Towards a framework for

Action on Invasives

Martina O'Brien

National Biodiversity Data Centre

limerick.ie

ATLANTIC EDGE LIMERICK EUROPEAN EMBRACE

Comhairle Cathrach & Contae Luimnigh
Limerick City & County Council

National Biodiversity Data Centre
Documenting Ireland's Wildlife

SUSTAINABLE DEVELOPMENT GOALS

National Biodiversity Data Centre
A Heritage Council Programme

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ACTIONS on INVASIVES

Stop the Spread of Invasive Alien Species in Ireland

Actions on Invasives

'Actions on Invasives' is an online mapping system that allows everyone to log and map the actions they have taken on invasive alien spe
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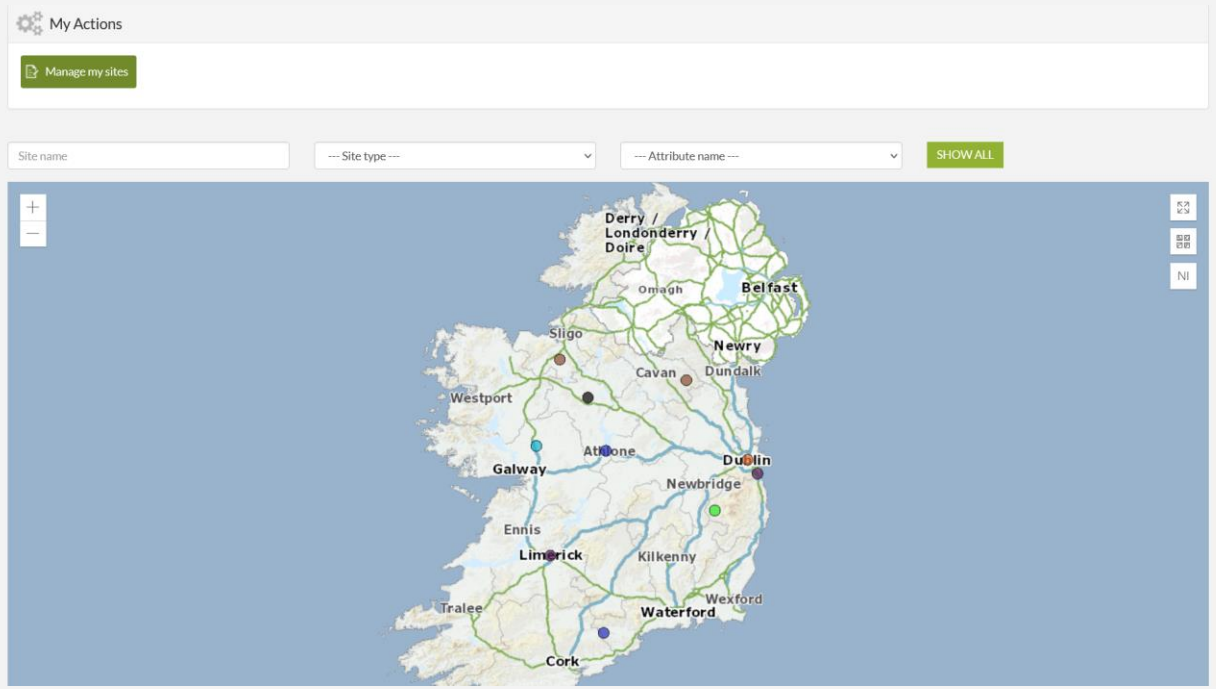


1 Visit invasives.ie to see what actions you can take

2 Sign-up to the Actions on Invasives iniative

The role of invasive species in the Biodiversity Crisis

5 key drivers of biodiversity loss:

- changing use of sea and land
- direct exploitation of organisms
- climate change
- pollution

IUCN Red List assessment

- 16.2 % of species threatened by Invasive species alone
- 40% driven by IAS and other threats.
- Agents of ecological change

The role of invasive species in the Biodiversity Crisis

Invasive species in out local environment

- Japanese knotweed
- Himalayan balsam
- Giant hogweed
- Winter heliotrope
- Giant rhubarb
- Rhododendron
- Grey squirrel
- Zebra mussel
- Curly waterweed

Rationale for the development of ‘Actions on Invasives’

Dún Laoghaire-Rathdown

Invasive Alien Species Action Plan

2020 - 2022

Screening Report for Appropriate Assessment

21st April 2021

Wexford County Marine Biosecurity Report

Baseline Assessment of Marine Invasive Species

2020

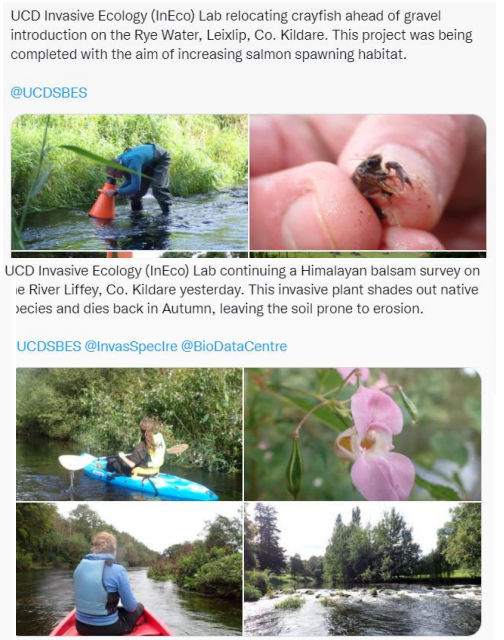
Comhairle Contae Loch Garman
Wexford County Council

MSP Research initiative

Marine Invasive Species Ireland (MISI) PROJECT

eDNA TOOLKIT

Document prepared by Galway-Mayo Institute of Technology (GMIT) for the Marine Institute



Monitoring for Chinese Mitten Crab in Carlingford Lough and four other high risk east coast estuaries

Commissioned by BIM

Report compiled by AQUENS Ltd, completed March 2021

Authors: Jan-Robert Baars, Paul Brooks, Jennifer Coughlan, Jens Carlsson, Nettan Carlsson, Dan Minchin

Monitoring undertaken: December 2020 to March 2021

IT Sligo CERIS Centre for Environmental Research Innovation and Sustainability

invas BIOSECURITY

Queen's University Belfast

INVASIVE ALIEN SPECIES IN THE REPUBLIC OF IRELAND:
POLICY RECOMENDATIONS FOR THEIR MANAGEMENT

REPORT PREPARED FOR THE WATER FORUM

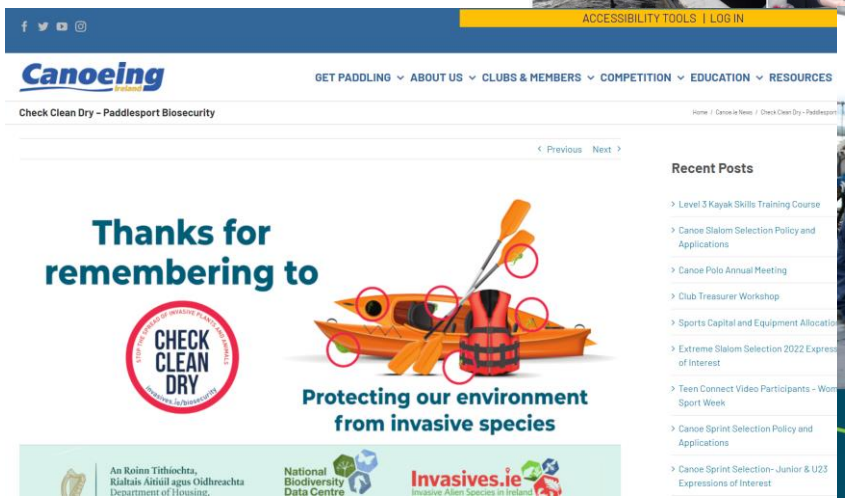
by

Prof. Frances Lucy (IT Sligo)

Prof. Joe Caffrey (INVAS Biosecurity Ltd.)

and Prof. Jaimie Dick (Queen's University Belfast)

Lucy, Caffrey and Dick Draft 3 FINAL 1 May 29 2021



Rationale for the development of ‘Actions on Invasives’

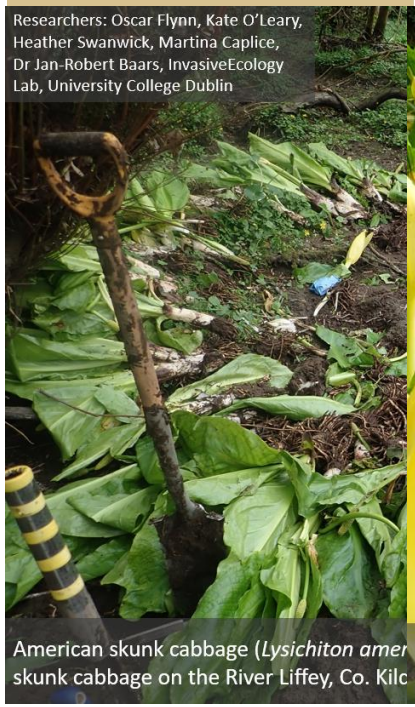
Invasive Species on the Glennagannon River

We are delighted to announce that the Trust has been awarded funding under **Donegal County Council's Development Fund Initiative** for 2021. This funding will support a project to investigate the extent of the highly invasive **Japanese Knotweed** on the river and possible non-chemical approaches for control. If you live on the Glennagannon we would love to hear from you. You can submit records of JK on our Invasive Species form. Simply scan the QR code below with your smartphone and start recording. You can also visit the link below or call us and we can come to examine the extent of the invasion!

https://arcg.is/HreHv

River Loobagh Giant Hogwe

Researchers: Oscar Flynn, Kate O’Leary, Heather Swanwick, Martina Caplice, Dr Jan-Robert Baars, InvasiveEcology Lab, University College Dublin

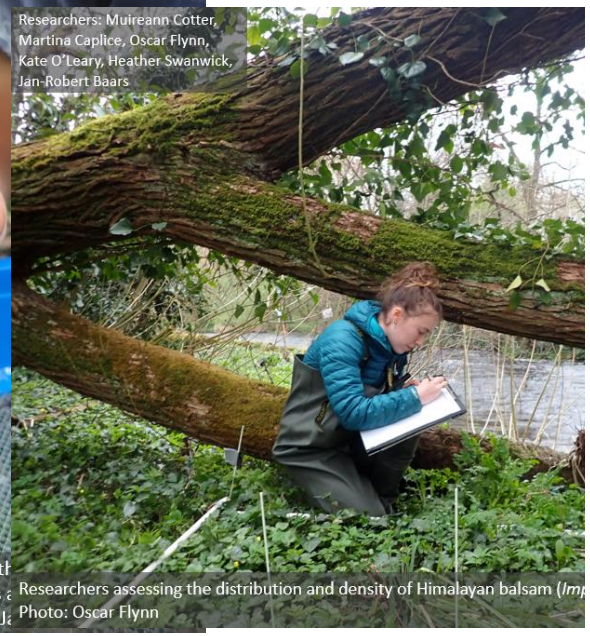


American skunk cabbage (*Lysichiton amer*
skunk cabbage on the River Liffey, Co. Kilc

American skunk cabbage has both pretty flowers and leaves, making it an attractive plant in the ornamental trade. Photo credit: Jan- Robert Baars

Seeds can build up in the soil where th
seed bank). Flowering characteristics a
are being investigated. Photo credit: Ja

Researchers: Muireann Cotter, Martina Caplice, Oscar Flynn, Kate O’Leary, Heather Swanwick, Jan-Robert Baars



Researchers assessing the distribution and density of Himalayan balsam (*Imp*
Photo: Oscar Flynn

Biodiversity Ireland @BioDataCentre · Feb 23

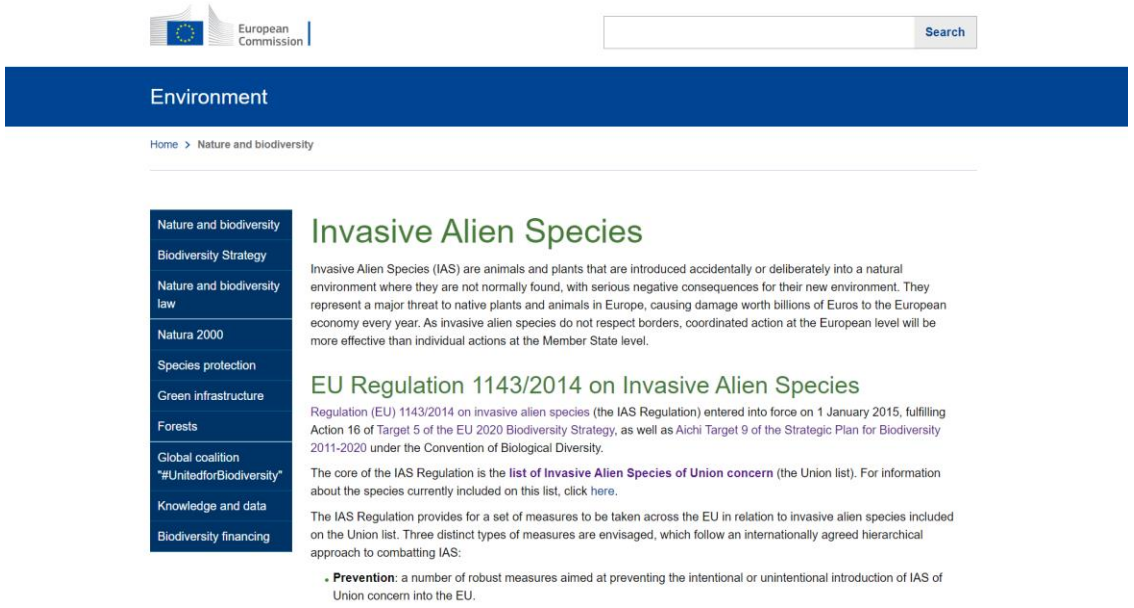
#GoodNewsStory in Belvedere Woods continues. After significant invasive plant removal, regeneration being aided by planting of 1000 native trees by Mullingar branch of Women’s Shed, the Horticultural School @ Belvedere Hse & outdoor staff 👏 to all @westmeathcoco & Peter Cuthbert

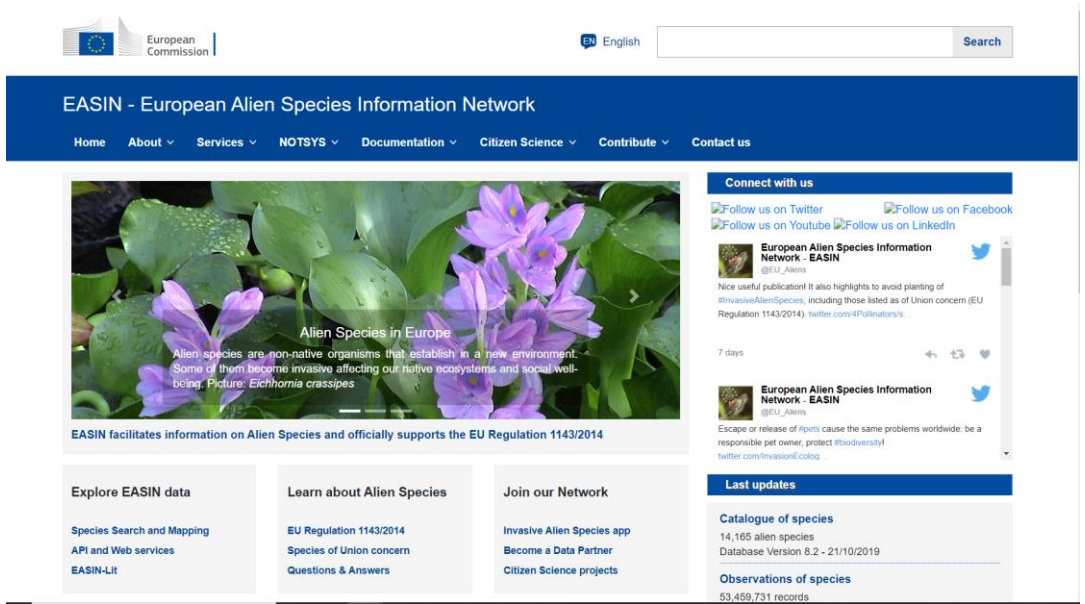
Biodiversity Ireland @BioDataCentre · Dec 9, 2021

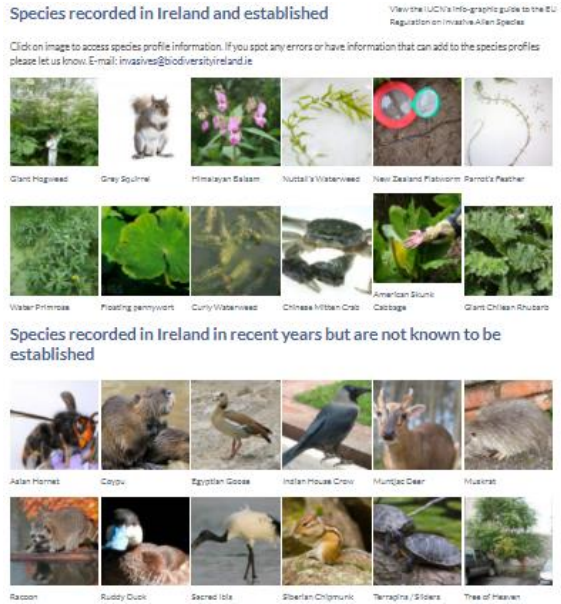
Got time for a #GoodNewsStory?😃
In this guest blog, Heritage Officer Melanie McQuade outlines the response @westmeathcoco have taken to deal with the invasive plant invasion at the Belvedere Gardens and Park site....

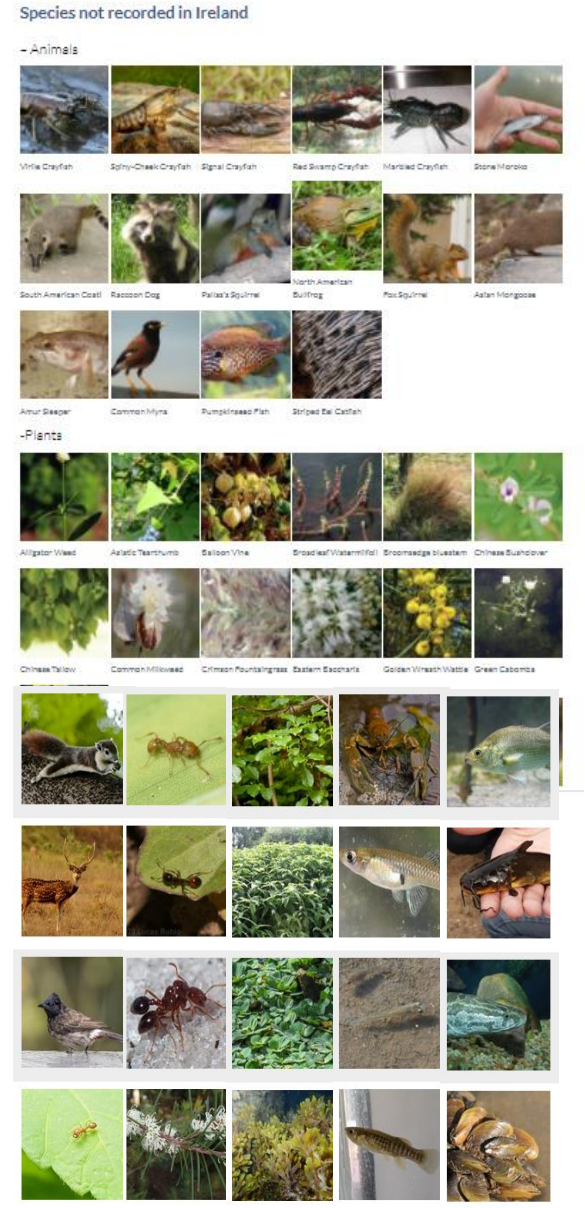
1 5 27

Rationale for the development of ‘Actions on Invasives’





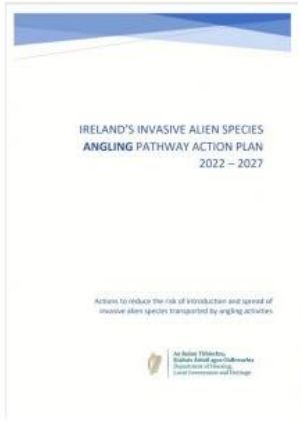




EU Invasive Alien Species Regulation

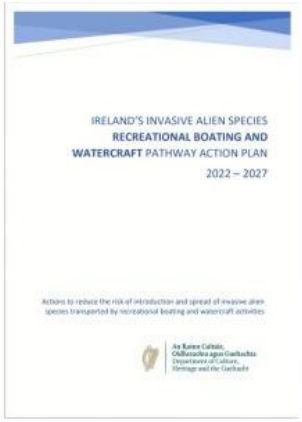
A large proportion of list of species of Union Concern are not established in Ireland/Europe

- The focus for these species in on prevention
- Conducting pathway analysis and co-ordinating the development of Pathway Action Plans
- The development of early detection/rapid response systems



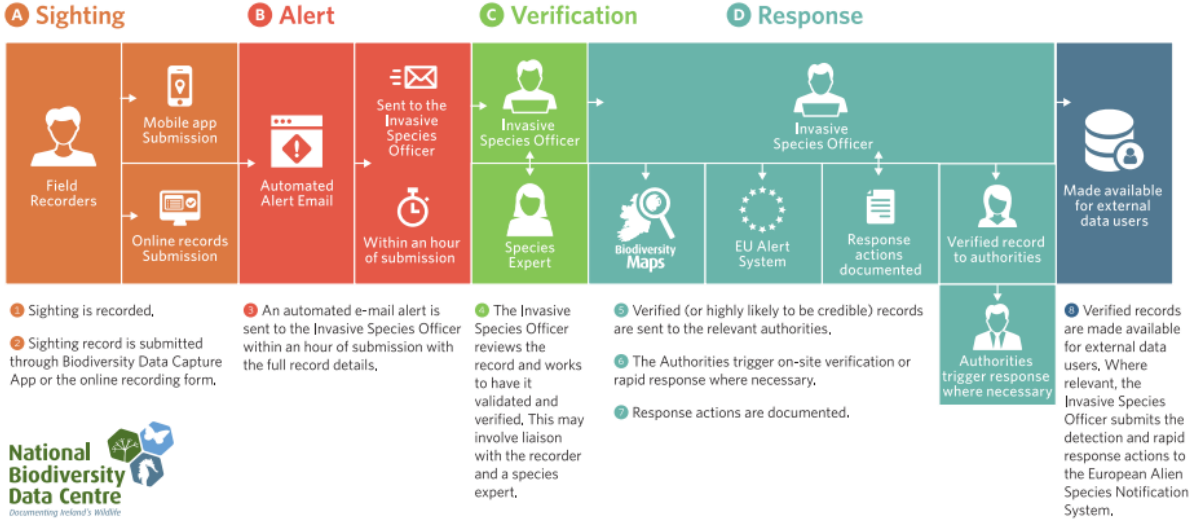
Final Angling Pathway Action Plan 2022 – 2027 Full text

Synopsis of Ireland's IAS Angling Pathway Action Plan 2022-2027 (5 pages)



Final Recreational Boating & Watercraft Pathway Action Plan 2022 – 2027 Full text

Synopsis of Ireland's IAS Recreational Boating & Waterwraft Pathway Action Plan 2022-2027 (5 pages)



Reporting requirements: City & County Councils

Some Species of Union Concern are recorded and widespread in Ireland

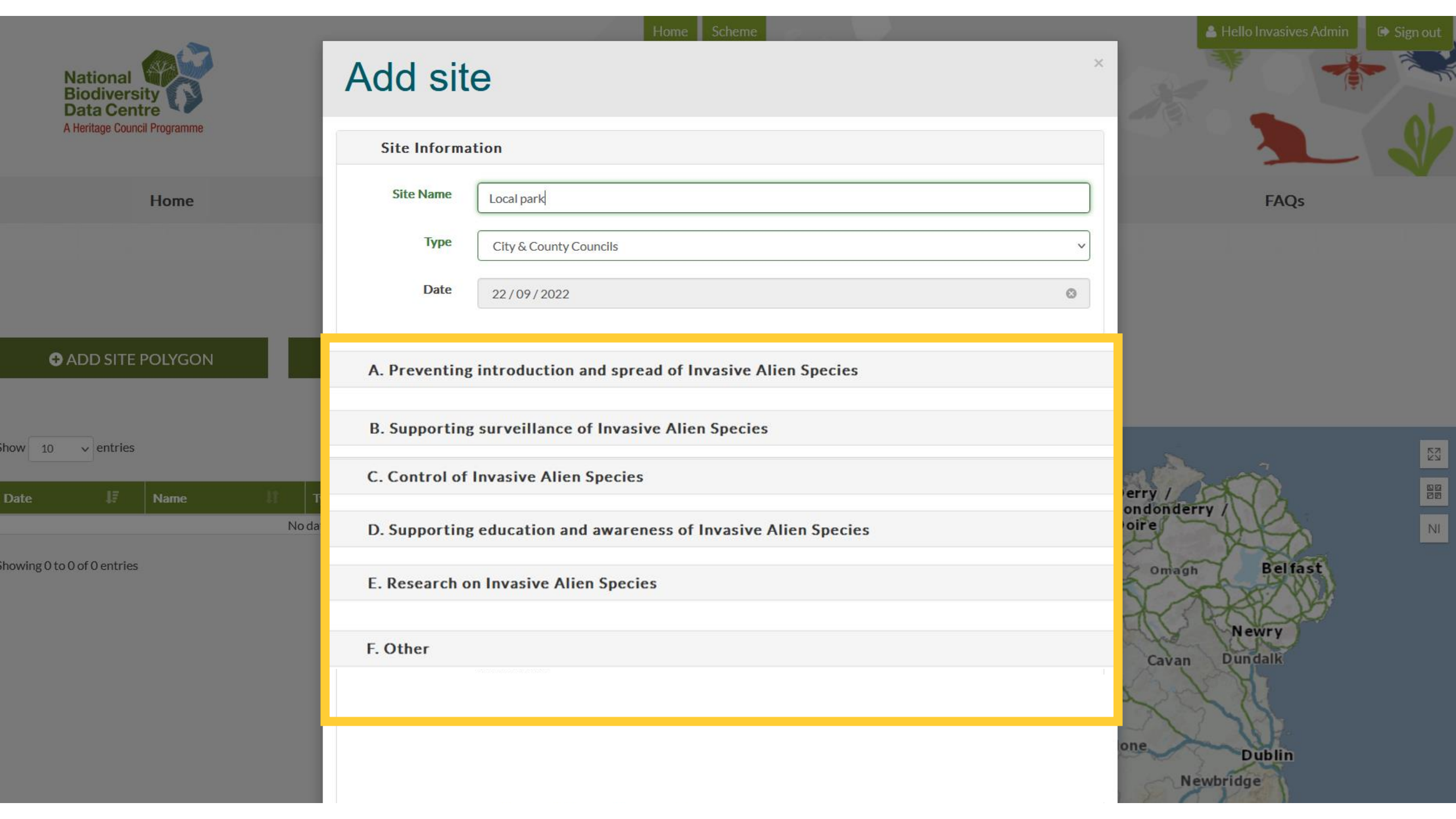
- Report on all established populations
- Implement management measures to contain and control species to mitigate their impacts and prevent their further spread
- Monitor the effectiveness of control and containment measures

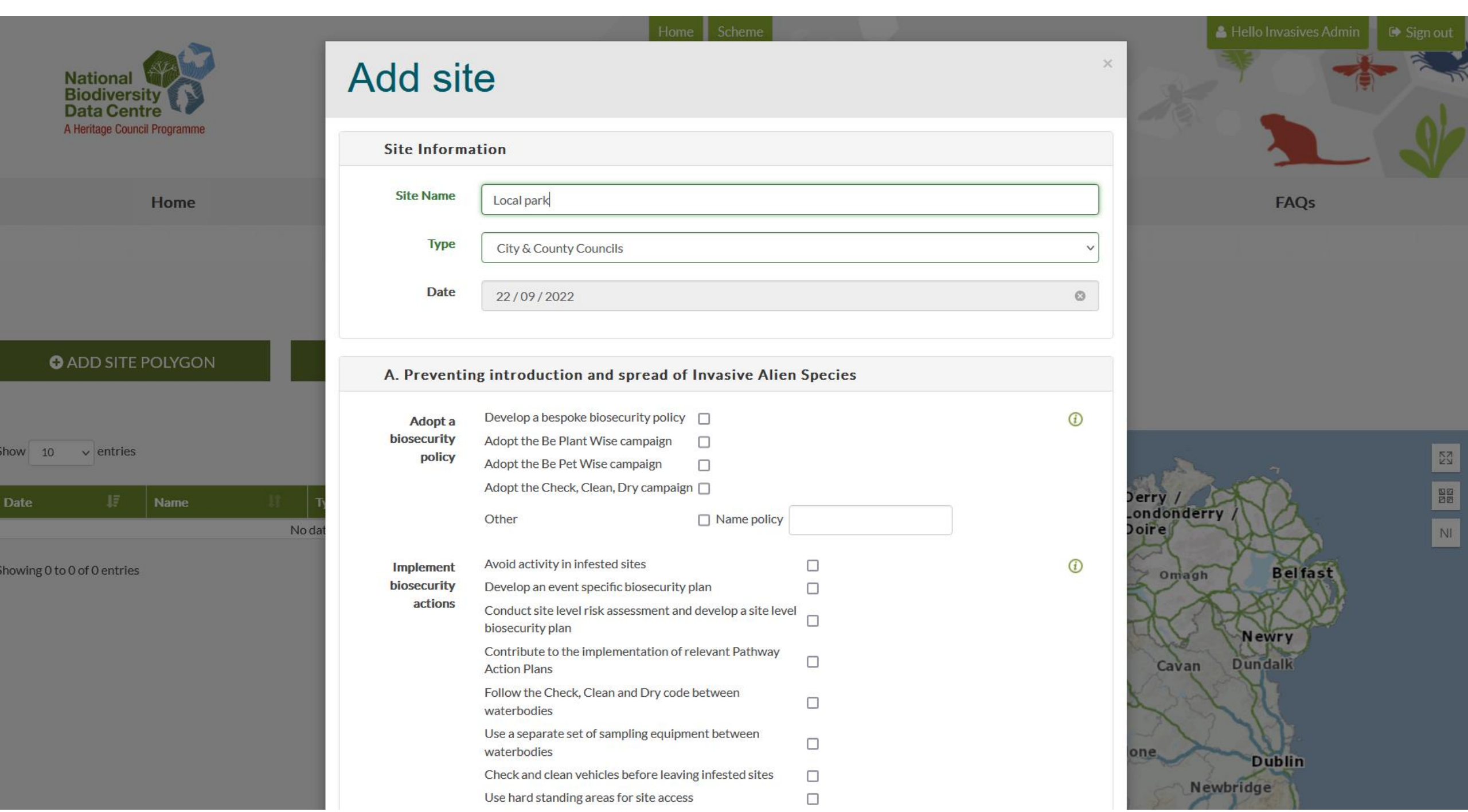
ACTIONS on INVASIVES
Stop the Spread of Invasive Alien Species in Ireland

Actions on Invasives

'Actions on Invasives' is an online mapping system that allows everyone to log and map the actions they have taken on invasive alien species, providing public recognition of your efforts and facilitating coordination.
The Actions on Invasives initiative is managed by the National Biodiversity Data Centre

1. Visit invasives.ie to see what actions you can take
2. Sign-up to the Actions on Invasives iniative
3. Zoom into the map and draw around your site or mark your club, business etc.
4. Describe the actions you are taking on invasives


National Biodiversity Data Centre
A Heritage Council Programme
Home
Scheme
Hello Invasives Admin
Sign out
Home
FAQs
ADD SITE POLYGON
Show 10 entries
Date
Name
No da
Showing 0 to 0 of 0 entries
Add site
Site Information
Site Name
Local park
Type
City & County Councils
Date
22 / 09 / 2022
A. Preventing introduction and spread of Invasive Alien Species
B. Supporting surveillance of Invasive Alien Species
C. Control of Invasive Alien Species
D. Supporting education and awareness of Invasive Alien Species
E. Research on Invasive Alien Species
F. Other
Omagh
Belfast
Newry
Cavan
Dundalk
Dublin
Newbridge
NI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Add site
Site Information
Site Name
Local park
Type
City & County Councils
Date
22 / 09 / 2022
A. Preventing introduction and spread of Invasive Alien Species
Adopt a biosecurity policy
Develop a bespoke biosecurity policy
Adopt the Be Plant Wise campaign
Adopt the Be Pet Wise campaign
Adopt the Check, Clean, Dry campaign
Other
Name policy
Implement biosecurity actions
Avoid activity in infested sites
Develop an event specific biosecurity plan
Conduct site level risk assessment and develop a site level biosecurity plan
Contribute to the implementation of relevant Pathway Action Plans
Follow the Check, Clean and Dry code between waterbodies
Use a separate set of sampling equipment between waterbodies
Check and clean vehicles before leaving infested sites
Use hard standing areas for site access
Derry / Londonderry / Doire
Omagh
Belfast
Newry
Cavan
Dundalk
Dublin
Newbridge
NI

parks or public land

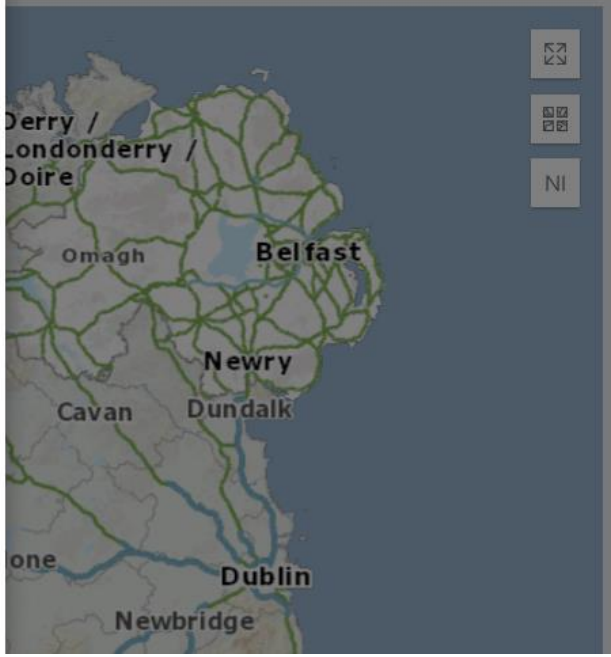
	Check origin of any soil/aggregate - ensure it is free of invasive alien species	☐	
	Responsibly dispose of invasive alien species	☐	
	Install biosecurity cleaning station(s)	☐	
	Other	☐	Name other action

Uploaded - policy document Browse... No file selected.

B. Supporting surveillance of Invasive Alien Species

Assist early detection	Participate in sentinel surveillance programme	☐	
	Rapid reporting of alert invasive alien species to the National Biodiversity Data Centre	☐	
	Circulate invasive alien species alerts to key stakeholders/group members	☐	Name alert species
	Other	☐	Name other action
Participate in surveillance and monitoring	Undertake invasive alien species survey	☐	Name target species
	Include invasive alien species in existing surveillance and monitoring programmes	☐	Name programme
	Monitor the impacts of invasive alien species	☐	Name target species
	Submit surveillance and monitoring data to the National Biodiversity Data Centre	☐	
	Other	☐	Name action

Uploaded - surveillance & monitoring document Browse... No file selected.



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ADD SITE POLYGON

Show 10 entries

Date	Name	Ty
		No dat

Showing 0 to 0 of 0 entries

C. Control of Invasive Alien Species

Control of plants

American skunk-cabbage (Lysichiton americanus)
Asiatic tearthumb (Mile-a-minute weed) (Persicaria perfoliata)
Bohemian knotweed (Fallopia x bohemica)
Brazilian giant-rhubarb (Gunnera manicata)

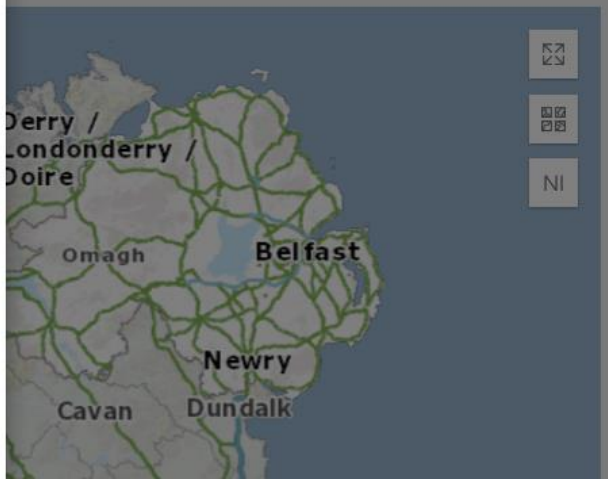
Control of other plants (not listed)

Record the methods & outcomes of plant control

Chemical control	☐ Name target plants	
Manual control	☐ Name target plants	
Mechanical control	☐ Name target plants	
Environmental control	☐ Name target plants	
Biological control	☐ Name target plants	
Other control action	☐ Name other control	
Plants targeted under other control action	☐ Name target plants	
Total area of invasive plants under control actions	☐ Area in m2	
Ongoing monitoring of targeted invasive alien plant population	☐ Status of targeted population (increasing, decreasing, no change)	

Control of animals

American lobster (Homarus americanus)
American mink (Mustela vison)
American oyster drill (Urosalpinx cinerea)
American razor-clam (Ensis leei)



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Home | FAQs

ADD SITE POLYGON

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		No dat

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D. Supporting education and awareness of Invasive Alien Species

Support education and awareness

- Deliver awareness event ☐
- Deliver training event ☐
- Attend awareness event ☐
- Attend training event ☐
- Promote invasive alien species actions online or in media ☐
- Install on-site signage ☐ No. of signs
- Other ☐ Name other actions

Uploaded - education & awareness document

Browse... No file selected.

E. Research on Invasive Alien Species

Support research

- Provide resources to facilitate invasive alien species research ☐
- Undertake or participate in invasive alien species research ☐
- Other ☐ Name other action

Uploaded - research document

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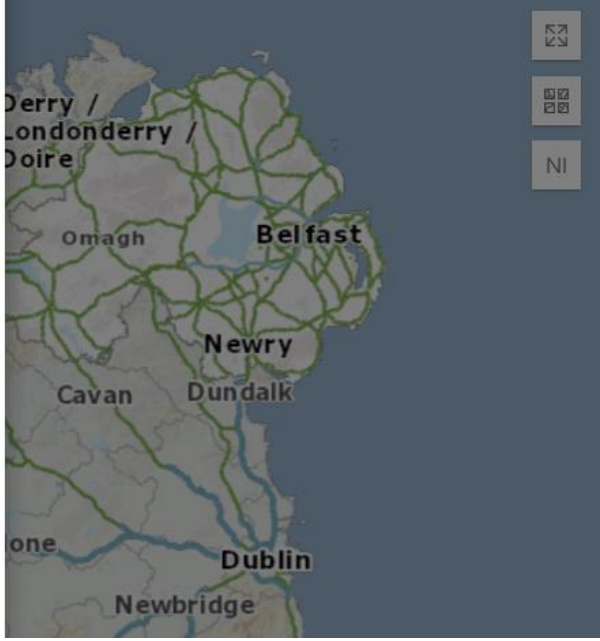
F. Other

Other actions



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Manage my sites

The site has been saved successfully

ADD SITE POLYGON | ADD SITE - UPLOAD SHAPE FILE | EXPORT DATA

Show 10 entries Search:

Date	Name	Type	Area	Actions
16/02/2022	Bord Iascaigh Mhara	Central Government	24921 m2	
26/01/2022	Cherrywood Park	City & County Councils	5828 m2	

Showing 1 to 2 of 2 entries

Previous 1 Next

Manage my sites

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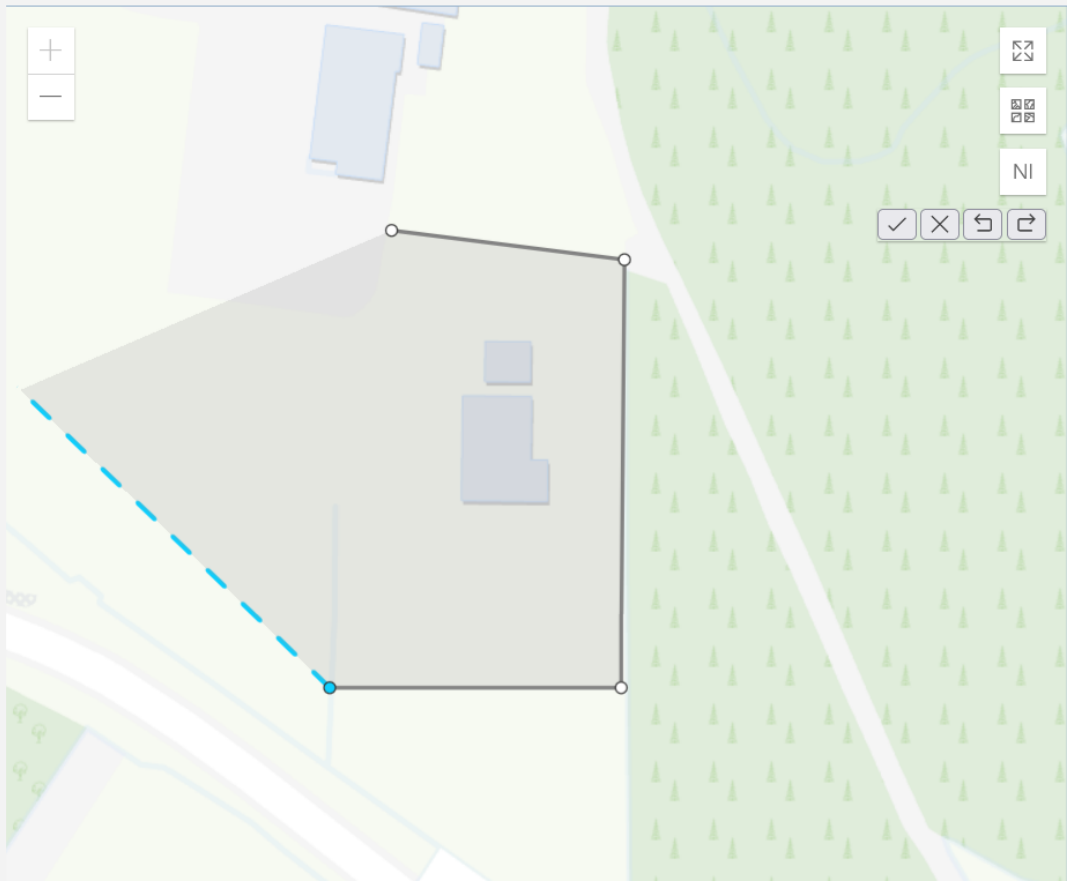

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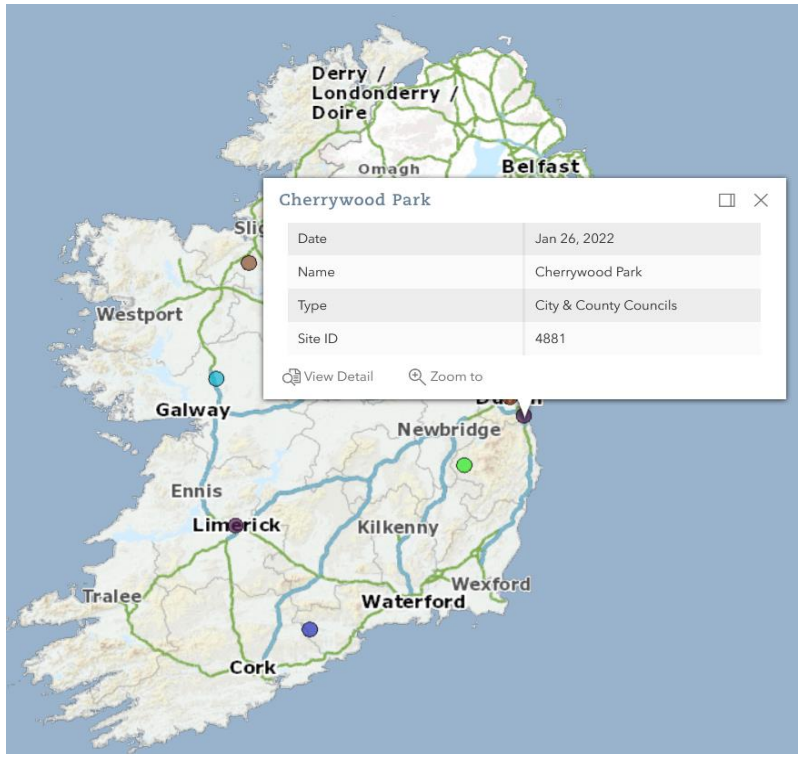
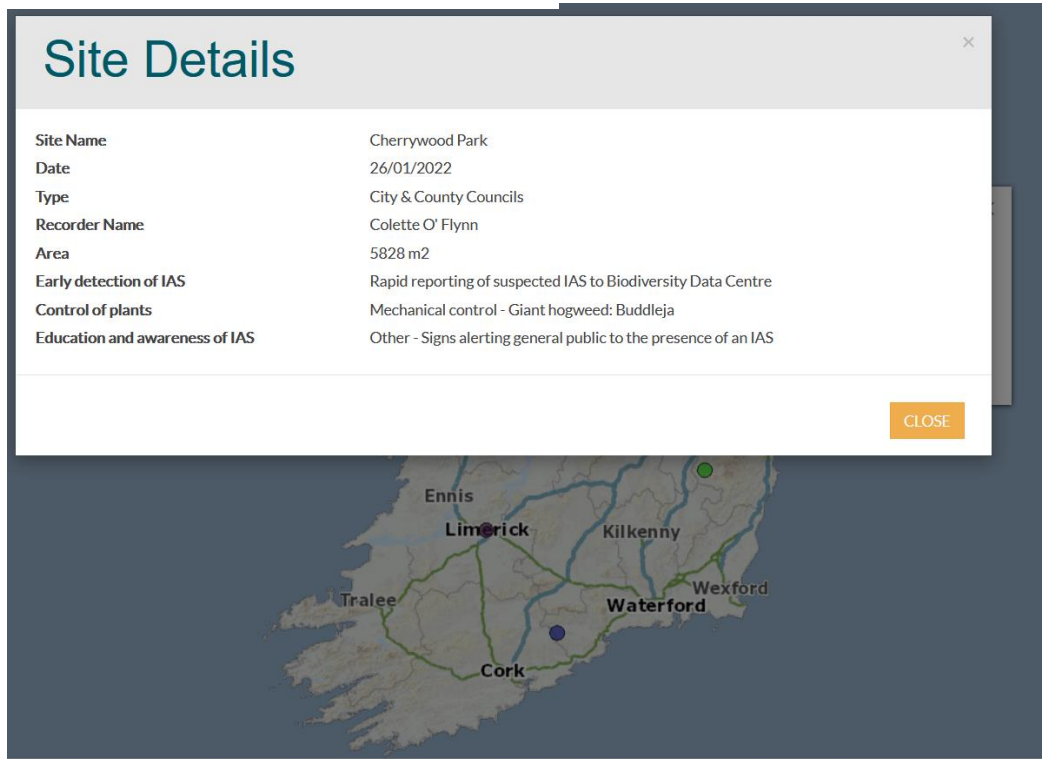


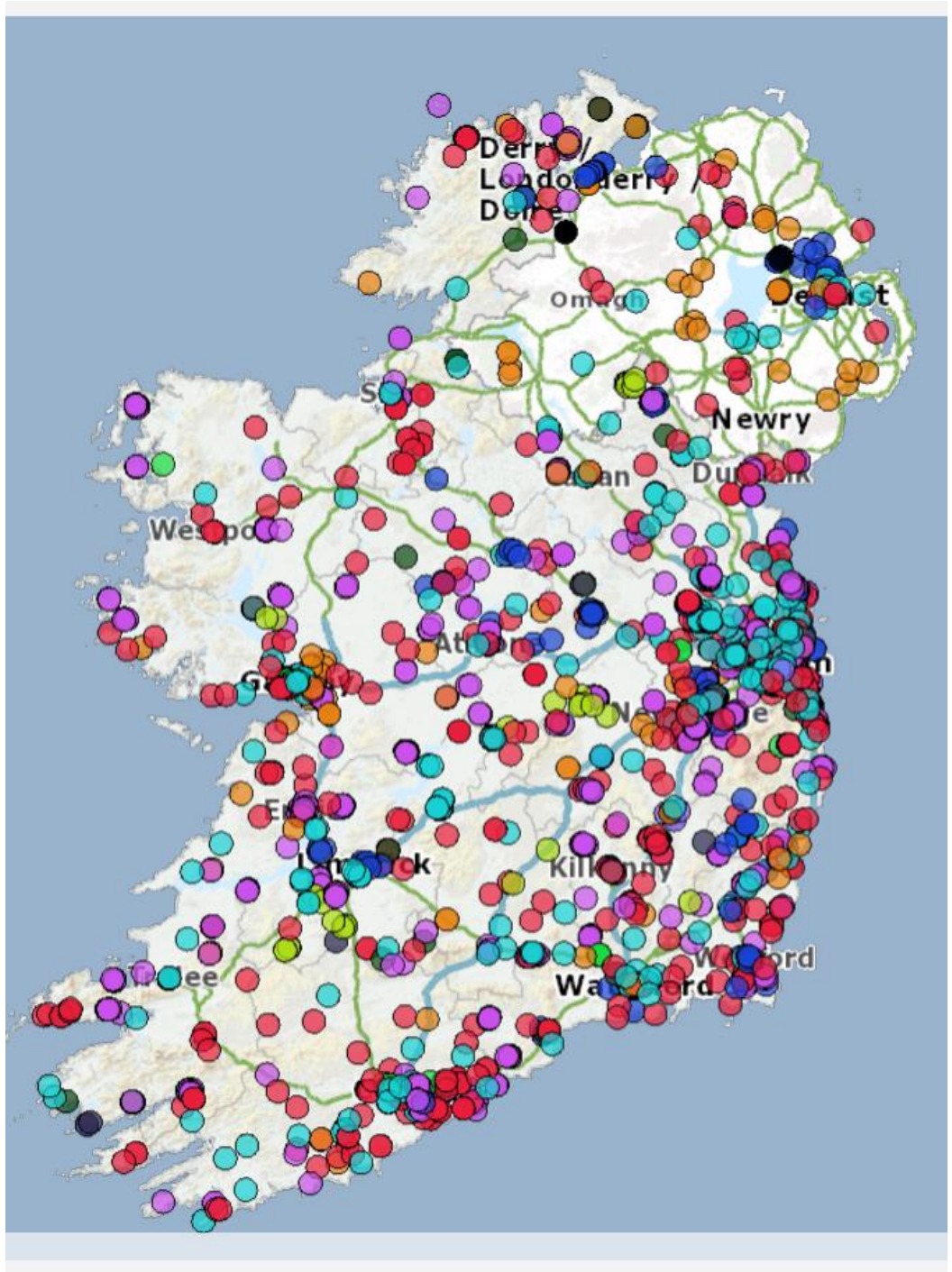


Group type

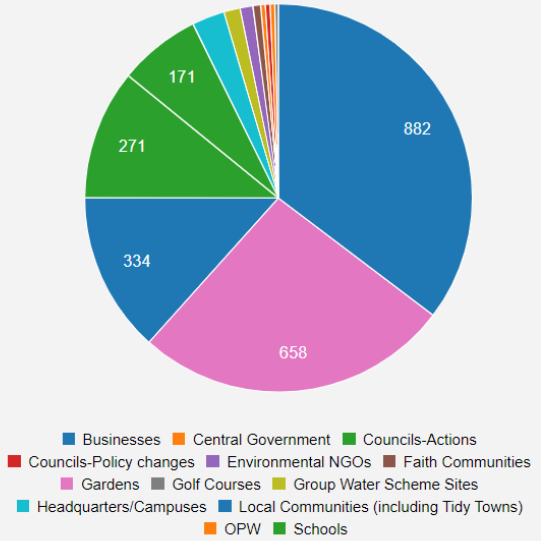
Control of plants

--- Attribute value ---

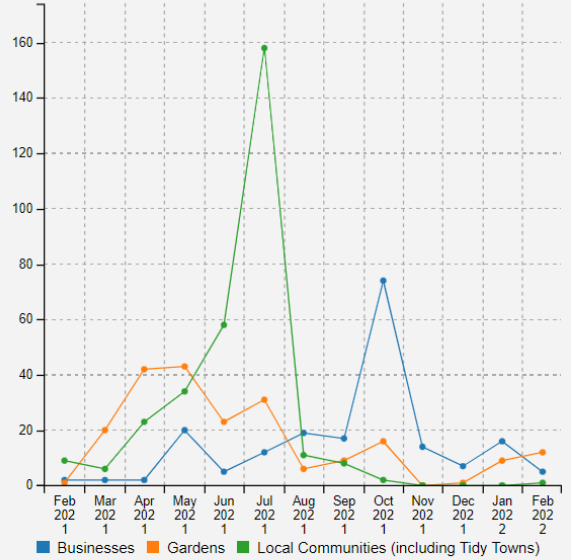
SHOW ALL



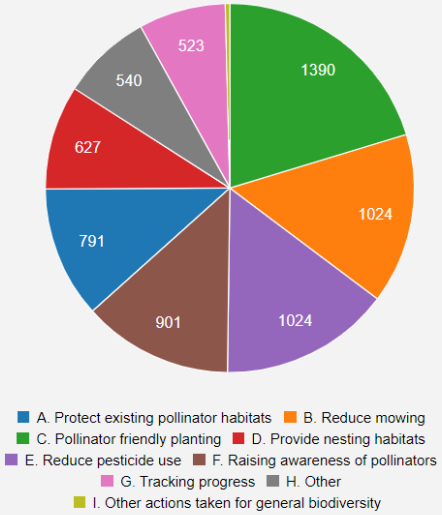
Sites per sector



New sites per sector (12 months)



Actions taken per sector



ACTIONS on INVASIVES

Stop the Spread of Invasive Alien Species in Ireland

Power behind the portal

- Provides an immediate positive visual output
- Establishes a network of people, groups and organisations working on invasive species
- Recognition for the contribution of groups to work on invasive species
- Opportunities for collaboration
- A very powerful communications tool to show responsible action in being taken
- Offers a hierarchy of action and a range of different ways that people, groups and organisations can choose to engage
- Accessible information
- Mechanisms for reporting on invasive alien species of Union concern
- Source of information and data for competent authority
- Provides opportunities for engagement
- Collates all invasive species information in one central place
- Reporting back to EU on work carried out: requirements for reporting on all IAS of union concern
- Know who is carrying out work on invasives, the species and areas their targeting
- Identify gaps in the work being done and provide support and guidance to fill those gaps
- Understand the type of work and capacity of different sectors
- Strategically co-ordinate action on invasive species at a national level

Thanks for listening!
Any questions?




Martina O'Brien
mobrien@biodiversityireland.ie

National Biodiversity Data Centre
A Heritage Council Programme

National Park & Wildlife Service

Posters


Calling all Anglers
Help stop the Invasion!
STOP THE SPREAD
Invasive plants and animals can harm our wildlife, carry diseases that kill fish, and block our waterways.
Contaminated fishing gear can cause their spread
Report any invasive species you find, including:
FISH DISEASES
QUAGGA MUSSEL
AFRICAN CURLY WATERWEED
KILLER SHRIMP
Protect the environment and fishing you enjoy by keeping your kit free of invasive species
CHECK
Check your gear, clothing, and footwear after leaving the water for mud, aquatic animals, or plant material. Remove anything you find and leave it at the site.
CLEAN
Clean everything as soon as you can. Pay particular attention to nets, waders and areas that are damp and hard to inspect. Use hot water (at least 45°C) or a high-pressure spray when possible.
DRY
Dry all equipment and clothing until dry for at least 48 hours as some invasive species can live for weeks in damp conditions.
Disinfect all items if complete drying is not possible.
Remember to check these places
Invasives.ie
invasives.ie/biosecurity/check-clean-dry


Calling all Anglers
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invasives.ie/biosecurity/check-clean-dry


Calling all Paddlers
Help stop the Invasion!
STOP THE SPREAD
Invasive plants and animals harm our wildlife and environment. They can block rivers, lakes, canals and marine waterways making paddling difficult.
Contaminated canoes and kayaks can cause their spread.
Report any invasive species you find, including:
Protect the environment you enjoy by keeping your boat and kit free of invasive species
CHECK
Check boats, equipment and clothing after leaving the water for mud, aquatic animals or plant material. Remove anything you find and leave it at the site.
CLEAN
Clean everything thoroughly as soon as you can, paying attention to the inside of your boat and areas that are damp and hard to access. Use hot water (at least 45°C) if you can.
DRY
Dry – drain water from every part of your boat and dry with a sponge or towel before leaving the site. Dry everything until dry for at least 48 hours before using elsewhere as some invasive plants and animals can survive for weeks in damp conditions.
Disinfect all items if complete drying is not possible.
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Canoeing
invasives.ie/biosecurity/check-clean-dry


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Contaminated fishing gear can cause their spread
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QUAGGA MUSSEL
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KILLER SHRIMP
Protect the environment and fishing you enjoy by keeping your kit free of invasive species
CHECK
Check your gear, clothing, and footwear after leaving the water for mud, aquatic animals, or plant material. Remove anything you find and leave it at the site.
CLEAN
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Invasives.ie
invasives.ie/biosecurity/check-clean-dry


Calling all Boaters
Help stop the Invasion!
STOP THE SPREAD
CHECK
CLEAN
DRY
Remember to check these places
invasives.ie/biosecurity/check-clean-dry


Calling all Boaters
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Calling all Boaters
Help stop the Invasion!
STOP THE SPREAD
Invasive plants and animals harm our wildlife and environment. They can damage boat engines, clog propellers and block waterways. Contaminated boats can cause their spread.
Report any invasive species you find, including:
FISH DISEASES
QUAGGA MUSSEL
AFRICAN CURLY WATERWEED
KILLER SHRIMP
Protect the environment you enjoy by keeping your boat and kit free of invasive species
CHECK
Check boats, equipment and clothing after leaving the water for mud, fouling, or plant material. Remove anything you find and leave it on the bank or in the bin.
CLEAN
Clean everything thoroughly, paying attention to fenders, bow thrusters, props, the lip around your boat, and areas that are damp and hard to access. Use hot water (at least 45°C) if you can.
DRY
Dry – drain water from every part of your boat and dry everything until dry for at least 48 hours before using elsewhere as some invasive plants and animals can survive for weeks in damp conditions.
Disinfect all items if complete drying is not possible.
Remember to check these places
Invasives.ie
Waterways Ireland
IWAI
Loughs Agency
invasives.ie/biosecurity/check-clean-dry

Calling all Anglers

Help stop the Invasion!

STOP THE SPREAD

Invasive plants and animals can harm our wildlife, carry diseases that kill fish, and block our waterways.

Contaminated fishing gear can cause their spread

Report any invasive species you find, including:

FISH DISEASES

QUAGGA MUSSEL

AFRICAN CURLY WATERWEED

KILLER SHRIMP

Protect the environment and fishing you enjoy by keeping your kit free of invasive species

CHECK **Check** your gear, clothing, and footwear after leaving the water for mud, aquatic animals, or plant material. Remove anything you find and leave it at the site.

CLEAN **Clean** everything as soon as you can. Pay particular attention to nets, waders and areas that are damp and hard to inspect. Use hot water (at least 45°C) or a high-pressure spray when possible.

DRY **Dry** all equipment and clothing until dry for at least 48 hours as some invasive species can live for weeks in damp conditions.

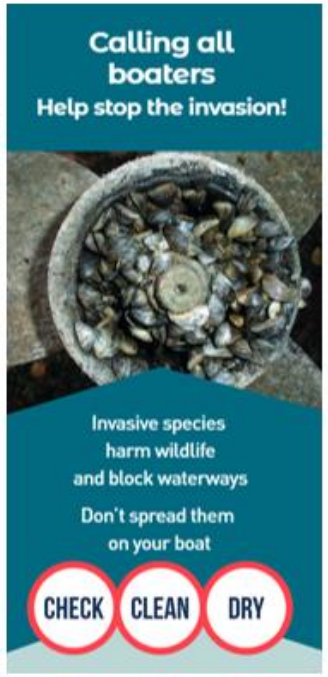
Disinfect all items if complete drying is not possible.

An Roinn Tithíochta, Rialtais Áitiúil agus Oidhreachta
Department of Housing, Local Government and Heritage

National Biodiversity Data Centre

Invasives.ie
Invasive Alien Species in Ireland

Find out more about invasive species and how you can help to stop the spread at:
invasives.ie/biosecurity/check-clean-dry



Examples of invasive species that could become a serious problem in our waterways:

FISH DISEASES

Diseases such as Koi Herpes Virus (picture of infected fish), Salmon fluke *(Gyrodactylus salaris)* and the Crayfish plague *(Aphanomyces astaci)* kill fish and can close fisheries.

INVASIVE AQUATIC PLANTS AND SEAWEEDS

Freshwater plants like African curly waterweed *(Lagarosiphon major)* and seaweeds like Wakame *(Undaria pinnatifida)* block waterways and outcompete with native wildlife. If they spread further in Ireland, they could cost €millions to manage.

INVASIVE AQUATIC ANIMALS

The Chinese Mitten Crab *(Eriocheir sinensis)* moves between freshwaters rivers and marine estuaries, damaging banks, preying on and outcompeting our native wildlife. The Slipper limpet can form chains and stacks of up to 15 individuals in marine environments. They can starve and smother native shellfish and be a serious pest of oyster and mussel beds.

STOP THE SPREAD OF INVASIVE PLANTS AND ANIMALS

STOP THE SPREAD

invasives.ie/biosecurity

Find out more about this biosecurity campaign and how you can report sightings to help stop the spread at:

invasives.ie/biosecurity/check-clean-dry

#CheckCleanDryIrl

Photos from Trevor Renals, the Environment Agency, Satu Viljamaa-Dirks (FFA, OIE reference laboratory for crayfish plague) and Jan-Robert Baars.

Invasive plants and animals from all over the world have been introduced accidentally to Irish waters. Many different species have already been found in our lakes, rivers, seas, and other waterways, and the number of new arrivals is increasing rapidly.

They cause serious environmental problems that can be irreversible – outcompeting native wildlife, damaging ecosystems, and spreading disease. They can block waterways and riverbanks, interfere with fishing, and damage boats and propellers. Contaminated gear (e.g. equipment, boats, footwear, and clothing) is one of the most common causes of their spread to new waterways.

They can be small and hard to spot so are easily spread on damp equipment and clothing. **Protect the environment and sport you enjoy by keeping your boat and kit free from invasive plants and animals.**

CHECK your equipment, boat, and clothing after leaving the water for mud, aquatic animals, or plant material. Remove anything you find and leave it at the site.

CLEAN everything thoroughly as soon as you can paying attention to areas that are damp and hard to inspect. Use hot water (at least 45°C) or a high-pressure spray.

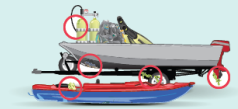
DRY everything until it is dry for at least 48 hours before using elsewhere as some invasive plants and animals can survive for weeks in damp conditions.

Disinfect everything if complete drying is not possible. Items can be soaked, thoroughly sprayed, or wiped down with a disinfectant approved for use near waterbodies (e.g. Virkon Aquatic, Virasure).

STOP THE SPREAD

Anything that comes into contact with the water has the potential to spread invasive species elsewhere.

Following the **Check Clean Dry** biosecurity campaign can help protect our aquatic environment.



Remember to check these places

You can download free Check Clean Dry awareness-raising materials for your club from invasives.ie/biosecurity/check-clean-dry

Outdoor Signs

Invasive Freshwater Plants & Animals

STOP THE SPREAD OF INVASIVE PLANTS AND ANIMALS

STOP THE SPREAD

invasives.ie/biosecurity

Pocket guide

African Curly Waterweed
Lagarosiphon major

4

- Submerged, aquatic plant, anchored in the substrate
- Leaves are strongly curved which are 6-30mm long and 1-3mm wide
- Tends to from dense stands with stems up to 3m long
- Can be confused with *Elodea spp.*, *Egeria densa*, and *Hydrilla verticillata*

Signal Crayfish
Pacifastacus leniusculus

9

- Much larger than our native White-clawed Crayfish although juveniles of both species are very similar
- Claws bright red underneath with a turquoise / white spot on the surface
- Spreads up and down stream and may cross land to colonise adjacent water bodies
- Carries Crayfish Plague which is deadly to our native crayfish. Look out for four other invasive crayfish species of Union Concern

What are freshwater invasive non-native species?

Animals and plants that have been introduced by human actions to parts of the world outside their natural range are known as non-native species. Most of these do not cause any problems in Ireland.

However, a small proportion, known as invasive non-native species, can cause serious and permanent problems by harming environments. They can be bigger, faster growing or more aggressive than native species, and may also have fewer natural predators to control their numbers. As a result, native species are often unable to compete.

A number of invasive non-native species have been introduced into the freshwater environment in Ireland which includes, for example, lakes, rivers and ponds.

Why should I be concerned?

These species can devastate populations of native species and change whole ecosystems, for example, by competing with and displacing native species, spreading disease, altering the local ecology and physically clogging waterways. This can adversely affect recreational facilities, for example, by reducing the population of fish, restricting navigation through waterways and affecting the quality of our rivers.

How are they usually spread?

Water users can unknowingly assist the spread of these species from one water body to another by accidentally carrying individuals, eggs, larvae and viable plant fragments on their equipment, shoes, clothing and other damp places.

What can I do to stop the spread of these species?

By following three simple steps when leaving the water, you can help stop the spread of invasive non-native species:

CHECK **Check** your gear, clothing, and footwear after leaving the water for mud, aquatic animals, or plant material. Remove anything you find and leave it at the site.

CHECK **Clean** and wash all boats, equipment, footwear and clothes thoroughly. Use hot water (at least 45°C) or a high-pressure spray if possible.

CHECK **Dry** all equipment and clothing until they are dry for at least 48 hours as some invasive species can live for weeks in damp conditions. Disinfect all items if complete drying is not possible.

www.invasives.ie/biosecuirty/check-clean-dry

Freshwater Invasive Non-Native Plants

Freshwater invasive non-native plants can have a negative impact on our waterways leaving them unsuitable for both wildlife and recreation. These plants can grow rapidly, blocking out light and making it very difficult for our native species to survive.

Identification of these problem plants can be difficult with many looking similar to our native freshwater plant species. Expert advice should always be sought if you think you have found one.

The five species included in this leaflet are some of the many freshwater invasive non-native plant species found in Ireland that are of most concern to our wildlife and economy.

New Zealand pygmyweed
Crassula helmsii

1

- Small round fleshy leaves arranged along the stem in opposite pairs
- Flowers very small, white with small petals
- Can grow under/above water surface and some forms found on land
- Forms dense impenetrable mats, can grow 200 times faster than native pond plants

Floating Pennywort
Hydrocotyle ranunculoides

2

- Fleshy stems and roundish bluntly toothed leaves held horizontal and generally dissected to the middle
- Flowers without petals, greenish, held erect
- Precludes growth of other aquatic plants
- Obstructs movements of animals and boats preventing navigation and recreational use of watercourses

Water Primrose
Ludwigia grandiflora

3

- Creeping perennial water plant with long oval leaves like a willow
- Large, bright yellow flower like that of a primrose
- Plant can produce huge numbers of seed per year
- A similar related species, *Ludwigia peploides* is invasive and of union concern

African Curly Waterweed
Lagarosiphon major

4

- Submerged, aquatic plant, anchored in the substrate
- Leaves are strongly curved which are 6-30mm long and 1-3mm wide
- Tends to from dense stands with stems up to 3m long
- Can be confused with *Elodea spp., Egeria densa*, and *Hydrilla verticillata*

Parrots Feather
Myriophyllum aquaticum

5

- Aquatic perennial with forms that can grow above (emergent) and below the water surface (submerged)
- Blue-green feather like leaves in whorls of 4-6
- Emergent form is more robust than submerged form
- Can block ditches and dominate ponds
- Dies back in winter although submerged form is present all year

This leaflet was originally produced by the Cheshire Wildlife Trust with support of GB Non-Native Species Secretariat. This version has been adapted by the National Biodiversity Data Centre with support from the National Parks and Wildlife Service.

To find out more about invasive species visit: **www.invasives.ie**

Invasives.ie
Invasive Alien Species in Ireland

Freshwater Invasive Non-Native Invertebrates

Freshwater invasive non-native invertebrates can have a negative impact on our freshwater environments leaving them unsuitable for both wildlife and recreation. These organisms can reproduce rapidly, prey on and compete with on our native species. They can spread disease and parasites.

Identification of these problem species can be difficult so expert advice should always be sought if you think you have found one. The following six species are some of the many freshwater invasive non-native invertebrates found in Ireland that are of most concern to our wildlife and economy.

Zebra & Quagga
Invasive Dreissenid's

6

- Zebra mussel: *Dreissena polymorpha* distinct ridging, triangular cross-section, lies flat when placed on front
- Quagga mussel: *Dreissena rostriformis bugensis* no distinct ridging, more rounded cross section, rolls to side when placed on front
- Colour and pattern not reliable characteristics to tell species apart
- Powerful filter feeders, alter whole ecosystems

Stone moroko (Topmouth gudgeon)
Pseudorasbora parva

7

- Small slender freshwater fish, usually 4 – 8cm in length
- Generally iridescent silvery blue with thin dark purple – blue stripe along lateral line
- Upturned lower jaw with no barbles
- Dorsal fin originates directly above pelvic fin
- It can outcompete native fish for food, habitat and spawning areas

Killer Shrimp
Dikerogammarus villosus

8

- Up to 30 mm in length, body is curled and semi-transparent with two pairs of antennae and large, powerful mandibles (jaws)
- Predator of native shrimp and other native species
- Likely to disrupt ecosystems through direct predation and indirect effects across food chains
- Parasites carried by killer shrimps could reduce fish stocks

Signal Crayfish
Pacifastacus leniusculus

9

- Much larger than our native White-clawed Crayfish although juveniles of both species are very similar
- Claws bright red underneath with a turquoise / white spot on the surface
- Spreads up and down stream and may cross land to colonise adjacent water bodies
- Carries Crayfish Plague which is deadly to our native crayfish. Look out for four other invasive crayfish species of Union Concern

Chinese Mitten Crab
Eriocheir sinensis

10

- Only freshwater crab found in Ireland. Migrates downstream to estuaries in Autumn to spawn
- Green, brown or grey in colour, front white tipped pincers covered in dense matt of fine hairs
- Legs long and hairy, body square and up to 86mm across
- Undermines riverbanks through burrowing leading to increased risk of erosion and flooding

Asian Clam
Corbicula fluminea

11

- Invasive mollusc species usually less than 25 mm but can grow up to 50 to 65 mm in length
- Yellow-green to brown rounded triangular shell with evenly spaced ridges on surface
- Reach high densities and outcompete native species for food and space
- Threatens fish spawning grounds and native freshwater mollusc species

What do I do if I find an invasive species?

It is important to let us know if you see any of the species contained in this guide. Submit your sighting through:

https://records.biodiversityireland.ie/

For more information on recording visit: https://invasives.ie/what-can-i-do/report-sightings/

Remember to Check Clean Dry!

https://invasives.ie/biosecurity/check-clean-dry/

#CheckCleanDryIrl

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Invasive Freshwater Plants & Animals

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STOP THE SPREAD
invasives.ie/biosecurity

Pocket guide

Border posters

Adverts

Thank you signs

Templates


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