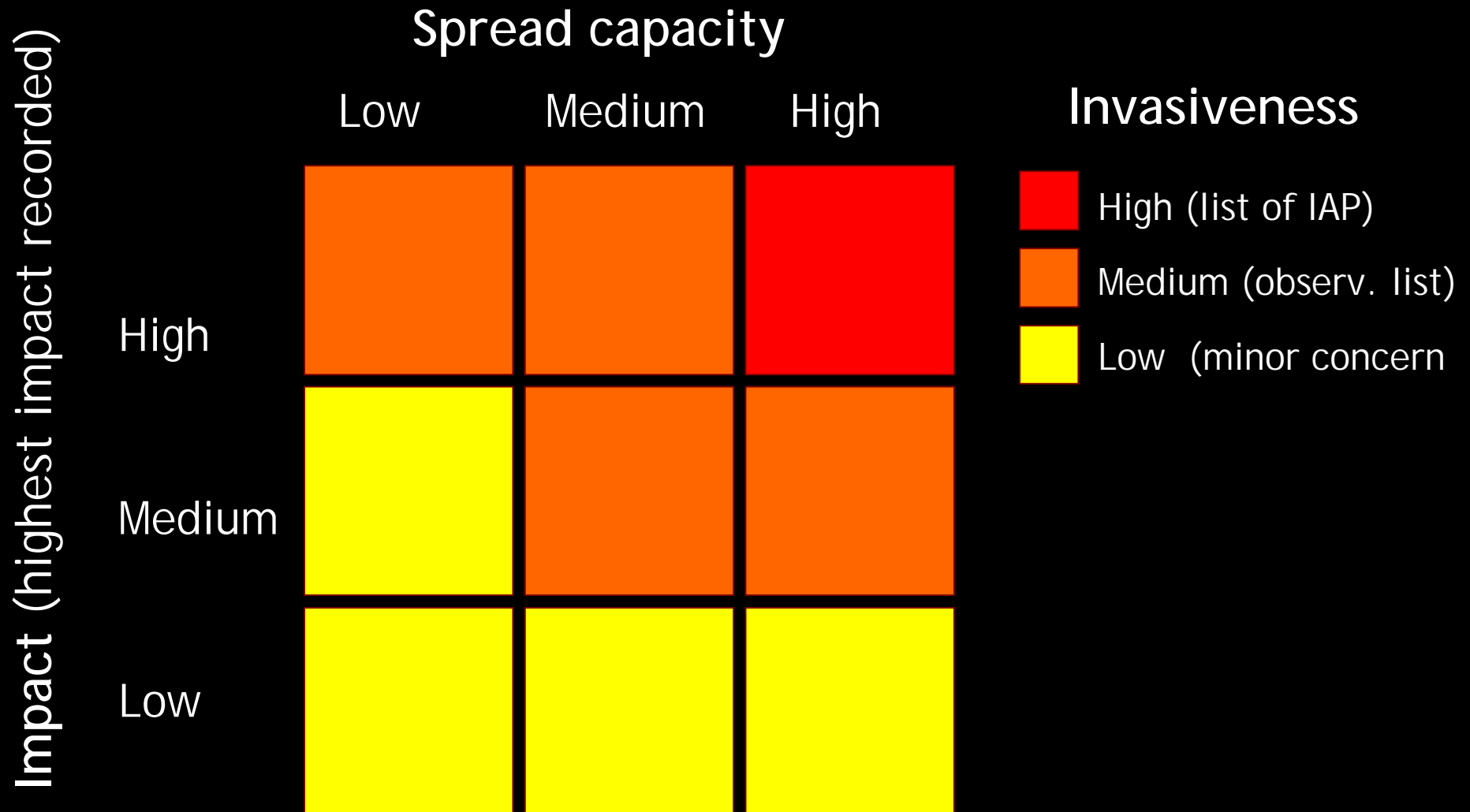


Criteria to produce lists of invasive alien plants



# Invasiveness categories

## Combination of spread and impact





# Eppo List of Invasive Alien Species

Terrestrial and aquatic species for which Eppo strongly recommends countries to take measures to prevent their introduction and spread or to manage unwanted populations



*Cortaderia selloana*



*Carpobrotus edulis  
& acinaciformis*



*Fallopia spp.*



*Amorpha fruticosa*



*Althernanthera  
philloxeroides*



*Ambrosia  
artemisiifoli*



*Ailanthus altissima*



*Pistia stratiotes*

**Etc.**





# EPPO List of Invasive Alien Species

Species	Year of addition	Priority for PRA
<i>Acacia dealbata</i>	2006	Priority
<i>Acroptilon repens</i>	2005	Lower priority
<i>Ailanthus altissima</i>	2004	Not a priority
<i>Alternanthera philoxeroides</i>	2012	Priority
<i>Ambrosia artemisiifolia</i>	2004	Lower priority
<i>Amelanchier spicata</i>	2004	Lower priority
<i>Amorpha fruticosa</i>	2006	Lower priority
<i>Baccharis halimifolia</i>	2006	Priority
<i>Buddleia davidii</i>	2006	Lower priority
<i>Cabomba caroliniana</i>	2006	PRA available
<i>Carpobrotus acinaciformis</i>	2006	Not a priority
<i>Carpobrotus edulis</i>	2006	Not a priority
<i>Cornus sericea</i>	2012	Lower priority
<i>Cortaderia selloana</i>	2006	Lower priority
<i>Delairea odorata</i>	2012	Lower priority

# What is Pest Risk Analysis?



World Trade Organization  
(WTO)

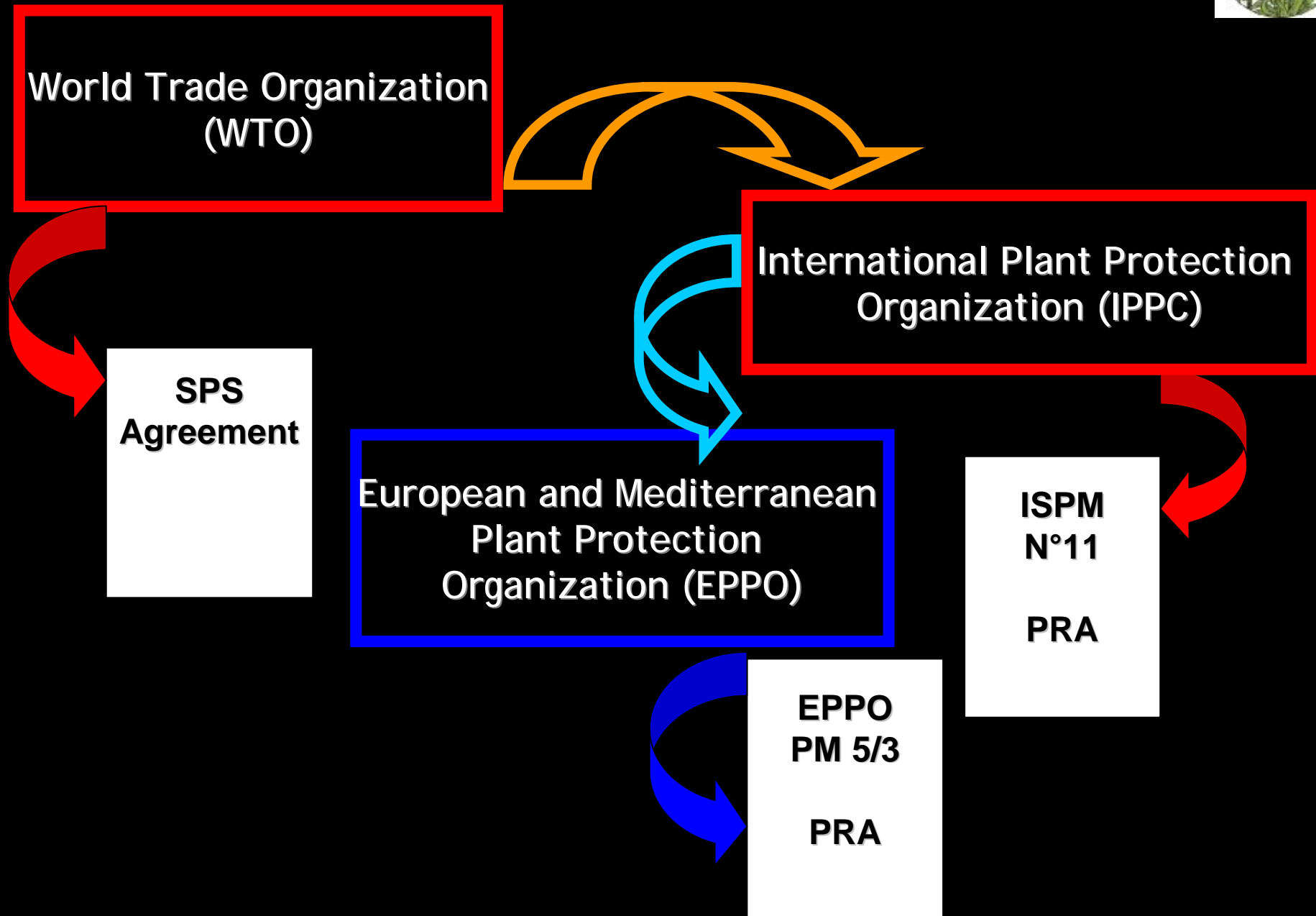
International Plant Protection  
Organization (IPPC)

SPS  
Agreement

European and Mediterranean  
Plant Protection  
Organization (EPPO)

ISPM  
N°11  
PRA

EPPO  
PM 5/3  
PRA





# Pest Risk Analysis



## Pest Risk Assessment

- Probability of entry

- Probability of establishment and spread

- Assessment of potential economic consequences (including environmental impacts)

## Pest Risk Management

- Measures related to the consignment

- Measures related to the crop or to places of production

# Invasive Alien Plants recommended for regulation by EPPO



*Crassula helmsii*



*Pueraria lobata*



*Eichhornia crassipes*



*Heracleum sosnowskyi*  
& *H. persicum*



*Hydrocotyle*  
*ranunculoides*



*Solanum elaeagnifolium*



*Ludwigia peploides*  
& *uruguayensis*



*Polygonum*  
*perfoliatum*





In October, a PRA  
will be performed  
on:



*Baccharis halimifolia*

Next year on:



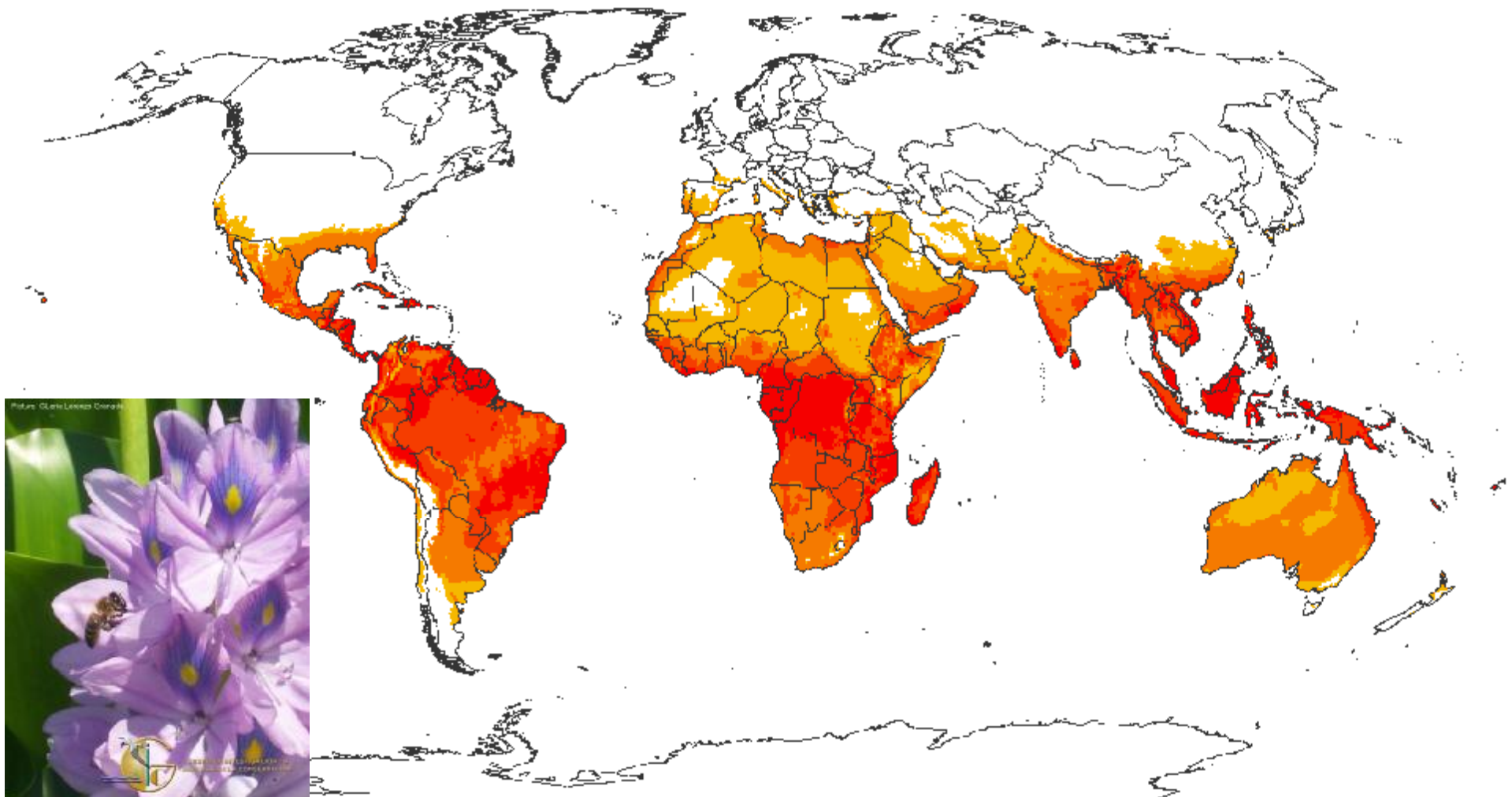
*Parthenium hysterophorus*



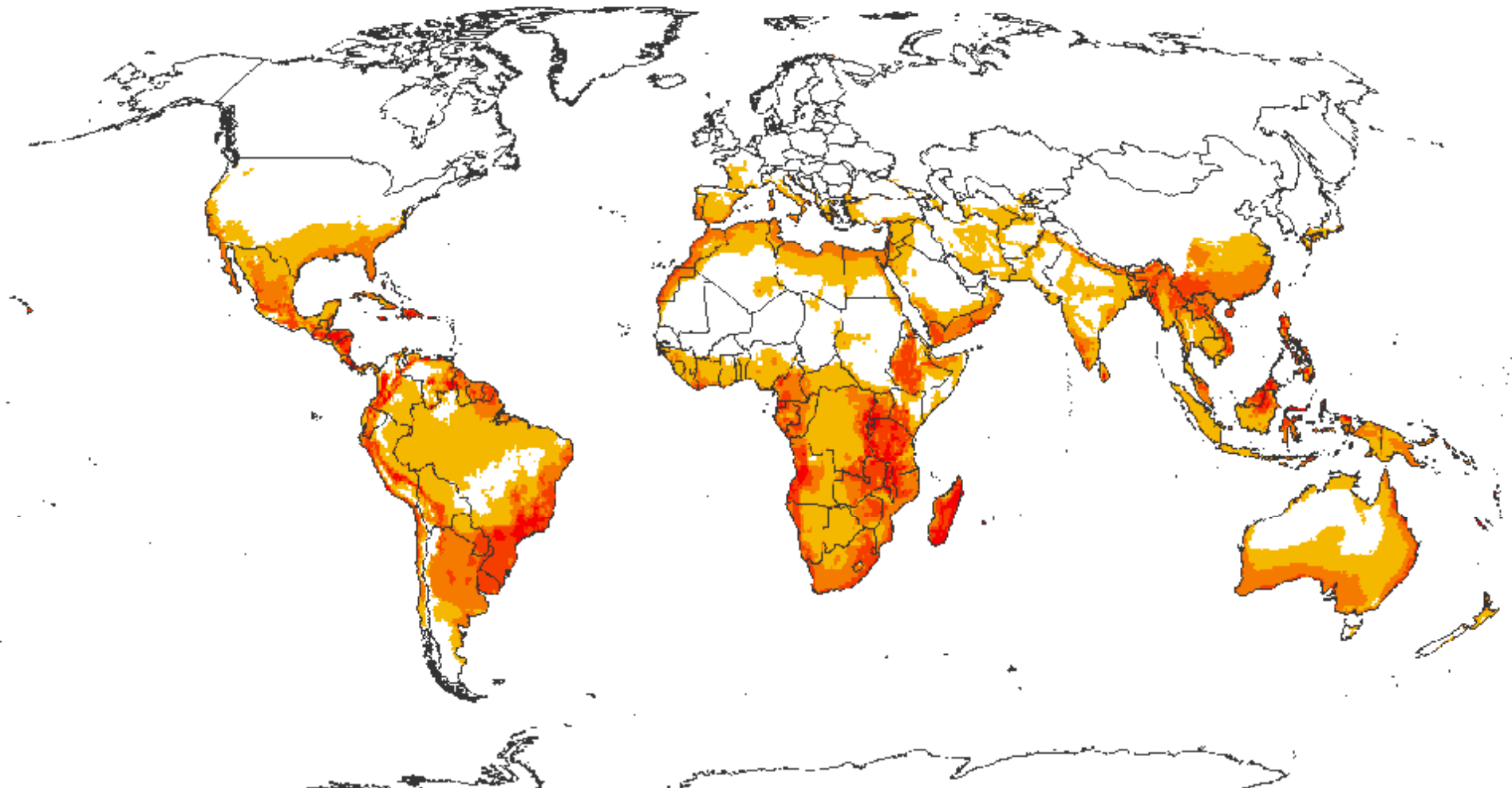
# Future trends



# Climatic prediction for *Eichhornia crassipes* for the world with CLIMEX

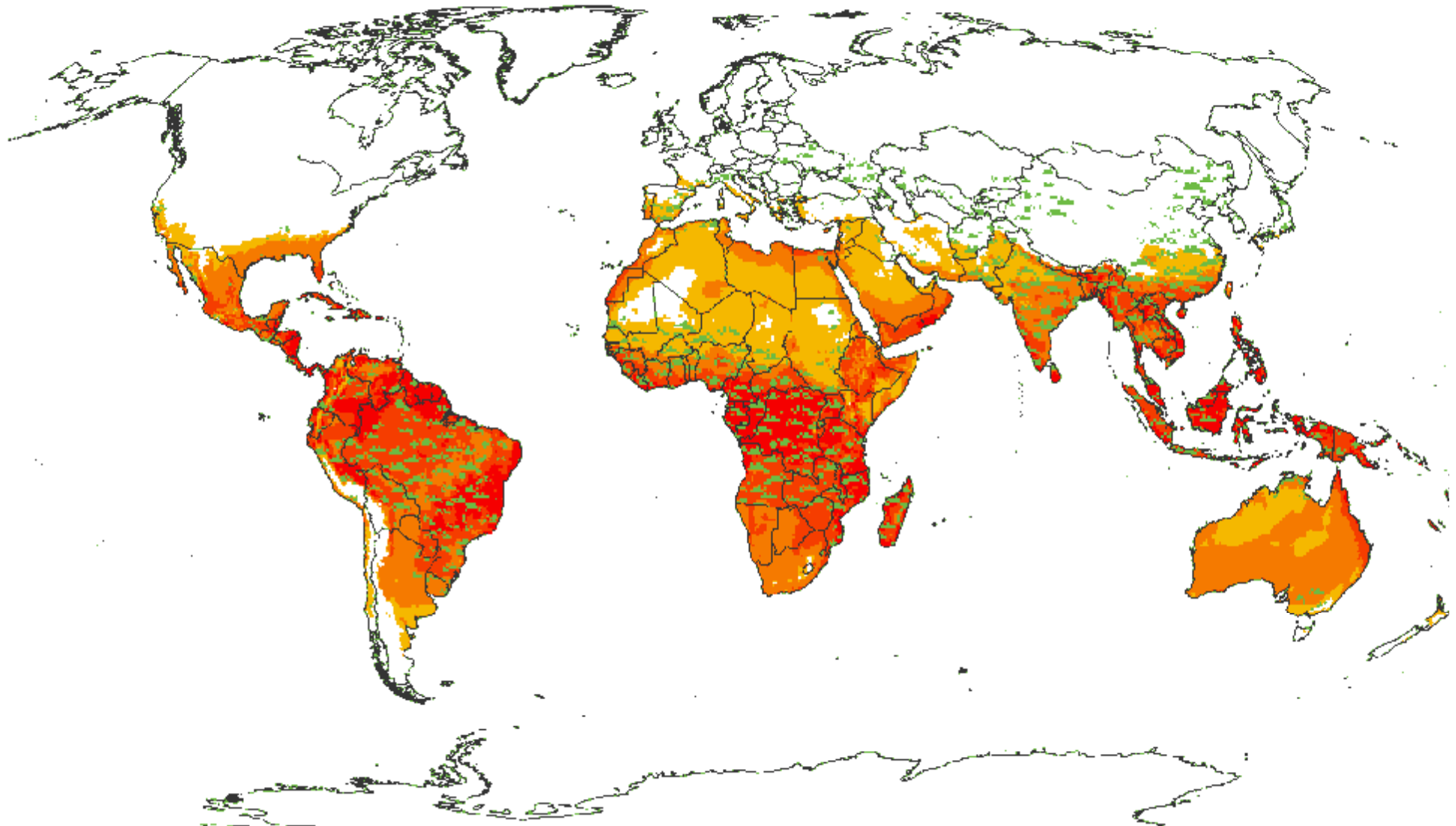


Climatic prediction for *Eichhornia crassipes* for the world by 2080 with CLIMEX, climate change scenario A1B CSIRO Mark 3.0





# *Eichhornia crassipes* and rice production





# 80% of the invasive alien plants are imported for ornamental purposes

Import data on aquatic plants from 9 countries was collected. Among the 250 species recorded:

## - 10 are considered invasive by EPPPO

(*Azolla filiculoides*, *Crassula helmsii*, *Eichhornia crassipes*, *Egeria densa*, *Elodea nuttalli*, *Hydrilla verticillata*, *Lagarosiphon major*, *Ludwigia grandiflora*, *Myriophyllum aquaticum*, *Pistia stratiotes*)

## - 6 additional represent a potential threat

(*Alternanthera sessilis*, *Adiantum raddianum*, *Gymnocoronis spilanthoides*, *Hygrophila polysperma*, *Limnophila sessiliflora*, *Syngonium podophyllum*)





# National Regulatory Control Systems





*Ambrosia artemisiifolia*





*Sicyos angulatus*





*Heracleum spp.*

2006/10/04





**Standard in preparation for the management of invasive aquatic alien plants**

# Codes of conduct on Horticulture and Invasive Alien Plants



# Aim

To enlist the cooperation of the horticultural industry and associated professionals to adopt good practices in:

- Raising awareness of this topic among professionals,

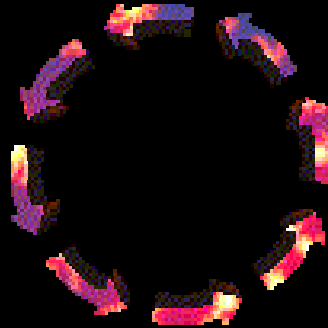
- Preventing the spread of invasive alien species already present in Europe, and

- Preventing the introduction of possible new invasive alien plants into Europe.

# Audience



National Plant  
Protection  
Organizations

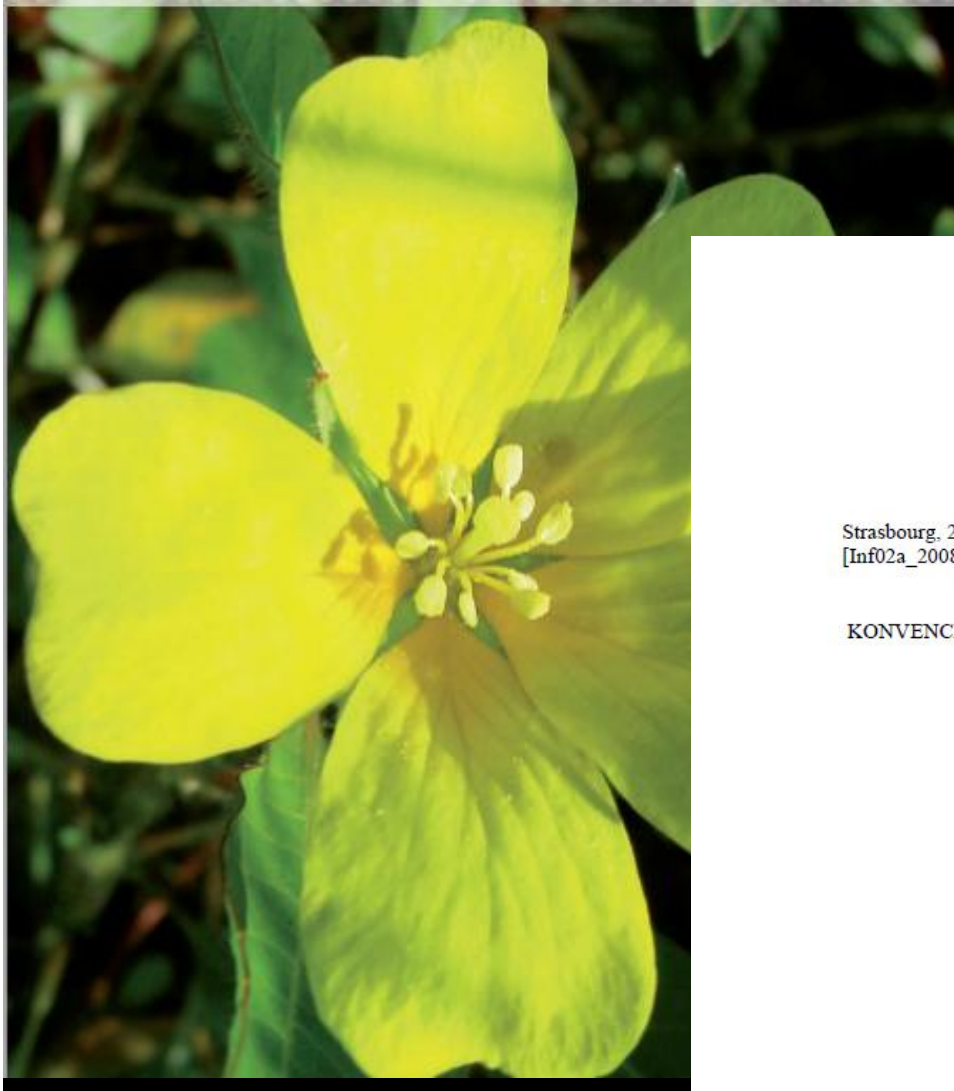


Governments

The horticultural industry: importers, traders, nurseries (including aquatic plant producers), garden centres, aquarists, landscape architects, managers of public or private areas (e.g. parks and recreational areas, erosion prevention areas).



# CODE OF CONDUCT ON HORTICULTURE AND INVASIVE ALIEN PLANTS



of the operations involved can be obtained from the campaign to eradicate *Carpobrotus* undertaken in Minorca from 2002 to 2005: 333765 m<sup>2</sup> of *Carpobrotus* were eliminated, representing the removal of 830 148 kg of biomass and involving 9 041 hours of work (Fraga i Argüelles 2007). In the UK, the estimate for control by herbicides of the total area infested by the aquatic invasive *Hydracystis nanuculae* introduced from North America is between £250 000 and £300 000 per year while adequate control of another invasive aquatic, *Ceratophyllum demersum*, from Australasia, is estimated at about £3000 000 (Beauchamp Dawson 1999).



Strasbourg, 24. september 2008  
[Inf02a\_2008.doc]

T-PVS/Inf (2008) 2

KONVENCIJA O VARSTVU PROSTO ŽIVEČEGA EVROPSKEGA RASTLINSTVA IN ŽIVALSTVA TER  
NJUNIH NARAVNIH ŽIVLJENJSKIH PROSTOROV

Stalni odbor

28. seja

Strasbourg, 24. – 27. november 2008

Kodeks ravnanja z invazivnimi tujerodnimi vrstami v hortikulturi

Avgust 2008

# Main elements to be included



## AWARENESS

1. Be aware of species to which the code of conduct applies

2. Identify exactly what you are growing and trading: ensure that material introduced into cultivation is correctly named

3. Be aware of regulations, guidelines and recommendations concerning invasive alien plants



# Main elements to be included



## COLLABORATION

4. Encourage other stakeholders in the supply chain to commit to this code of conduct



## ACTION

5. Avoid further spread of invasive alien plants



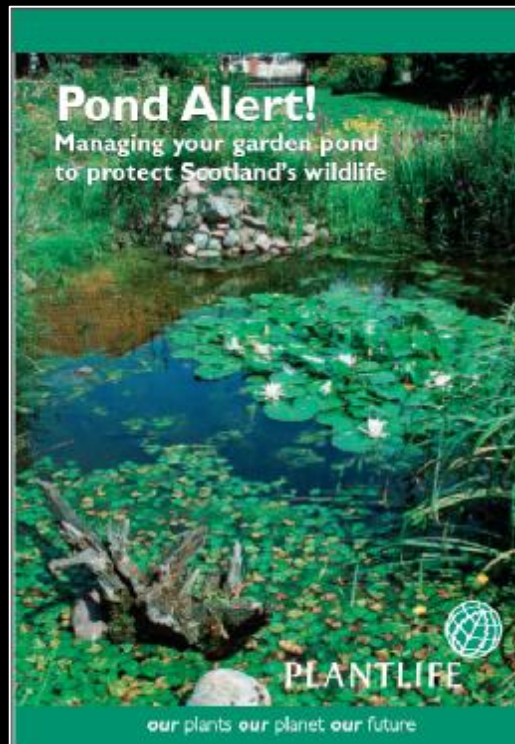


# Main elements to be included



## ACTION

### 6. Make substitutes for invasive alien plants available



**Don't Plant a Pest!**

Give them an inch and they'll take an acre...

**INVASIVE**

SCOTTISH COUNCIL CYPRUS & SERVICES FERO INIZIATA ED TRIO SHANTA POCHEMI REGIONI.

Suggested alternatives for invasive garden plants

Sierra Foothills Region

### Plantes flottantes

#### A utiliser avec discernement

Jacinthe d'eau ( <i>Eichhornia crassipes</i> )	Laitue d'eau ( <i>Pistia stratiotes</i> )
15 cm	20 cm
Période de floraison: août à septembre	Période de floraison: -

Sensibles au gel, la jacinthe d'eau (*Eichhornia crassipes*) et la laitue d'eau (*Pistia stratiotes*) présentent aujourd'hui un comportement envahissant limité au sud de l'Europe. Un problème qui pourrait se généraliser au reste de l'Europe suite au réchauffement du climat.

#### ✓ Choisissez plutôt

Nénuphars ( <i>Nymphaea</i> spp.)	Potamogeton nageant ( <i>Potamogeton natans</i> )
10 cm / 120 cm	5 cm / 50 cm
Période de floraison: juin à septembre	Période de floraison: juin à août

# Main elements to be included



## ACTION

7. Be careful how you get rid of plant waste: disposal of unwanted stock of plants and waste containing plant material



**KEEP YOUR POND PLANTS IN THE GARDEN!!**

Aquatic or marginal plants can grow vigorously. When thinning they should be disposed of carefully to avoid them colonising and harming streams, rivers, canals, lakes and ponds.



8. Follow good production practices to avoid unintentional introduction and spread





# Main elements to be included



## PUBLICITY

### 9. Apply good practices for labelling

*Rosa rugosa* (Rosaceae)

Rugosa rose, Hedgehog rose

Native to Eastern Asia, invasive in Northern and Central Europe.

**Ensure it does not escape from gardens.**

Do not plant in or near dunes, where it threatens other species of plants, as well as some animals (e.g. butterflies) and modify the habitat.



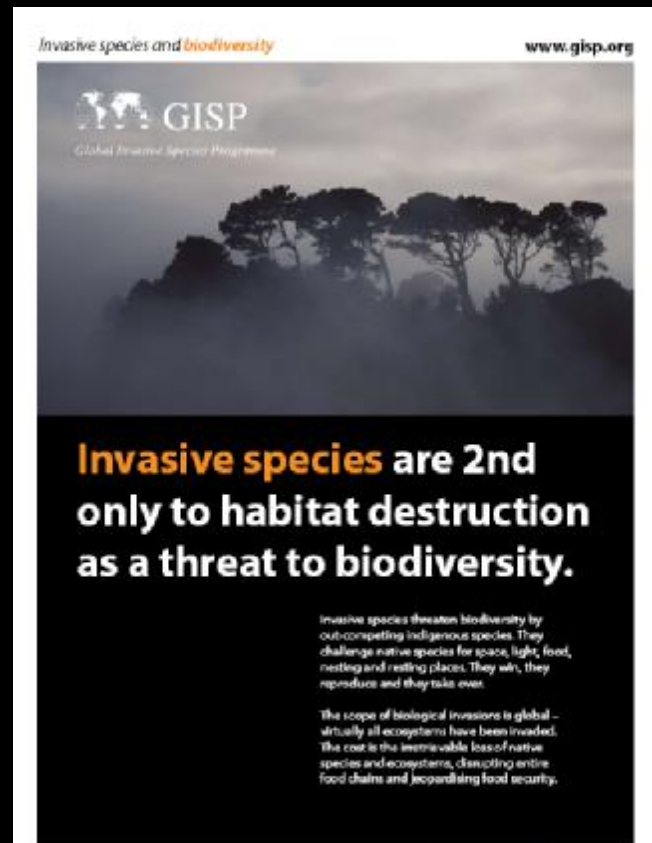


# Main elements to be included



## PUBLICITY

### 10. Engage in publicity and outreach activities



# Outcomes



**Code of conduct available in English, French, Slovene, Spanish, Polish, etc.**



**12 countries report national initiatives involving Codes of conduct either on-going or planned:**



**Belgium, Denmark, Estonia, Ireland, Liechtenstein, Norway, Poland, Slovakia, Slovenia, Spain, the Netherlands, Great Britain.**



**Next Workshop to be  
organized in October 2013 on:**

**How to communicate on  
Invasive Alien Species?**







**Thank you**

**E-mail: [sb@eppo.int](mailto:sb@eppo.int)**  
**Website: [www.eppo.org](http://www.eppo.org)**

