

Tackling Invasive Alien Species (IAS)

- Experience from Ireland and Europe

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Scope

- Invasive Alien Species (IAS) in Ireland and those coming our way
- IAS in Europe
- Workshop to identify Top 20 IAS issues in Europe
- Legislation to tackle IAS in Europe
- Is the EU Regulation working and will it make a difference?



Ireland – a small island on the western edge of Europe



Invasive Alien Species (IAS) in Ireland & Europe

- 377 recorded non-native species; 342 potentially invasives
 - 66% - low impact
 - 21% - medium impact
 - 13% - high impact or priority IAS
- High and medium risk species
 - 67% terrestrial
 - 21% freshwater
 - 12% marine

High Impact Invasive Alien Plant Species

Knotweed spp (4)

Himalayan balsam

Giant hogweed

Rhododendron

Giant/Chilean rhubarb

Winter heliotrope

American skunk-cabbage

Cord-grasses

Hottentot-fig

Fallopia / Persicaria spp

Impatiens glandulifera

Heracleum mantegazzianum

Rhododendron ponticum

Gunnera tinctoria

Petasites fragrans

Lysichiton americanus

Spartina spp

Carpobrotus edulis

High Impact Invasive Alien Aquatic Plant Species

Curly waterweed

New Zealand pigmyweed

Nuttall's waterweed

Parrot's feather

Fringed water lily

Water fern

Cape pondweed

Floating pennywort

Large-flowered pondweed

Water primrose

Lagarosiphon major

Crassula helmsii

Elodea nuttallii

Myriophyllum aquaticum

Nymphoides peltata

Azolla filiculoides

Aponogeton distachyos

Hydrocotyle ranunculoides

Egeria densa

Ludwigia spp

High Impact Invasive Alien Animal Species

American mink

Neovison vison

Grey squirrel

Sciurus carolinensis

Harlequin ladybird

Harmonia axyridis

Muntjac deer

Muntiacus reevesi

Wild boar

Sus scrofa

Asian clam

Corbicula fluminea

Chinese mitten crab

Eriocheir sinensis

Zebra mussel

Dreissena polymorpha

Bloody red shrimp

Hemimysis anomala

Dace

Leuciscus leuciscus

Chub

Leuciscus cephalus

Freshwater crayfish

all except *Austropotamobius pallipes*

Colonial sea squirt

Didemnum spp

Invasive Alien Species (IAS) in Ireland & Europe

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High and medium risk species

- 67% terrestrial
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12,000 non-native species in Europe; up to 15% invasive

Current State of Play in Ireland





***Gunnera tinctoria* (Chilean rhubarb)**



***Rhododendron ponticum* (Rhododendron)**



***Petasites fragrans* (Winter heliotrope)**



***Heracleum mantegazzianum* (Giant hogweed)**



Impatiens glandulifera (Himalayan balsam)



***Fallopia japonica* (Japanese knotweed)**



Persicaria wallichii (Himalayan knotweed)





***Azolla filiculoides* (Red water fern)**

Myriophyllum aquaticum (Parrot's Feather)



Nymphoides peltata (Fringed water lily)



Elodea nuttallii (Nuttall's pondweed)



***Lagarosiphon major* (Curly waterweed)**



Dreissena polymorpha (Zebra Mussel)



Corbicula fluminea (Asian clam)



Invasive species heading our way

(based on Horizon scanning, Risk Assessment, expert judgement)

A very abbreviated list includes:

Quagga mussel

Killer shrimp (x2 spp)

Signal crayfish and other spp

Round goby

Topmouth gudgeon

Large-flowered waterweed

Creeping water primrose

Floating pennywort

Salmon fluke

Koi Herpes Virus

Crayfish plague



Legislation To Tackle IAS in Europe

Prior to 2015, approach to IAS across EU was “uncoordinated and fragmented”

- disease agents and pests of animals & plants well covered, but not IAS

2009 - initial discussions to establish a framework for action to tackle IAS in Europe

2013 - EC published proposal for Directive or Regulation on IAS

2014 - adopted by European Parliament in April, European Commission in September

2015 - entered into force as a binding legal tool on 1st January 2015

EU Regulation on “prevention and management of the introduction and spread of Invasive Alien Species” (No. 1143/2014)

Aim: to prevent, minimise and mitigate the adverse impacts of IAS on

EU Regulation on IAS

To assist and provide direction:

- IFI hosted international workshop in April 2013
- 160 invited international delegates
- focused workshop --> Top 20 IAS issues to be addressed by Europe
- technical report (FAO), scientific paper and paper in Global fisheries publication



IFI also entered into dialogue with European Parliament, IUCN, EIFAAC, etc.



Management of Biological Invasions (2014) Volume 5, Issue 1: 1–20

doi: <http://dx.doi.org/10.3391/mbi.2014.5.1.01>

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Viewpoint

Tackling Invasive Alien Species in Europe: the Top 20 Issues

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Outputs from FINS Workshop (2013)

Top 20 IAS issues (principle threats posed by IAS)

- relevant also to marine and terrestrial IAS

- Identified nature of threats
- Offered recommendations to tackle issues
- Support for policy makers (in prep of EU IAS Regulation)
- Tool for IAS managers

FINS Workshop – Four Pillar Themes to Derive Top 20 IAS Issues



Issue	Threat	Local /National /International	Recommendations
Biosecurity awareness	Lack of prevention will facilitate ready introduction of IAS	L/N/I	Raise biosecurity awareness from government level to individuals
Coherent EU legislation for effective biosecurity	Majority of IAS are only covered by peripherally relevant legislation (e.g. WFD and Habitats Directives)	I	EU must legislate for a unified EU strategic approach to biosecurity
International biosecurity best practice	There is no consistency of approach or coordination between MS and others	I	Share best practices in Europe and farther afield through established forum
Regulatory framework to prevent introduction of IAS	Substantial gap in international trade rules to prevent spread of IAS	I	An organisation responsible for developing standards to prevent the introduction of IAS is needed
Dedicated and appropriate resources for IAS	Current lack of funding, specialist staff and appropriate equipment	N/I	Centralised funding source at EU level is needed
New technologies for early detection	Ability to detect IAS at early stage of infestation is poorly developed	N/I	Disseminate advantages of new technologies and share equipment and specialist personnel across MS
Early warning mechanisms	No formal national or international system of warning in most MS	I	Communicate and process early warning/species alert information using agreed mechanisms
Rapid risk assessment methods to prioritise future invasion events	Risk assessment methods can be slow and cumbersome	N/I	Develop a preliminary rapid risk assessment to highlight priority IAS
Standardise pan-European risk assessment to underpin EU IAS black list	Risk assessment methods are not standardised across EU	I	Establish expert panels across EU to develop and conduct risk assessments
Knowledge gaps in risk assessment	Few general models or rules of thumb exist to steer risk assessments	I	Target the R&D needed to increase the confidence levels in risk assessment methods
The importance of economic analysis in risk assessment	Not all IAS pose the same risk or cost; most costly need to be prioritised	N	Increase the level of communication between IAS scientists and economists
Rapid response - a vital tool in IAS management	Many countries have not yet developed rapid response protocol	N/I	A lead agency to coordinate rapid response is required in each MS
Emergency powers to manage IAS	Once an IAS becomes established it is virtually impossible to eradicate	N	Provide derogations from EU and national legislation that restricts speedy IAS control
Novel control in IAS management	Traditional control methods can be relatively ineffective and costly	N/I	Provide funding for research and development of novel control methods e.g. biocontrol
Knowledge transfer to improve IAS management	Currently, there is a lack of communication between scientists, practitioners and policy makers	N/I	Encourage cooperation and knowledge exchange between scientists, practitioners and policy makers
Outreach to foster improved IAS management	Most IAS are spread inadvertently due to ignorance	N	Provide European funding for public engagement, awareness raising and establishment of local action groups
Effective communication to raise awareness of IAS	Awareness of problems associated with IAS among public and others is lacking	N	There is a requirement for IAS awareness raising in EU legislation
Non-market valuation in IAS economic assessment	Non-market values (e.g. recreation) are rarely considered	N	Educate policy makers about existence of non-market costs and ensure their inclusion in IAS management evaluations
Cost analysis in IAS management	Commonly, cost analysis for IAS management does not include loss of benefits caused	N	Costs associated with IAS management must include both cost benefit and cost effectiveness analysis
Single responsible agency - the answer to national IAS management	Responsibility for IAS management nationally is often fragmented	N	Clear lines of responsibility between national agencies and government departments are needed at a national level

FINS Conference – Four Pillar Themes to Derive Top 20 IAS Issues



Issues

Communication (4)

Economics (3)

Legislation (2)

Rapid response (1)

Management (1)

Biosecurity (3)

Risk assessment (3)

Early detection (1)

Resources (1)

Single agency (1)

EU Regulation on Invasive Alien Species – 01/01/2015

Basic Structure (6 Chapters)

- 1. General provisions:** intro to Reg and tools to prioritise 'IAS of Union concern'
 - definitions, scope and obligations
 - **list of IAS of Union concern** (to be decided....)

Restrictions / obligations relate only to listed IAS of Union concern

- 2. Prevention:** measures to prevent introduction and release of IAS (of Union concern)
 - restrictions, permits, authorisations
 - lists of IAS of Regional and MS concern
 - action plans on pathways
- 3. ED & RE:** tools to ensure early detection and control of detected IAS (of Union concern)
 - surveillance systems
 - early detection
 - rapid eradication, at early stage
 - derogations from rapid eradication



EU Regulation on Invasive Alien Species

Basic Structure

4. **Management for widely spread IAS:** obligations to tackle IAS (of Union concern) already widespread in MS or EU
 - measures for eradication, population control or containment
 - restoration of damaged ecosystems

5. **Horizontal Provisions:**
 - cost recovery
 - cooperation and coordination between MS

6. **Final Provisions:** reporting obligations and legal tools re implementation, enforcement and review of Regulation
 - reporting and review
 - information support
 - committee and scientific forum
 - penalties



EU Regulation on Invasive Alien Species

What is an **IAS of Union concern**?

Must be alien to the territory of the Union (28 MS Brexit ?)

Must be capable of establishing viable populations and spreading

Has demonstrable adverse effect on biodiversity or related ecosystem services

Risk Assessments must rate them as priority species

Inclusion on the list will prevent, minimise or mitigate their adverse impacts

Lists submitted by each MS

Ultimate list of IAS of Union concern (37) decided by Scientific Committee

List adopted by EC on 03/07/2016 and entered into force on 03/08/2016

Now clock can start ticking (20 months later)

List of IAS of Union Concern (37) – 23 Animal

Amur sleeper (*Perccottus glenii*)

Asian hornet (*Vespa velutina*)

Chinese mitten crab (*Eriocheir sinensis*)

Coypu (*Myocastor coypus*)

Fox squirrel (*Sciurus niger*)

Grey squirrel (*Sciurus carolinensis*)

Indian house crow (*Corvus splendens*)

Marbled crayfish (*Procambarus spp.*)

Muntjac deer (*Muntiacus reevesii*)

North American bullfrog (*Lithobates catesbeianus*)

Pallas's squirrel (*Callosciurus erythraeus*)

Raccoon (*Procyon lotor*)

Red swamp crayfish *Procambarus clarkii*

Red-eared slider (*Trachemys scripta elegans*)

Ruddy duck (*Oxyura jamaicensis*)

Sacred ibis (*Threskiornis aethiopicus*)

Siberian chipmunk (*Tamias sibiricus*)

Signal crayfish (*Pacifastacus leniusculus*)

Small Asian mongoose (*Herpestes javanicus*)

South American coati (*Nasua nasua*)

Spiny-cheek crayfish (*Orconectes limosus*)

Topmouth gudgeon (*Pseudorasbora parva*)

Virile crayfish (*Orconectes virilis*)

List of IAS of Union Concern (37) – 14 Plant

American skunk cabbage (*Lysichiton americanus*)

Asiatic tearthumb (*Persicaria perfoliata*)

Curly waterweed (*Lagarosiphon major*)

Eastern baccharis (*Baccharis halimifolia*)

Floating pennywort (*Hydrocotyle ranunculoides*)

Floating primrose willow (*Ludwigia peploides*)

Green cabomba (*Cabomba caroliniana*)

Kudzu vine (*Pueraria lobata*)

Parrot's feather (*Myriophyllum aquaticum*)

Persian hogweed (*Heracleum persicum*)

Sosnowski's hogweed (*Heracleum sosnowskyi*)

Water hyacinth (*Eichhornia crassipes*)

Water primrose (*Ludwigia grandiflora*)

Whitetop weed (*Parthenium hysterophorus*)



IAS of Union Concern

All 37 species now subject to restrictions on:

keeping
importing
transporting
selling
exchanging
breeding
growing
releasing



EU Regulation on Invasive Alien Species

Selected Articles from the Regulation

Article 13 **Action plan on the pathways of IAS**

Within 18 months....* - conduct comprehensive analysis of pathways
- identify priority pathways

Within 3 years....** - establish action plans to address priority pathways, to
include timetables for action and measures to be adopted

Article 14 **Surveillance system**

Within 18 months.... - establish a surveillance system to record data on IAS

Within 3 years.... - determine the presence and distribution of new and
established IAS of Union concern

* 03/02/2018

** 03/08/2019

EU Regulation on Invasive Alien Species

Article 16 Early detection notification

Commission must be notified without delay, in writing, of any early detection

Article 17 Rapid Eradication at early stage of invasion

Within 3 months of notifying EC.... MS will apply eradication measures

Control methods must be specifically reported to EU

Control methods must achieve complete and permanent removal of population

MS must monitor effectiveness and report to EU in timely manner

(No other control measures may be applied without notification to EU)

EU Regulation on Invasive Alien Species

Specific Obligations imposed by the new Regulation on MS

Article 19 **Management of IAS that are Widely Spread**

Within 18 months... MS must have in place effective management measures

These must aim at eradication, population control or containment

Effectiveness must be monitored and reported

Article 20 **Restoration of the damaged ecosystem**

MS must carry out restoration to assist recovery of damaged ecosystems

Article 21 **Costs recovery**

MS will recover costs of measures needed to restore ecosystems
(polluter pays)

EU Regulation on Invasive Alien Species

Is it working?

Two new incursions of IAS of Union concern already tackled in Ireland

Coypu ***(Myocastor coypus)***

- first recorded in wild Ireland in 2010 (1)
- increased numbers in southern Ireland in 2016 (4)

Rapid eradication at early stage of invasion

- within 3 months NPWS implemented Article 17



EU Regulation on Invasive Alien Species

Is it working?

Curly waterweed ***(Lagarosiphon major)***

- first recorded in wild Ireland in 2005 (1 lake)
- second sighting in wild in 2016 (1 lake)

Rapid eradication at early stage of invasion

- within 1 month NPWS commissioned INVAS to implement Article 17

Lough Inchiquin, Co Kerry





**Jute / burlap
laying is shallow
($< 2\text{m}$) water**

December 2016





Laying Jute Matting in Deeper Water (to 7 metres) December 2016



EU Regulation on Invasive Alien Species

Is it working?

Curly waterweed

- first recorded in wild Ireland in 2005 (1 lake)
- second sighting in wild in 2016 (1 lake)

Rapid eradication at early stage of invasion

- within 1 month NPWS commissioned INVAS to implement Article 17

To date, no indications that it is operating with same urgency elsewhere in Europe

EU Regulation and (FINS) Top 20 Issues

Regulation addresses many Top 20 issues

- surveillance
- early detection and rapid reaction
- management
- biosecurity (though not mentioned by name)
- risk assessment (for IAS of Union concern)
- communications



Regulation does not adequately address some Top 20 issues

- funding
- resources
- single agency
- derogations



Will the EU Regulation Work for Europe?

- Is good and timely legislation
- Has embraced ideas from FINS and elsewhere
- Has serious weaknesses
 - funding
 - must achieve complete and permanent removal of population (Article 17)
- List of Union concern
 - too few
 - regularity of review?
- Strict timelines provided
- Penalties
- Positive reaction in Ireland welcomed
- Too early to see how 27 MS will interact / cooperate

Go Raibh Maith Agaibh

Thank You for your Attention

