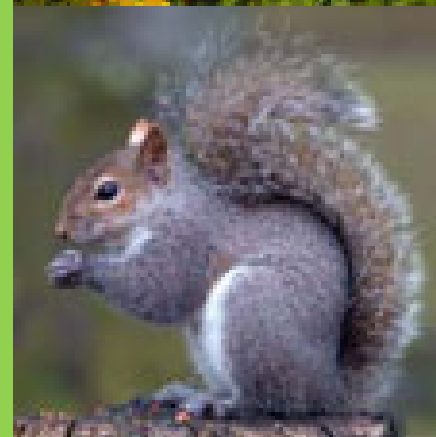


Invasive Alien Species in County Meath



What is an alien invasive species?

- Introduced non-native species
- Causes problems
- Examples
 - Grey squirrel
 - Non-native Deer species
 - NOT Noxious Weeds



Why should we be concerned?

Impacts on biodiversity

- Competition for space / light etc
- Changes to habitats (especially water quality)
- Lack of natural predators

Why should we be concerned?

Health and Safety issues

- Toxins
- Roadside / sightline hazards



Why should we be concerned?

Impacts on recreation

- Access
 - Footpaths
 - Waterways
- Impacts on Fisheries



Why should we be concerned?

Impacts on infrastructure

- Damage to buildings, car parks, roads
- Clogging up of water pipes / pumps
- Cause of flooding



Why should we be concerned?

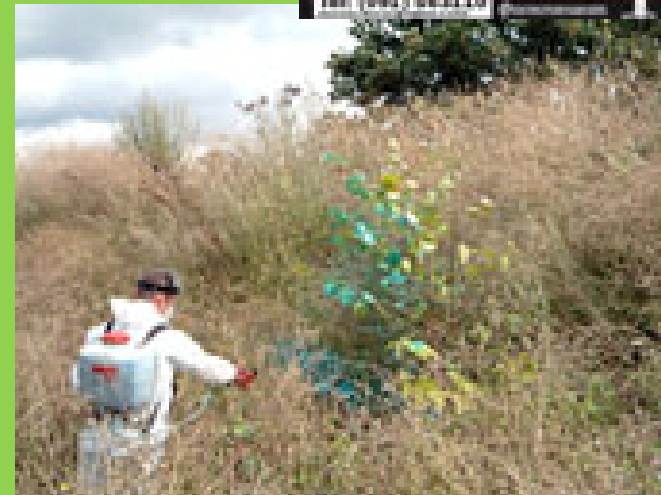
Economic impacts

- Cost of containment / control
- Cost of infrastructure repair
- Impacts on tourism etc



What can we do?

- Establish the extent of the problem
- Avoid new introductions and contain existing problem
- Control / remove species if possible



Some of the main culprits

- Japanese Knotweed
- Giant Hogweed
- Himalayan Balsam
- Zebra Mussels
- Aquatic Weeds



Japanese Knotweed

Background

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



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

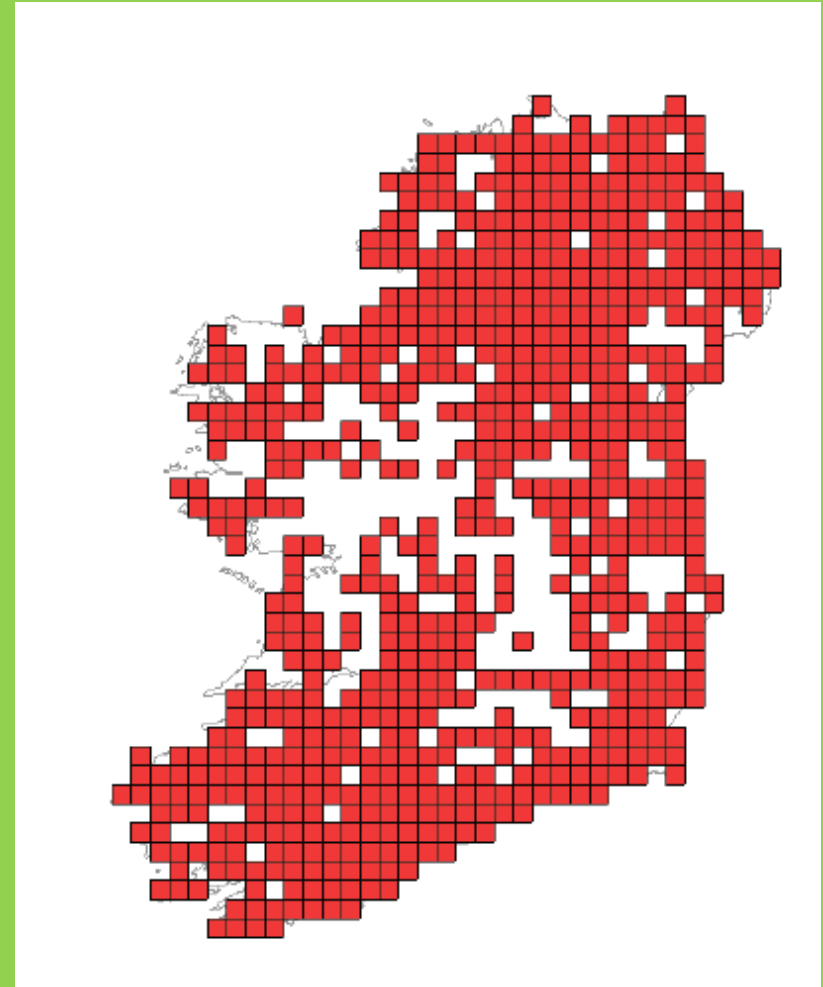
• Roots: Consist of rhizomes, which are yellow / orange, when cut.

- 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

- It is invasive and acutely impacts on our native flora and fauna, creating large areas of monoculture vegetation.
- Inhibits access as footpaths become overgrown.
- It causes obstruction, destroying the visibility along roads and railways – creating a safety issue
- Its visual impact is obtrusive.
- It is a destructive plant, which can grow throughout any type of surface including pavements slabs and tarmac – causing considerable infrastructure damage and creating a cost issue
- It provides poor habitat for insects, birds and mammals.
- It can create a potential flood hazard if dead stems fall into and clog up water courses

Identifying Japanese knotweed



Why is it a problem

Impact on biodiversity

- Invades natural habitats and out-competes native plants
- Of little use as a food source for native species
- Rivers, hedges, roadsides and railways form important corridors for native plants and animals to migrate, and large infestations of non-native weeds can block these routes for wildlife.



Why is it a problem

Easily Spread

- Cutting it / flailing it / disturbing it is likely to spread it further



Why is it a problem

Impact on Infrastructure

- Japanese knotweed can grow through walls, tarmac and buildings.
- It is very difficult to treat in such situations
- Can cause flooding









Why is it a problem

Increasing cost with time

- Chemical treatment can take a long time
- Removal is very expensive

The longer you delay –
the more expensive
the solution!



What to do

Contain current situation

- Survey and log existing sites
- Do not flail or mow existing sites
- Avoid movement of soil from infected sites
- Avoid use of heavy machinery (eg caterpillar tracks) on infected sites
- Check all imported top soil

What to do

Eradicate existing

- **Chemical Treatment**
 - **Removal**
- **Use systemic herbicides (eg glyphosate if near water)**
 - **Either spray leaves (both sides) in late summer ('senescence'), or**
 - **Inject stems (especially in important plant areas)**

NB – chemical control relies on transport of the herbicide down to the rhizome

Chemical Treatment

- Japanese knotweed is not an easy plant to control.
- Extensive rhizome system sustains the plant even when top growth is removed.
- **The aim of any control programme should be to target the rhizomes. This is best achieved using a chemical treatment.**
- Translocated herbicides such as glyphosate and 2,4-D amine may be used in riparian areas.
- In areas where there is no risk of run-off to watercourses and where no sensitive vegetation (including trees and shrubs) will be affected, the herbicides triclopyr, picloram and imazapyr may be used.
- The latter three herbicides are persistent in the soil and may delay planting of replacement species.
- Herbicides are usually applied as a foliar spray but can also be applied directly to target plants using a weed-wiper or herbicide glove.
- Good results have been achieved by injecting glyphosate into hollow stems immediately after cutting



What to do

Eradicate existing

- Chemical Treatment
- **Removal**

- Last resort
- An area more 7m around existing plants and over 3m deep must be removed
- Cannot be composted
- Must not be allowed to contaminate other areas
- Must be removed to a lined secure dump site
- Needs to be buried at least 10m deep

If you can't beat it – eat it!



If you can't eat it – try and get something else to

The sap-sucking psyllid *Aphalara itadori*



The psyllid *Aphalara itadori* is a true knotweed specialist that sucks the sap from the plant. It is about 2mm in length and capable of causing significant damage to the target weed.

The leaf-spot fungus *Mycosphaerella polygoni-cuspidati*



This leaf-spot fungus devastates Japanese knotweed in the field in the warmer months from June to October. It has never been recorded on any plant other than Japanese knotweed.



Giant Hogweed

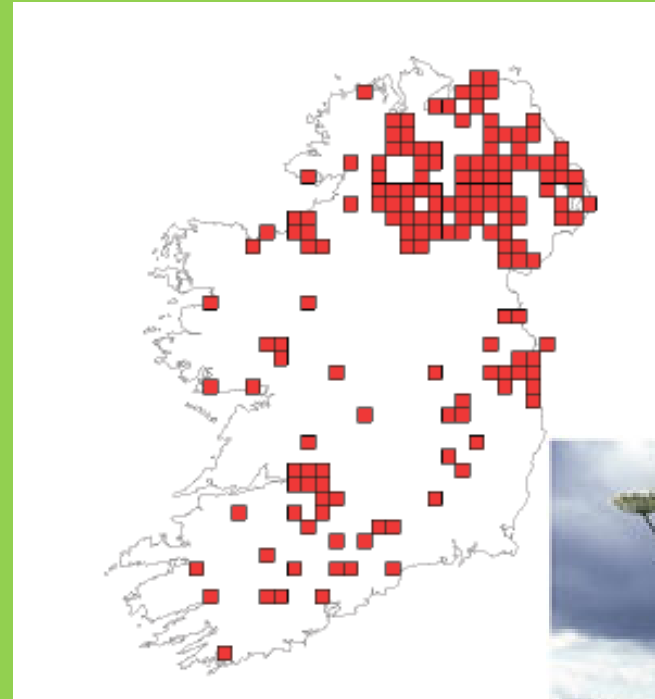
Recognising it

- **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



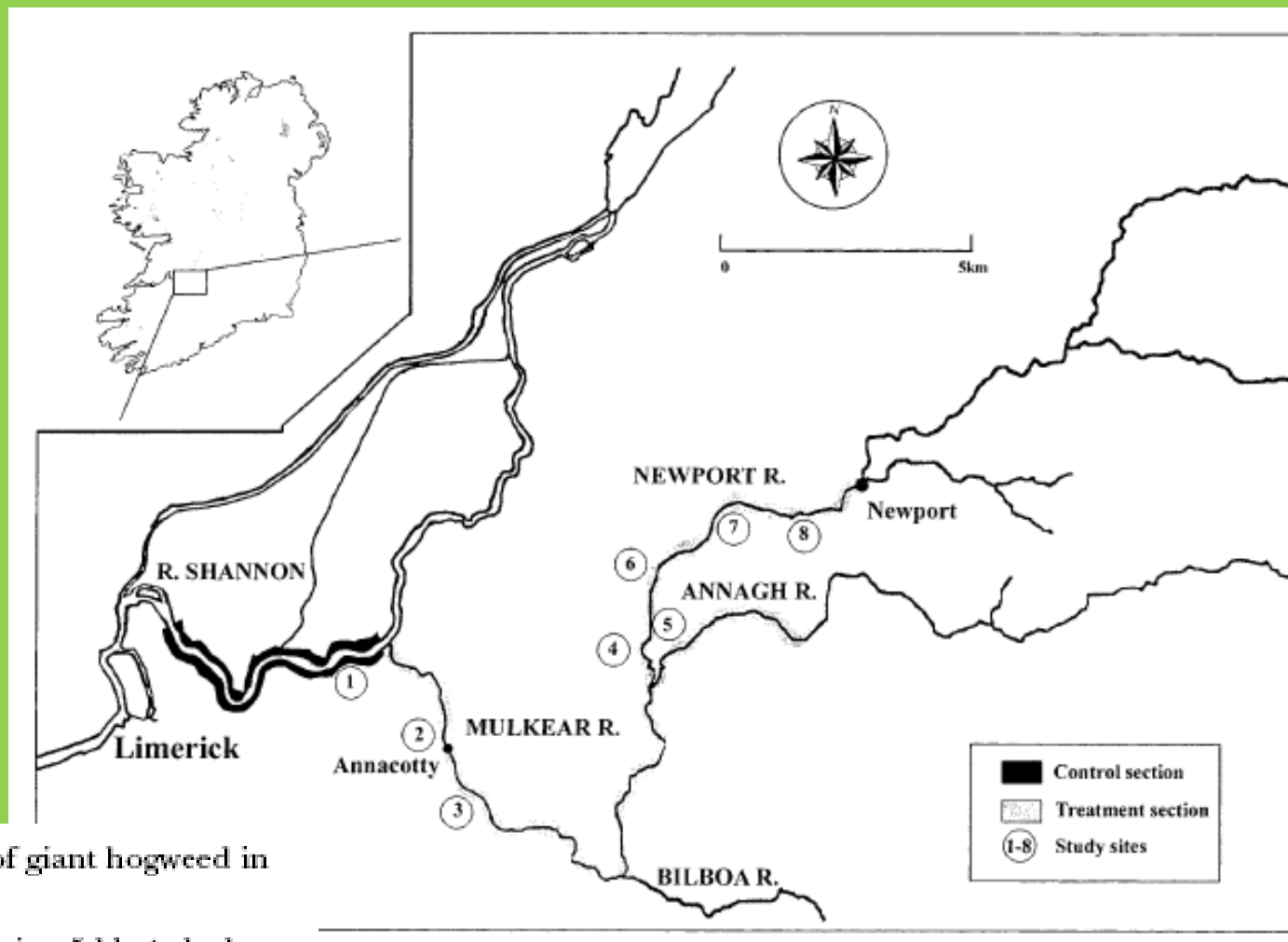
Why is it a problem?

- Shades out native species
- Increases risk of bank erosion
- Affects access
- Health impacts



What to do

- Need a management plan
- Use of herbicides – Glyphosate
 - When still growing (April / May)
 - Ideally spot application
 - No mechanical control without full PPE
- Catchment / area approach where possible
- Need annual checking (seeds viable up to 15 years)



- accurately map the distribution of giant hogweed in the catchment;
- commence treatment in March, using 5 l ha⁻¹ glyphosate;
- treat again in May, July and September;
- in June/July locate and destroy flowering plants, remove umbels and burn;
- above program to run for four years (1998-2001).

Himalayan Balsam

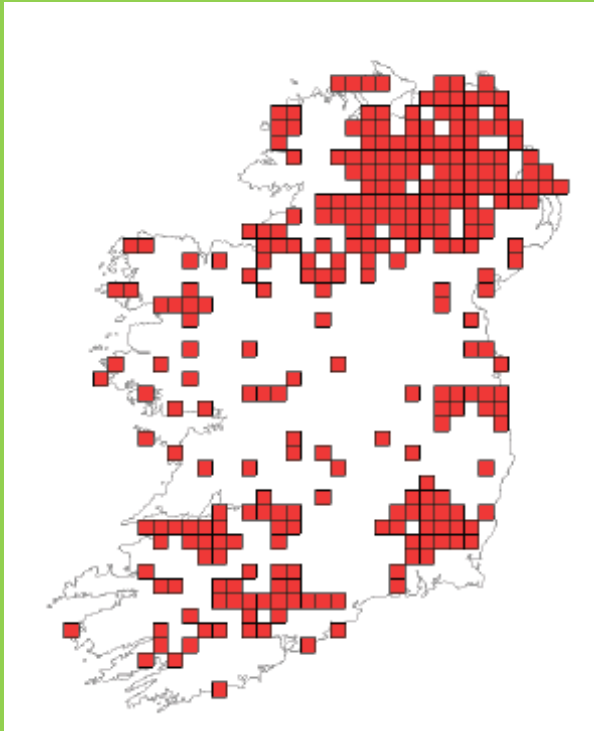
Recognising it

- **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



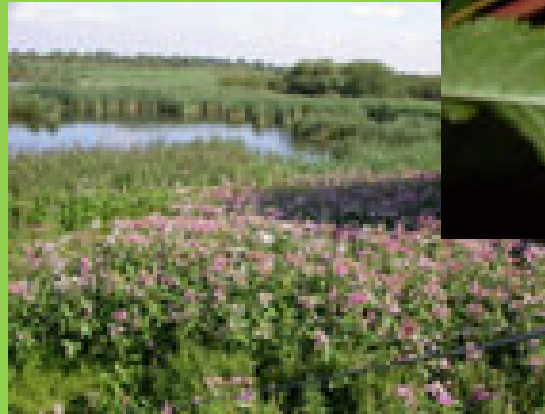
Where does it occur?

- 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



What to do

Control: Control measures should aim to prevent flowering and if this is achieved before seeds are set, eradication is possible in two to three years.

- **Chemical control:** can use glyphosate or 2,4-D amine. Need to be used whilst plant is actively growing in early spring for best effect.

What to do

- **Cutting/mowing/strimming:** cut at ground level using a scythe, before the flowering stage in June. Do not cut earlier as this promotes greater seed production in any plants that regrow. Cutting should be repeated annually until no more growth occurs.
- **Pulling:** shallow-rooted plants can be pulled up very easily and disposed of by burning or composting, unless seeds are present.
- **Grazing:** Grazing by cattle and sheep is effective from April throughout the growing season. It should be continued until no new growth occurs.

What to do

- **Management plan** – consider that cleared downstream areas will be re-infected by un-cleared upstream areas
- **Community involvement** – ideal opportunity for community / schools involvement in ‘pulling’



Zebra Mussels

Recognising it

- distinctive stripy shell
- small, growing up to 3-4 cm in length
- settle on a wide range of surfaces including rocks, anchors, boat hulls, intake pipes, and plants:
 - Form 'reefs'



Where does it occur?

- Originally Caspian / Black Sea region, now:
 - Lakes
 - Rivers
 - Across Sweden, Finland, France, the former USSR, Germany, The Netherlands, Italy, Switzerland, Britain, Spain and North America
- Over 50 lakes across Ireland

Zebra Mussels

- Why is it a problem?
 - Anchors to anything
 - Spreads fast – 1 million eggs a year
 - Change water chemistry
 - Affect fish / fishing
 - Affect wildlife
 - Massive economic impact







Zebra Mussels

From London:

- Although the Zebra Mussels are tiny, they cling together - forming large "reefs" which can block outlet pipes from power stations and sink mooring buoys.
- Thousands of tonnes of them have already been found in the capital's water pipes, constricting the flow and forcing Thames Water to hire specialists to chip them off.

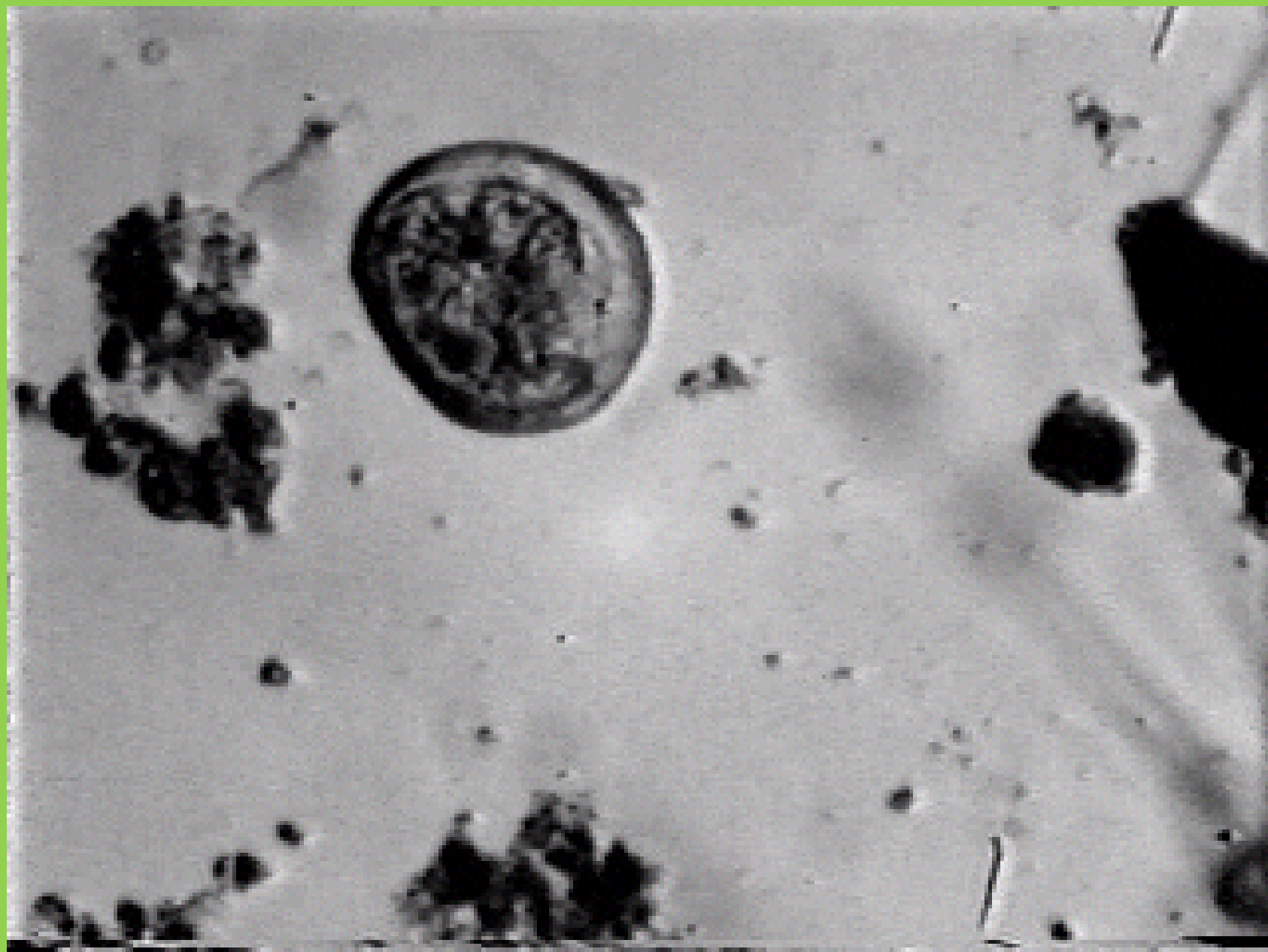


In Northern Ireland, zebra mussels have blocked water intake pipes at Killyhevlin water works, Enniskillen, County Fermanagh and modifications were needed at a cost of over £100,000 to date

What to do

- Prevention

- Inspect boat hull, equipment and machinery for adult zebra mussels. They can survive for 18 days out of water
- Clean boat with hot water and allow to dry. After a visit to zebra mussel infested water, leave boat out for water for 1 month
- Remove plant life from hull and all equipment
- Disinfect keep nets / landing nets





A few others....



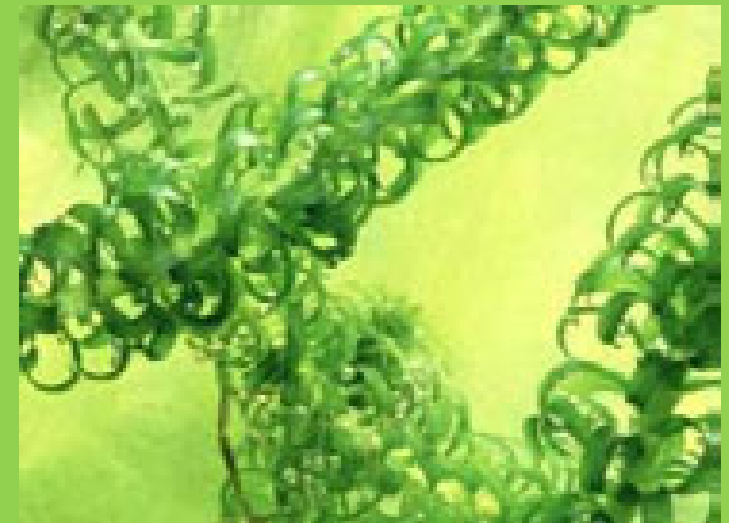
Curly leaved waterweed (Lagarosiphon major)

- Grows in water up to 5 metres deep
- Sold by garden centres, aquarists and DIY stores throughout the country.
- Recently been located in Lough Corrib
 - has already excluded the entire native aquatic flora from the bays in which it has become established.
- Restricts angling, boating and other water-based pursuits.
- Spreads by fragmentation
- Fragments are easily transported from one watercourse to another on the hull of boats, trailers, outboard motors or on angling equipment.

What can you do?

- Do** Always thoroughly clean your boat, trailer, engine, angling equipment and waders when leaving the waterway.
- Don't** Introduce any weed to any watercourse.
Dispose of invasive plant material in the vicinity of any watercourse.
Drive boats through established stands.

Report all sightings to Central Fisheries Board



New Zealand pigmyweed (*Crassula helmsii*)

- first recorded in Ireland in 1994.
- It has spread very rapidly in watercourses in Britain and has the potential to do likewise here.
- It forms dense submerged and emergent stands in ponds, small lakes and canals.
- In suitable aquatic habitats the biomass produced is sufficient to eliminate native plants and create poorer conditions for macro-invertebrates and fish.

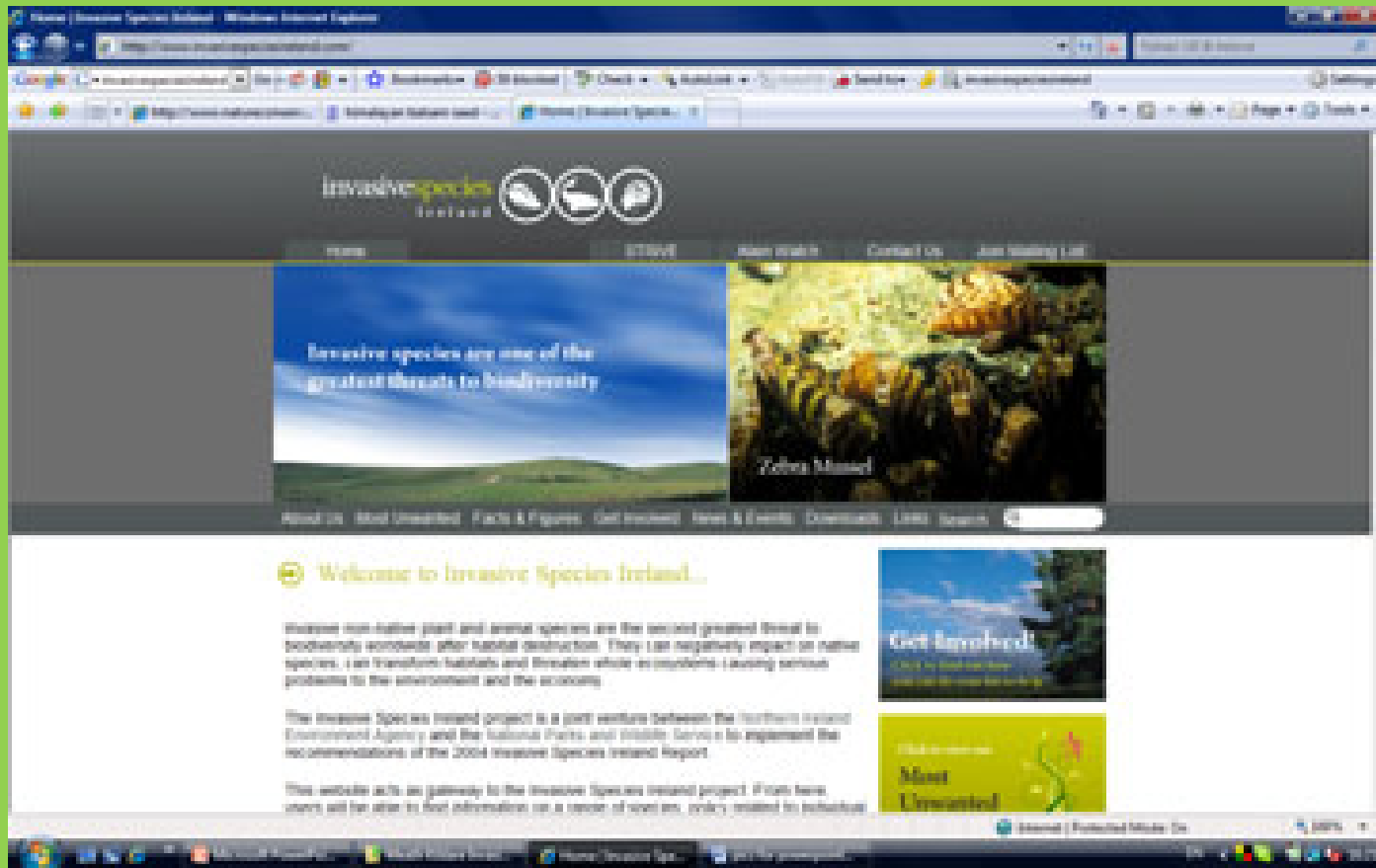


Parrot's feather (*Myriophyllum aquaticum*)

- Native to South America
- First recorded in Ireland in 1990
- Grows submerged but it also produces emergent, feathery shoots.
- Grows vigorously in static or slow flowing habitats.
- Damages the natural ecosystem and impairs recreation



The most important thing



Visit www.invasivespeciesireland.com
Report your sightings

Eradicate alien species

Japanese Knotweed

- Habitat Loss
- Safety issues
- High financial implications



Eradicate alien species



Rhododendron

- Habitat Loss
- Cost implications



Giant Hogweed

- Habitat Loss
- Health Issues

But Regrowing:

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

In fact - **Spreading**





Aliens

From UK (DEFRA)

“The problem is now so great the government estimates that controlling the weed countrywide would cost £1.56bn. Planting it or dumping it can lead to two years in prison, a large fine, or both, under the Wildlife and Countryside Act 1981”.

“The organisers of London’s 2012 Olympics will this week reveal that knotweed has invaded the sites of two of the main arenas leaving the games with a clear-up bill which experts predict could top £70m”.



Aliens

Specific problems caused by Japanese knotweed are:

- * Damage to paving and tarmac areas
- * Damage to flood defence structures
- * Damage to archaeological sites
- * Reduction of biodiversity through out-shading native vegetation
- * Restriction of access to riverbanks for anglers, bank inspection and amenity use
- * Reduction in land values
- * Increased risk of flooding through dead stems washed into river and stream channels
- * Increased risk of soil erosion and bank instability following removal of established stands in riparian areas
- * Accumulation of litter in well established stands
- * Aesthetically displeasing
- * Expensive to treat (£1/sq.m for a spraying regime over 3 years not including re-landscaping)

Aliens

