



Alien Invasive Species

Sligo LEADER Biodiversity Training – On-line Session 4
Welcome – Reminder – session will be recorded.



What is an Invasive Alien Species (IAS)?

- Introduced non-native species
- Causes problems
- Examples
 - Zebra Mussels
 - Japanese knotweed
 - Giant Hogweed
 - Himalayan Balsam
 - Not Noxious Weeds



Why are IASs an issue?

Considered direct drivers of biodiversity loss and ecosystem service changes
(*Millennium Ecosystem Assessment, 2005*)

Issue due to :

- Direct competition with native wildlife
- Changes to habitats and introduction of pathogens
- Socio-economic and Human Health Impacts.
- 2005 – Est cost of impact to EU economy €5 billion,
- Impact on native species such as Red Squirrel – and this native species???



white-clawed crayfish - Only between 6-12 cm in length they can live to around 12 years. Ireland hosts some of the largest wild populations of these crayfish. They are under threat from Crayfish plague.

Why should we be concerned?

- Habitat change / loss
- Health and safety
- Access limitations
- Infrastructure damage
- Flooding
- Economic impacts
 - Cost of containment
 - Infrastructure repair
 - Tourism impacts



Guidance available:
even ecologists struggle with this a little!!

- AMBER LISTS
- MEDIUM IMPACT LISTS
- HIGH IMPACT LISTS
- SLIGO'S DIRTY DOZEN
- Third schedule Plants (*illegal to cause spread etc*).
- Third schedule animals
- TII Guidance
- A number of plants good for pollinators are also invasive!



www.biodiversityireland.com
www.invasivespeciesireland.com

Sligo's Dirty Dozen – id's 2020

- *Fallopia Japonica* – JAPANESE KNOTWEED
- *Impatiens glandulifera* – HIMALAYAN BALSAM
- *Heracleum mantegazzianum* – GIANT HOGWEED
- *Rhododendron ponticum* – RHODODENDRON
- *Lemna minuta* – LEAST DUCKWEED
- *Dreissena polymorpha* – ZEBRA MUSSEL



Sligo's Dirty Dozen

- *Oxyura jamaicensis* – RUDDY DUCK
- *Lagarosiphon major* – AFRICAN CURLY WATERWEED
- *Arthurdendyus triangulata* – NEW ZEALAND FLATWORM
- *Gunnera tinctoria*- GIANT RHUBARB
- *Sargassum muticum* – WIRE WEED
- *Muntiacus Reevesi* – MUNTJAC DEER

XII. *MUNTIACUS REEVESI* – MUNTJAC DEER



Photo credit: Colette O' Flynn, National Biodiversity Data Centre to Sligo County Council, 2010

Giant Hogweed

Recognising it

- **Stem:** dark reddish-purple stem and spotted leaf stalks -hollow and with sturdy bristles
- **Leaves:** deeply incised compound leaves which grow up to 1.7m in width
- **Flowers:** white flowers clustered in an umbrella-shaped head 0.8m in diameter
- **Seeds :** flattened, 1cm long, oval dry fruits



Where does it occur?

- Originally from Caucasus, now:
 - River banks
 - Railway lines
 - Damp waste ground

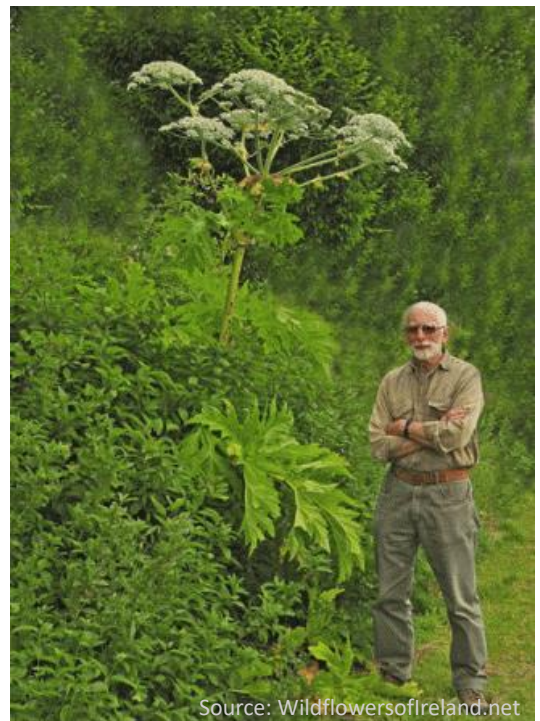


Giant Hogweed -Threats

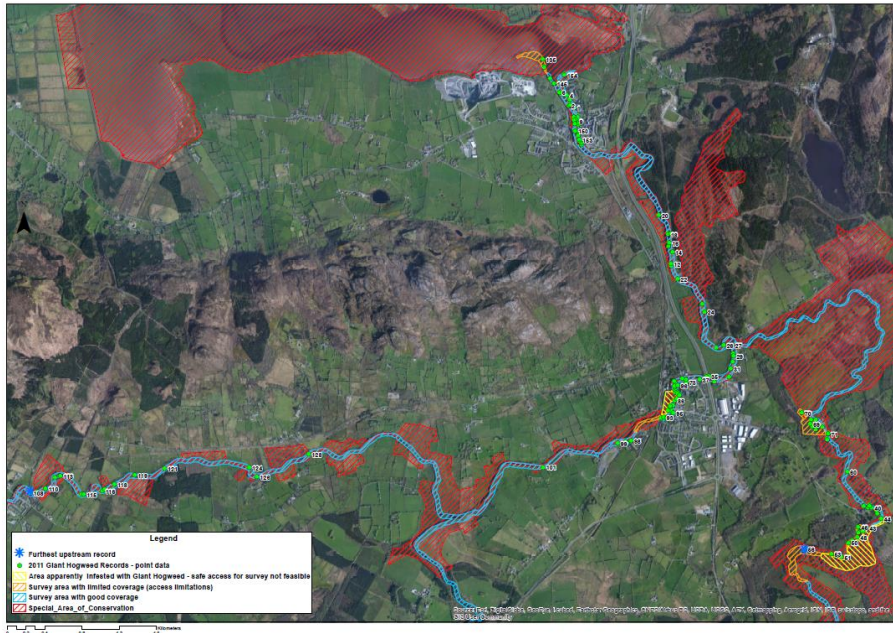
- Sap can cause **severe burns and scarring** by making the skin more sensitive to sunlight
- Shades native species
- Increases soil erosion along rivers

Do NOT use mowers, strimmers or weed-whackers as they:

- Stimulate budding on the root crown;
- Don't reduce the plants growth;
- Can **flail sap onto operators** and through clothing (causing burns).



Source: Wildflowersofireland.net



What to do

- Need a management plan
 - Aim – stop seed production
 - Eradication must be on a catchment basis
 - Starting from upstream to downstream
 - Containment can be important in high risk or access areas
 - Management approach will vary depending on the location
 - Need repeated work since seeds can be viable for up to 14 years

Issues

- Approach to management plan
- Limits of works
- Safe access
- Access to private lands



Japanese Knotweed

Background

- Originally from Asia
- Introduced to gardens in 19th Century
- Spreads vegetatively



What to do

- Use of herbicides (chemical treatment)
 - When still growing (April / May)
 - Ideally spot application
 - Need full PPE
- Mechanical treatment
 - Cutting / root cutting / mowing
 - Can be selective cutting of flowering plants
- Grazing control
 - Sheep or cattle – early season

Giant Hogweed - Control



Physical Control

Method	Season	Follow-up
Removal using appropriate hand tools and Full P.P.E.	Spring following recent rain.	Follow-up to deal with seedlings for 5 years.



Chemical Control

Chemical	Season	Follow-up
Glyphosate	Foliar spray in mid-spring before stem elongation. Otherwise, cut back and spray re-growth. Stem injection during growing season.	Foliar spray, wiper applicator, spot treatment or stem injection.
2,4-D	Foliar spray in mid-spring before stem elongation. Otherwise, cut back and spray re-growth. Stem injection during growing season.	Wiper applicator or spot treatment.

All Plant Protection Products should be used in accordance with the product label and with Good Plant Protection Practice as prescribed in the European Communities (Authorization, Placing on the Market, Use and Control of Plant Protection Products) Regulations, 2003 (S.I. No. 83 of 2003). It is an offence to use Plant Protection Products in a manner other than that specified on the label.

Source: TII.ie Guidance

Recognising it

- Stem: Up to 2-3m tall
 - Green, with red or purple specks
 - Forms dense cane-like clumps.
- Leaves: Green, shield or heart-shaped, with a flat base.
 - Up to 120mm long.
- Flowers: Creamy clusters borne on the tips of most stems.
 - August – October
- Roots: Consist of rhizomes, which are yellow / orange, when cut.
 - The rhizome system can reach 7m from the parent plant and can be up to 3m deep



Where does it occur?

- River banks
- Road sides
- Dumps / waste sites
- Loose soil



Why is it a problem?

- Impact on biodiversity
- Increases risk of bank erosion
- Easily spread
- Impact on infrastructure



Failed

But Regrowing:

- From rhizomes
- From uprooted plants / crowns
- From scattered fragments

In fact - Spreading





What to do

- **Identify and contain current situation**
- **Eradicate existing**
- **Put a Management Plan in place**

Rathcormac TT one of the first to treat Japanese knotweed.



Japanese Knotweed - Control



Physical and Chemical Control - Combined Treatment Method

Method	Season	Follow-up
Combined digging and spraying.	Digging and spreading can take place in winter, chemical control as described below.	Chemical control may be required over five years.
Cut and inject technique.	Late October or November.	Chemical control may be required over five years.



Physical and Chemical Control

Method	Season	Follow-up
Chemical control followed by excavation.	Chemical control when Non-persistent herbicide is 'active'. Excavation two weeks later.	Monitor site of excavation regularly.
'Deep burial.'	Following excavation.	Monitor site of burial regularly.
'Disposal to landfill.'	Following excavation.	N/A.



Chemical Control

Method	Season	Follow-up
Glyphosate-based Plant Protection Product.	May and late September/early October.	Chemical control may be required over five years.
2,4-D Amine-based Plant Protection Product.	May and late September/early October.	Chemical control may be required over five years.

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Source: TII.ie Guidance

FAQs –Japanese knotweed:

- I've sprayed Japanese knotweed with glyphosate for the past 3 consecutive years and this summer year there is no visible re-growth, is the plant dead?
- There's a patch of Japanese knotweed growing up through my lawn, is it okay to mow it?
- There is Japanese knotweed growing in my community, who should I tell?
- There is an infestation of Japanese knotweed on a neighbouring property and it is spreading into my land, who is responsible to get rid of it?
- Is Japanese knotweed a regulated species in Ireland?
- Yes, under Regulation 49(2) any person who plants, disperses, allows or causes to disperse, spreads or otherwise causes to grow Japanese knotweed or any of the other invasive plants listed in the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations, 2011 (S.I. No. 477 of 2011) shall be guilty of an offence.

Himalayan Balsam

Recognising it

- **Stem:** Pinky-red colour, Up to 3m tall, Hollow and jointed
- **Leaves:** Spear-shaped, with serrated edges. Shiny and dark green, Up to 150mm long.
- **Flowers:** Purplish-pink to pale pink. Slipper-shaped, on long stalks. June – October
- **Seeds :** White, brown or black in green pods . Produced from July – October



Where does it occur?

- River banks
- Damp Woodlands



Why is it a problem?

- Shades out native species
- Competes with native species (eg for pollinators)
- Increases risk of bank erosion
- Affects access
- Fast spreading



Indian/Himalayan Balsam - Threats

- **Aim: Prevent flowering**
 - Timing of control: Before flowering in June
- If cutting plant:
- Cut below lowest node on plant and cut in June.
 - Cutting earlier than June can promote greater seed production from plants that regrow
- Why is this plant an issue?
- Dense stands – outcompete native plants
 - Increase flooding risk
 - Seeds easily dispersed – quick to colonise new areas
 - Dies back in winter- causing erosion risk on riverbanks



Source: Knotweed.ie



Himalayan balsam infestation in Spiddal. Photo: Elaine O'Riordan, Source: Galway County Biodiversity Project

Examples of Himalayan Balsam Control Projects

- Duhallow LIFE: Handpicked over 5 years, clearing 40km of riverbank
- River Suir Blueway: Balsam mapping and handpicking mainly between Clonmel and Carrick-on-Suir

Indian/Himalayan Balsam - Control



Physical Control

Method	Season	Follow-up
Hand pulling	Pre-flowering following recent rain.	Regular follow-up to deal with seedlings.
Mowing or cutting	Before flowering in June . Mowing required regularly for control.	Regular follow-up to deal with seedlings.



Chemical Control

Chemical	Season	Follow-up
Glyphosate	During active growth in late spring (Late April to May).	Foliar spray, wiper applicator or spot treatment.
2,4-D amine	During active growth in late spring (Late April to May).	Foliar spray, wiper applicator or spot treatment.

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Source: TII.ie Guidance

Rhododendron ponticum

- Large evergreen shrub
- Leaves: Leathery, dull green leaves with pale underside. Leaves in spirals on stem.
- Flowers: Usually pink/ purple in May - June



Source: Superfolk.com

Rhododendron ponticum - Threats

- Dense thickets – outcompetes native species
- Prevents access to sites for management and recreation



Two hillwalkers trapped in a forest of Rhododendron plants in the Knockmealdown Mountains were rescued after five hours. Photograph: SEMRA/facebook

Source: Irish Times

Rhododendron ponticum

Physical Control

Method	Season	Follow-up
Cutting	Anytime of the year.	Very labour intensive and does not kill plant. Regular follow-up to deal with re-growth required.
Uprooting	Anytime of the year.	Small plants can be pulled by hand. Large stems cut and roots grubbed out by winch or machine.
Mulch matting	Anytime of the year.	Labour intensive. Requires maintenance and follow up treatment.
Bud-rubbing	Spring to autumn.	Labour intensive. Requires regular follow-up.

Chemical Control

Chemical	Season	Follow-up
Glyphosate	During active growth in late spring or summer (June to September) . May require follow-up for 2–3 years.	Foliar spray, wiper applicator or spot treatment. Also as stem injection or cut-stump.
Triclopyr	During active growth in late spring or summer (June to September) . May require follow-up for 2–3 years.	As for glyphosate. Do not apply if very hot or during drought.

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Source: TII.ie Guidance

TII provides guidance on common road IASs:

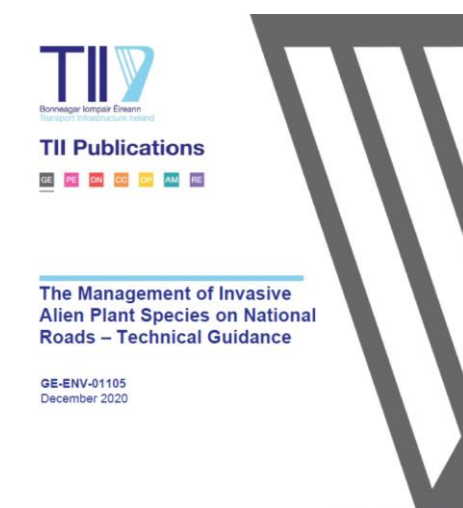


Figure 8 Distribution of Japanese knotweed along the national road network, Ireland, updated in 2018

TII Priority IASs due to impact on Roads:

- Japanese knotweed (*Fallopia japonica*)
- Giant knotweed (*Fallopia sachalinensis*) ;
Bohemian knotweed (*Fallopia x bohemica*)
- Himalayan knotweed (*Persicaria wallichii*)
- Giant hogweed (*Heracleum mantegazzia*)
- Indian or Himalayan balsam (*Impatiens glandulifera*)
- Giant rhubarb (*Gunnera tinctoria*)
- Montbretia (*Crocosmia x crocosmiiflora*)
- Winter heliotrope (*Petasites fragrans*)
- Old man's beard (*Clematis vitalba*)
- Rhododendron (*Rhododendron ponticum*)
- Buddleia (*Buddleja davidii*)



Figure 20 *Clematis vitalba* - Winter Vines



Figure 21 *Clematis vitalba* - Flowers and Foliage



Figure 22 *Clematis vitalba* - Seeds

TII Plants of Potential Concern:

- Himalayan honeysuckle
- Russian Vine
- Three- cornered leek
- Spanish Bluebell



Figure 27 Russian vine - Flowers and Foliage [Photograph: Pádraig Whelan]



Figure 26 Himalayan honeysuckle - Flowers and Foliage [Photograph: Pádraig Whelan]

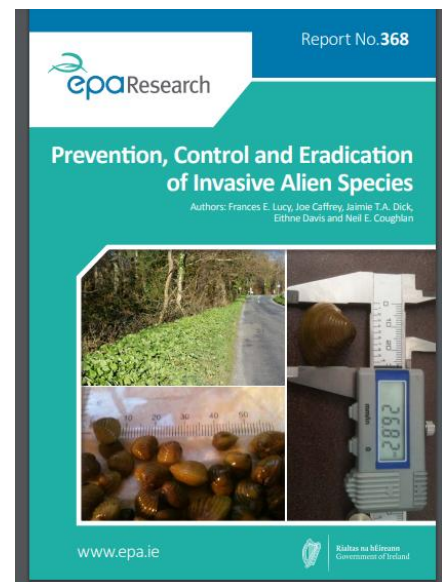
Field Guide to Invasives:



- [Field Guide to Invasive Species Ireland](#)

What should we do??

- It is important to control (through containment and eradication) of alien invasive species to protect the benefit the protection of designated SAC features, the local population and area economy.
- To develop, evaluate and disseminate best practice approaches in line with new EU Invasive Alien Species regulations.



Butterfly Bush- *Buddleja davidii*

- Small, fast growing, semi-deciduous tree
- Leaves: fine-toothed, opposite one another on the stem, dark green and hairless on top, paler and hairy underneath.
- Flowers: Long cones of usually purple flowers
- Reproduces via seeds and stem & root fragments

Threats:

- Forms monocultures
- Displaces native colonising species
- Draws pollinators away from native plant species



Butterfly Bush- *Buddleja davidii*



Physical Control

Method	Season	Follow-up
Grubbing	Any time of year when the soil is suitably dry. Small plants can be pulled by hand. Large stems cut and roots grubbed out.	Regular follow-up to deal with re-growth or seedlings which can result from exposure of soil.



Chemical Control

Chemical	Season	Follow-up
Systemic weed-killer mix (Starr et al 2003)	During active growth in late spring or summer.	Brushed on to cut back stumps.
Triclopyr or Glyphosate	During active growth in summer of limited infestations of young plants	Foliar spray. Requires follow-up at 6 monthly intervals.

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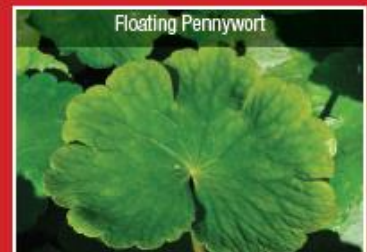
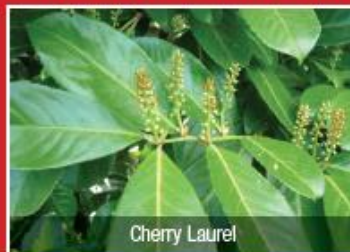
Source: TII.ie Guidance

Preventing the Spread of Invasives

- Know what you grow.
 - Report any sightings to Biodiversity Ireland (NBDC)
 - Do not plant any of these species – plant native species instead.
 - Avoiding taking or giving cuttings from wild or cultivated plants.
 - Safely dispose of plants and growing media in suitable locations.
- [Be Plant Wise](#)



Other Invasive Alien Plant Species you may see along the river



© Images provided by John Early and Ballinderry Rivers Trust or as credited



So what can we do?

- Map
- Treat
- Raise Awareness of IASs
- Raise awareness of how we can inadvertently spread IASs

Community Ideas - Invasive Species Week:

rd biodiversity Resources & publications Events & training Pollution Prevention guidelines
www.netregs.org.uk/library_of_topics/pollution_prevention

Invasive Species Week 2021



Invasive Species Week is an annual event led by the GB NNS5 to raise awareness of invasive species and how everyone can help to prevent their spread. From May 24th to 30th, organizations across Ireland, the UK, Isle of Mann, Guernsey and Jersey will be coming together for a week of action to raise awareness and ask everyone to help prevent the spread of invasive species.

Invasive Species Week 2021

The next Invasive Species Week will be held during the week beginning 24th May 2021.

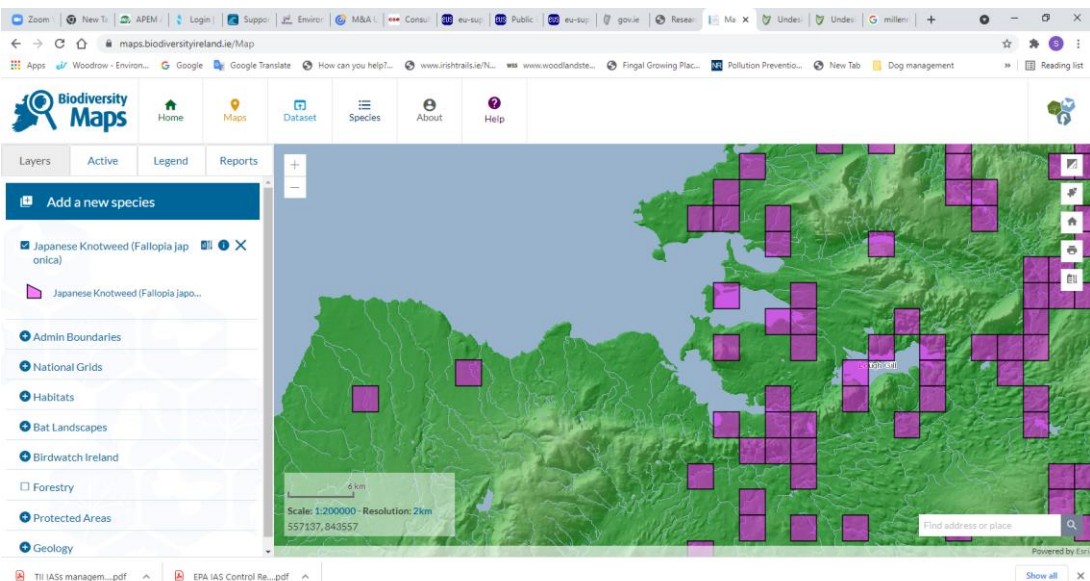
Throughout the week lots of events and activities will be taking place that people can take part in online or socially distanced. We know that many have been finding solace in nature over the last year, and we will be sharing some simple tips to help you protect the environment.

For each day of the week, the National Biodiversity Data Centre will be following daily themes and posting on this website and through @BioDataCentre social media, information from Ireland and highlighting invasive species of concern [here](#).

- @BioDataCentre
- #INNSweek
- Wipe-out workshops
- Alien Invasions
- Recordings
- Check Dry Clean
- Be Plant Wise
- Be Pet Wise

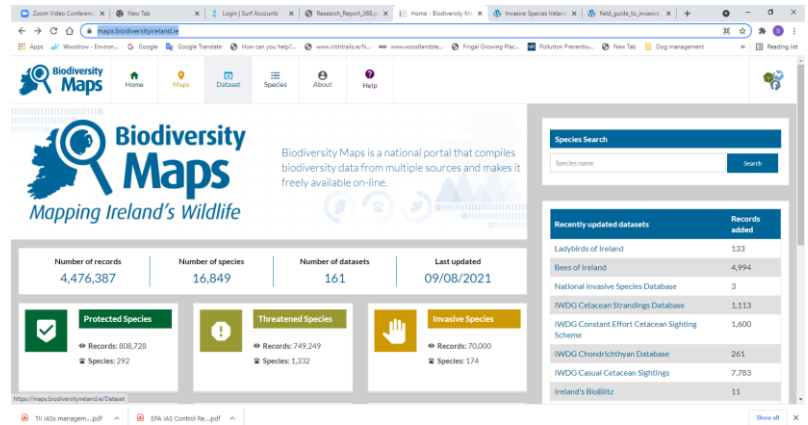


Find out recordings of IASs in your area:



Submit recordings of IASs in your area

- Currently 70,000 records for Ireland
- <https://maps.biodiversityireland.ie/>



Promote the message:

- Anglers
- Kayaks
- Canoes
- Paddling
- SUPs

Check-Clean-Dry

As a water user, you may unknowingly be helping to spread invasive species from one water body to another in equipment, shoes and clothing.

Help stop this happening by following three simple steps when you leave the water:



CHECK boats, equipment, clothing and footwear for living plants and animals. Pay particular attention to areas that are damp or hard to inspect.



CLEAN and wash all equipment, footwear and clothes thoroughly. If you do come across any plants and animals, leave them at the water body where you found them.



DRY all equipment and clothing for at least 48 hours - some species can live for many days or weeks in moist conditions. Make sure you don't transfer water elsewhere.

DISINFECT everything if complete drying is not possible. Use disinfectant such as Milton (follow product label), Virkon Aquatic (3mg/L), Proxitane (30mg/L) or an iodine based product for 30 minutes. Items difficult to soak can be sprayed or wiped down with disinfectant.

Download the following materials and share with your friends, club, colleagues or post in the office or

Local Authority Biodiversity Grants – *funding doubled 2021 €1.35m:*

- Carlow Develop IAS Plan - €16,000.00
- Cork Japanese knotweed removal - €13,600.00
- Ennis JK removal - €13,565.00
- Co Clare – removal Giant Hogweed from Rover Blackwater - €10,000.00
- Development IAS Tool Kit - €10,000.00
- Clear 1.2ha Rhododendron – Howth Heath SAC - €12,000.00
- Himalayan Control on Camcor, Offaly - €16,150.00, and Little Brosna River in Tipp €8,500.00
- Canvas info boards on IASs Tipperary - €5, 100.00

THANK YOU

- Resources to be shared:

- Invasive Species Ireland ID guide 2018
- Japanese knotweed FAQs.
- Third schedule plants
- Third schedule animals



Extra Information

- Invasive Species ID guides:
<https://www.biodiversityireland.ie/projects/invasive-species/id-guides/id-guides-by-scientific-name/>
- Invasive Species Information and Guidance:
<https://www.biodiversityireland.ie/projects/invasive-species/>
- TII Guidance on the Management of Invasive Species:
<https://www.tii.ie/technical-services/environment/construction/Management-of-Noxious-Weeds-and-Non-Native-Invasive-Plant-Species-on-National-Road-Schemes.pdf>
- Invasive Species Field Guide:
https://invasivespeciesireland.com/wp-content/uploads/2018/06/field_guide_to_invasive_species_in_ireland_booklet_2ndedition_updated_May_2018-3.pdf

Example Projects

- <https://www.catchments.ie/duhallow-life-community-led-water-nature-conservation-programme/>
- <https://www.catchments.ie/a-local-initiative-to-control-invasive-plant-species-along-the-river-suir-blueway-attracts-international-volunteers/>