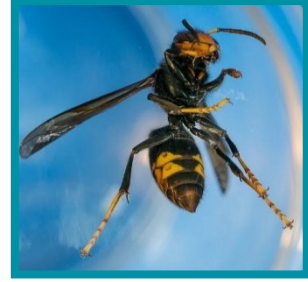




Cyfoeth
Naturiol
Cymru
Natural
Resources
Wales

Challenge Badge



Alien Invaders Challenge

Challenge yourself to learn about
Invasive Non-Native Species (INNS)

*Developed in partnership with RSPB and
Gwent Wildlife Trust as part of the Living
Levels Project.*



Challenge yourself to learn about ***Invasive Non-Native Species (INNS)*** – part of the series of activities/learning that make up the ‘Environment Champion’ challenge badge.

Get outside to learn about and enjoy the natural world on your doorstep!

This badge aims to get you thinking locally, nationally, and globally about why non-native plants and animals are so damaging to our native animals and the habitats that they callhome. It’ll help you know what to do about them too.

Level 1 – Beavers/Rainbows

Complete two activities from each challenge to get your badge.

Level 2 – Cubs/Brownies

Complete 3 activities from each challenge

Level 3 – Scouts/Guides

Complete 5 activities from the following challenges.

Level 4 – Explorers/Rangers

Complete 6 activities from the following challenges

LINKS:

Rainbows - Links to the “Take Action” and “Home Adventure”

Challenge 1: Say what you see?

- Level 1 - Suitable for ALL:

Play Look Out

1. Leaders lay a trail of plastic bugs or animals close to a guide rope (10 metres long or more) winding through the undergrowth in a garden or park or just in your meeting place.
2. Hide the animals at different levels, high to low.
3. Ask the spotters to walk one at a time (with a 5 metre gap) slowly alongside the rope and spot how many bugs they can see?
4. Who got the highest score?
5. Lay them all out afterwards to identify species and count them together.
6. Which ones were easiest to spot? Why was that?

Bug Hunt

1. Visit a local nature spot and go on a nature walk and use your spotting skills to find bugs in your area. It may be easier to define a certain area with a hoop or string.
2. Use an umbrella upside down under a tree or a white sheet and gently shake branches and see what falls out.
3. Decide which of your finds is your favourite bug and draw a picture of it. Can you find out its name?
Find out more about bug hunts [here](#).

Make a natural picture

1. Collect natural resources and task your group to create a natural art picture of an animal, insect, or plant.
Find out more about making expressive arts outdoors [here](#).

Scavenger hunts

1. In a local nature spot take part in a scavenger hunt.
Scavenger hunt cards can be found [here](#).

- Level 2: Brownies +

Identification Skills

1. Visit a local nature spot and investigate the flora and fauna.
2. Look at 5 different types of plants and 5 local insects/animals.
3. Use smart devices, books, or ID sheets to identify what they are called.

Write a story

1. Chose a favourite plant or creature that lives in your local nature spot.
2. What might happen to this plant or animal if the place where they live was invaded by a Tiger/Space plant/Dinosaur?

3. Write a story that tells others about the impacts of this.

Beetle Game

1. Play the game using collected natural objects to create the beetle.
2. Choose a player to begin.
3. Roll the die. A 1 must be rolled first so continue around the players until a 1 appears
4. The player who rolls a 1 can then use a natural object to represent the body of a beetle.
5. A 2 must be rolled to create the head.
6. A 3 must be rolled to create a leg.
7. A 4 must be rolled to create an eye.
8. A 5 must be rolled to create an antenna.
9. A 6 must be rolled to create a tail

Level 3/4: Guides+

Identification Skills

1. Visit a local nature spot and investigate the flora and fauna. #
2. Look at 20 different types of plants.
3. Use smart devices, books, or ID sheets to identify what they are called.
4. Upload your findings to the local environment [records centre](#).

Take part in a BioBlitz Survey

1. Take part in an [organised BioBlitz survey](#) or run your own.
2. Race against time to identify the different plants and animals that live in your local nature spot.

Challenge 2: Who's Home?

Just like us – animals and plants prefer where they like to live. Some only like it beside the sea, others prefer hedgerows.

- Level 1: Suitable for all

Animal Match

Cut up the animal match resource cards and laminate if required.

1. Mix up and spread as many sets of the resource cards as required, around a suitable area.
2. Divide into suitably sized groups and ask them to stand in a line at opposite ends of the playing area.
3. The activity can be played as a relay. The first participants run to the centre, pick up a card and take it back to the group before moving to the back of the line.
4. The next learners go to find a card and so on.
5. The group work as a team to sort the cards according to the right animal, matching them to the correct home, etc.
6. Repeat until all the cards have been collected and sorted into a full set per animal (8 cards per animal).
7. The first team to team to successfully match their animal match resource cards wins.
8. All have a look at the end...have we sorted them correctly?
9. Why do they live in these places?
Find the resource cards [here](#).

Make a bug hotel

1. Check out bug hotels online.
2. Use recycled paper, board, wood and boxes, pots, and natural objects to make a bug hotel for some creatures in your garden or outdoor space.
Find out about habitat piles and stumperies [here](#).

Spider Safari

1. A great autumn activity. Find and using a ruler or measuring tape, measure the size of the spider's webs being careful not to damage them.
2. Who can find the biggest ones? Does the biggest spider live there?

Make a wormery

1. Follow the instruction [here](#) to repurpose a plastic bottle into a small wormery.
2. Carefully collect some worms and place them in the wormery. How long do they take to disappear?
3. Investigate more about worms. You can find out some information [here](#).
4. Don't forget to put the worms back carefully where you found them.

- Level 2: Brownies +

Match the Habitat

1. Examine your garden or nature spot. What different kinds of habitats can you find e.g., plant communities, grassland, fresh water, rockpiles?
2. Investigate the different animals and plants that you spot here.
3. List all the things you think make it the perfect home for these animals.

Hedgehog Home

1. Check out how to make a hedgehog home and feeding station online and try to make a perfect home for a hedgehog using things you find in the garden.

Level 3/4: Guides +

1. Explore the different habitats in a local nature area, garden, or park.
2. Make fact files on the animals and plants you find there and their habitats.
3. Make an action plan on how you could improve this area for those animals and plants.
4. Research, design and make a bug hotel or hedgehog house for the area.

Challenge 3: Nature's Way

In every habitat there is usually competition for food and homes. Birds like to nest in trees but so do squirrels. Moles live underground because that is where they find their prey – worms. Nature usually finds a balance because if there are too many of one thing there wouldn't have been enough to eat so they would have to move away or starve. If there are too few spaces for animals or plants, they will spread out so that they can get all the nutrients they need.

- Level 1: Suitable for all

Bear, Salmon, Gnat

1. Select a suitable, flat space and make two 'base/ home' markers, one at either end of the space, using rope, flags, chalk, etc.
2. Discuss the animal food chain of choice and make up actions and/or sounds for each one, e.g., • BEAR = clawed hands over head and growling • SALMON = 'fishy' hand and mouth movements • GNAT = buzzing and wing movements
3. Divide into two even groups and send each one to stand at one of the base/home markers.
4. Instruct each group to work together to tactically choose one of the food chain creatures and invite them to meet each other in the centre of the space.
5. On the count of 3 ask each group to make the actions/sounds of their chosen group animal.
6. The higher food chain 'animals' then chase the other team back to their home line. • BEARS eat salmon • SALMON eat gnats • GNATS bite bears.
7. Any of the fleeing team who get touched by the higher food chain animals during the run back to base, must swap to the other team.
8. Continue the game until everyone is in one team or the group have had enough.

Who Eats Who?

1. Find out what a heron is. What do they eat? Does anything eat them?
2. Sketch a picture of a heron and any other plants and animals in the heron's food-chain.
3. Find more food chains to learn about [here](#).

Level 2: Brownies +

Make a Fact File

1. Choose a favourite mini beast from the following:
 - Ladybird
 - Aphid
 - Spider
 - Honeybee

- Bumblebee
 - Butterfly
 - Moth
 - Worm
 - Dragonfly
2. Find out about your creature and what local creatures (apart from humans) might be harmful to your favourite minibeast? They might want to eat it, take its home or chase it away.
 3. Draw a picture and write facts about your creature to create a fact file to help others learn about your creature.

Write a short poem or story

1. Choose a favourite animal or insect.
2. Try creating a nature poem about this creature. Find out about how to create different types of poems [here](#) – activity 12.
3. Or make up a story about your creature and its arch enemy.

- [Level 3/4: Guides +](#)

Bug Help

1. Choose your favourite insect or plant that lives in your local environment and research what may harm this animal or plant in any way.
2. Are there any ways that you can help it to survive and thrive?
3. How do human being impact nature? What could we do to reduce this impact?
4. Present your findings in a way that influences others to care more.

Challenge 4: Native and Non-Natives

Native animals and plants are those that have lived in the UK since before the Romans. Non-native animals and plants tend to be those that have been moved here by people, e.g., grey squirrels and wild boar.

- Level 1: Suitable for all

Spot the difference

1. Compare these two pictures. [LINK](#)
2. As a team, work out what has changed picture B. It isn't always as clear as this in real life.

Picture A: Woodland with native species.

Picture B: Woodland with non-native species e.g., grey squirrels, Himalayan balsam, lack of structure.

Odd one out

1. This activity will need the leader to support discussion.
2. Check out the picture cards pairs of flora and fauna. [LINK](#)
3. Can you identify the animal or plant?
4. Guess which of the pairs is a native and which is a non-native. Did you guess correctly?
5. For more able groups, scatter the cards outside and ask your group to collect card pairs, then sort them into native and non-native.

Level 2: Brownies +

Make a poster

1. Find out by researching online, 5 species of plants or 5 animals that have been introduced to the UK. How did they get here and why? What issues can they cause?
2. Make a poster about these 5 species to help others learn about how they came to the UK and what the issues are.

INNS Running ID Game

1. Print off and laminate enough resource cards ([LINK](#)) for each team of up to 6 players.
2. One set for each team of up to 6 players.
3. Scatter the picture and name cards around the area.
4. Play as a relay with team members taking turns to fetch the pictures from one point, ID as a team, then fetch the name card to create a set.
5. You could provide each team with an ID key.

- Level 3/4: Guides +

Non-native Survey

1. Check out your local nature spot and complete a survey of native and non-native plant and animal species you see.
2. You can use smart devices, ID books and keys to help you identify and research.

Understand the issue

1. Read the stories below – what do you think happened and what would you do?

Story 1:

Once upon a time, on the islands of **Skomer**, there was a beautiful baby puffin called Puff! He lived in the ground burrow that his family had lived in for years before he was born. His parents caught fish in the sea and brought them home for him to eat. Here on this island, there are no snakes or foxes, rats, or cats to harm the puffins or eat their eggs so they feel really safe. They are very happy to nest on the ground. One morning after a terrible storm where the wind raged and the waves smashed against the rocks, Puff noticed a ship had appeared on the rocks far below him. It was battered and broken and lay on its side with big gaps in its hull. Then he noticed something moving.... a grey creature with a long thin tail. It was clambering up the rocks towards him, so he hid in his burrow. Later that night there was a terrible commotion in the burrow next to Puff's. Puff saw the creature run out with a Puffin's egg and run away! Puff's family decided it wasn't safe to live in the burrow anymore so flew away to another island the very next day.

Story 2:

Once upon a time, a long time ago, on the Gwent Levels there was a farm full of animals called American mink. The animals were farmed to provide beautiful mink coats for the ladies of the time. One day the ladies decided they didn't want fur coats anymore – it was cruel to kill for fashion, so the farmers let the mink go. The mink were happy to be free but they were no longer provided with food so they ate what they could find. They ate small birds and mammals including water voles who were the easiest things to catch in the waterways around the farm. Eventually there was no food left and the mink had to spread out to find more food for their babies. They did so well and thrived but the other smaller animals and birds slowly vanished until there were no water voles left in that area.

These are examples of the introduction of non-native animal that did very well because when they were introduced to Wales there were no natural predators to control them. The mink were perfectly adapted to swim into the burrows of water voles and could even climb trees to catch their prey. The native animals weren't expecting this and could not adapt their habits to avoid the mink, so they were all eaten. The rats loved eating eggs and living in burrows so outcompeted the puffins who had no way of defending themselves and their eggs apart from to fly away.

Challenge 5: Invasive Non-native Species

The natural order of things is sometimes upset by the introduction of non-native species either due to environmental changes or deliberate introduction. If the environment isn't able to accommodate those changes, then harm is done, and thenative species disappear or move away.

- **Level 1: Suitable for all**

INNS fun facts game

1. Set out 3 chairs or markers outside – A, B C.
2. You can use counters or coins for scoring or use mental math to keep score.
3. Ask the group to stand in the middle of the space.
4. Using the fun facts below, read out the questions and answers.
5. The children run to the answer they think is correct.
6. Explain the correct answer.
7. Correct answers can collect a counter from you or be awarded points.
8. Return to the middle again for the next round.
9. The person with the most counters at the end is the winner.

Fun Facts:

- 1) There is a plant called Japanese Knotweed that has what colour flower?
A – Pink, B – yellow, C – **white**
- 2) Grey Squirrels can be found in which habitat?
A – **woodland**, B - swimming pools, C - the beach
- 3) Himalayan Balsam was introduced to the UK as a garden plant in which year?
A – **1839**, B – 1920, C – 2010
- 4) Grey squirrels are native animals from which country?
A – **America**, B- Australia, C – China
- 5) Himalayan Balsam is also known as?
A – Mountain Ranger, B- **Kiss me on the Mountain**, C – Purple Delight
- 6) How many non-native species are there in the UK?
A – 120, B - 1 million, C – **3000**
- 7) INNS are costing the Welsh Government approximately how much each year?
A - **£125 million**, B - £25 million, C - £1 million
- 8) The main way that invasive non-native species get to Britain is by?
A – being transported by animals, B - flying or swimming here, C – **people bringing them here accidentally or on purpose.**

- **Level 2: Brownies +**

Make an INNS collage/poster

1. Create a collage or poster that will help other become more aware of what to look out for and why.
2. Share your posters on appropriate social media platforms to help spread the word.

Alien Transportation

Check out the picture here. [LINK](#)

1. Circle around the any ways that non-native plants and animals may have been transported and spread from place to place.

Super Invaders

Read this article about the Biosecurity Officer and Killer Shrimps <https://www.bbc.co.uk/news/uk-england-20724883>.

1. Can you invent your perfect animal invader?
2. What would it need to survive in Wales?
3. Draw a picture of it or write a news article about the first one spotted in the UK.

- **Level: Guides +**

Investigate and research what invasive non-native species are. Why do they matter and how do we deal with them?

Produced for the RAPID LIFE project - see video link below:

www.nonnativespecies.org/rapid

<https://www.youtube.com/watch?v=EoggtzYr4Qk&feature=youtu.be>

Share and Influence

1. Prepare a presentation, leaflet or poster informing others about invasive non-native species, the damage they can cause to a habitat and the long-term risks from invasive non-native species to your local area.
2. Share on appropriate social media platforms to influence and inform others.

Challenge 6: Overcoming INNS

Some invasive non-native species in the UK have been deliberately introduced and others come here as stowaways on board ships or in packaging. Some will not survive but others do. Did you know that around 10-12 new species are introduced to the UK every year?

- Level 1: Suitable for all

Let's Clean our Boots

Walk through some water, walk through some mud/ sand/ leaves.

1. Make footprints.
2. Now practice thoroughly washing your boots.
3. Discuss what could be carried on the boots – it's not just mud.

Alien Invaders

We are trying to prevent the spread of invasive plants. These are some of the things that can be done to prevent them coming into the country.

1. Leader shouts a command and the group mime the action:

List of Actions:

- Wash your boots (mime splashing in water),
- Checked at the borders (mime checking in a bag),
- Big strong aliens (mime a weightlifter),
- Brush the dog (mime brushing the dog),
- Search to the left (run to the left)
- Search to the right (run to the right)
- Stowaways (crouch in a ball)
- Record the INNS (mime spotting it and using the app)

- Level 2: Brownies +

Be Bio Aware Champions

1. Look at this list everyday activities.
2. Choose 2 per team.
3. Each team can list how they could possibly contribute to the spread of invasive species.
4. Create an action plan showing how you might combat these.
5. Share your action plan with the other teams!

Everyday Activities: Going on holiday, walking in the forest, buying pond weed for the garden pond, collecting seeds on holiday, buying plants at a garden centre, walking the dog, picking a flower, feeding the birds, buying bananas, riding a bike, camping in a tent, fishing.

Ways and Means

1. Read out the scenarios below.
2. Decide if you agree or disagree.
3. Stand up if you agree / sit down if you disagree.
4. If you are wrong, you are out.
5. Who stays in the longest is a Biosecurity Controller!

Scenarios:

- I have just been fishing with a line and bait – what do I do when I have finished?
a) toss it in the water for the fish, **b) throw the leftover bait and line in the bin.**
- I have gone for a summer walk with my dog over the fields and we are both covered in seeds. Should I.....
a) leave all seeds on my boots/clothes and dog, **b) clean my boots and clothes and the dog by picking off seeds and burrs and brushing off extra dirt.**
- I am on holiday and see some nice plants I would like in my garden, so I....
a) pop some seeds in my bag to put in my suitcase to take home, **b) take a nice photo instead.**
- I live on a farm with ducks and geese. When I visit a nature reserve with ducks and geese I
a) wash my boots carefully or use different boots, b) use the same boots.
- I have a weed in my pond that is taking over all the other plants. What do I do?
a) remove it and dump it somewhere in the wild to grow, b) remove it, allow to dry completely and then compost or burn it.
- I have so many tadpoles in my pond I can't see the bottom. Should I....
a) take some out and put them in my local pond, **b) leave them alone because nature will work it all out.**
- I spot Himalayan Balsam along a country road next to my house. Should I
a) dig it up and put it in my compost bin, **b) report it on the LERC app.**
- I go mountain biking every weekend and love to visit new places. What should I do after every trip?
a) nothing, **b) clean by bike of mud and seeds before leaving.**
- I have a new pond and want some plants. Do I
a) 'Be Plant Wise' at garden centre and buy native, b) take plants from the wild.
- I find a giant plant with umbrella like leaves and looks like hollow stems! Its Giant hogweed. Do I
a) pick it and play peashooter game, **b) stay well away the sap causes my skin to blister.**
- I have wasps in my garden they look different to the normal wasps blacker and smaller. What do I do?

a) **keep away - take a picture and send to Asian Hornet Watch app**, b) try to destroy the nest myself.

Find out more

1. Watch a YouTube video about Invasive Non-native Species.

Here are some examples:

<https://www.youtube.com/watch?v=Uvt2sBRKqm0>

<https://www.youtube.com/watch?v=EoggtzYr4Qk&feature=youtu.be>

INNS True or False

- Seeds can travel thousands of miles on your muddy boots. **TRUE**
- Moving a frog or spawn from one pond to another is a safe way to remove it if you have too much. **FALSE** (it could spread diseases – it is best to leave it where it is).
- One small section of Japanese Knotweed can grow into a new plant. **TRUE**
- It is against the law to plant, disperse, allow dispersal, or cause the spread of invasive plants. **TRUE**
- Giant Hogweed is big but not dangerous to humans. **FALSE** – it is UK's most dangerous plant in terms of biodiversity, and it causes serious burns to skin).
- There are 30000 non-native species in the UK? **FALSE** (3,000)
- Some aquatic plants and animals can survive 2 weeks out of water in damp conditions. **TRUE**
- You can buy invasive plant species at some garden centres. **TRUE** (be careful where you shop!)
- Plants and bugs hitchhike in planes. **TRUE**
- Fish survive being flushed down the toilet. **FALSE**

Invent a mascot

1. Invent or design a mascot or character to talk about the issues of INNS.

Stop the Spread Quest

1. Use the resource cards to play this snakes and ladders game. [LINK](#)
2. Set out 12 chairs or hoops in a line and place the cards in each square in the order shown.
3. Throw a six to start then throw the dice in turns to land on squares and do the action.
4. The winner is the one who gets to the end quickest and becomes the Alien Thwarter!

Card Actions:

- You forgot to wash your boots and the aliens invaded – miss a go.

- You make sure you clean your boots of mud and seeds before getting in car – go forward x square.
- You accept an unknown plant from a friend – go back x squares, it might be non-native.
- You checked that the aquatic plants you bought were native – go x squares forward.
- You clean your dog of seeds and mud – go forward x squares.
- You strim some plants in garden – its Japanese knotweed – back x squares.
- You clean all your camping gear at site – go forward x squares.
- You flush your fish down the toilet – miss a go.
- You clean out an old pond dumping plants removed into nearby lake – go back x squares.
- You clean out an old pond, first drying out all the plants removed and then composting or burning them – go forward x squares.
- You find a wasp’s nest with very aggressive wasps you report to the Asian wasp watch app – go forward x squares.

Defend the Levels

Explain that it is a continual battle to keep many plants under control, especially Japanese Knotweed and Himalayan Balsam in many places including the Gwent Levels - without some control they will take over!

1. Find a large flat area outside with clearly marked boundaries.
2. Choose one person to be the “controller” with everyone else taking on the role of invasive plants.
3. The controller stands in the middle of the area and the plants stand on one side.
4. When the controller shouts “Start your invasion,” the plants fast walk to the other side of the area where they are safe. If the controller touches one, they have to stand still and remain there for the rest of the game.
5. The controller will then call “Start your invasion” again for the plants to come back.
6. The aim is to get all the plants to stand still. The winner is the last plant walking!

- **Level ¾: Guides +**

Take Action!

1. Find out how you report sightings of [invasive non-native species](#) such as [Japanese knotweed](#), [Signal crayfish](#), [Asian hornet](#), [Himalayan balsam](#), or [Rhododendron](#).
2. Undertake a local or international volunteering activity to support the prevention of and removal of specific invasive non-native species.
3. Investigate which of the 66 invasive species listed in the Order are found in Wales. (There are 16) See Natural Resources Wales Invasive Alien [Species Licensing](#) pages for this information on plants and animals covered by the Invasive Alien Species (Enforcement & Permitting) Order 2019.

4. Run a campaign to raise awareness of INNS and inspire others to act. This could be a poster, radio announcement, TV advert or a film to be used on international flights. HINT: Have a look at some of the posters designed by students of Usk college about the INNS on the Gwent Levels. Share your work with others on appropriate social media platforms.
5. Complete an e-learning course. Check out the Non-native Species Secretariat Biosecurity pages. It introduces non-native and invasive non-native species, and guidance on identification, reporting and biosecurity. This is the link that takes you to the page its free and useful for anyone to get a basic understanding.
www.nonnativespecies.org/elearning/
6. For more information on recording INNS, species information, current projects, treatment please visit the Great Britain Non-Native Species Secretariat website:
www.nonnativespecies.org or <https://www.welshwildlife.org/wtsww-news/help-protect-our-islands-from-invaders>
- If you think you have spotted a non-native species, take a photo and send using a smart device to the LERC Wales biological recording app.
- You can also send your record in manually via the Local Record Centre:
www.sewbrec.org.uk/

Additional Information for Leaders

This information note explains about invasive non-native species and how we control their spread.

What Are Invasive Non-Native Species (INNS)?

They're munching our trees, invading our waters, and taking over our favourite places. They are invasive species!

An invasive non-native species is any living species (plant and animals) not native to UK (from other parts of the world). They outcompete, outlast, and outlive our natives.

Native species have adapted to their local surroundings, and have co-evolved with other competing species, predators, and diseases, which form a natural, balanced environment. When, invasive species move into a habitat they can completely take over from the original native species, as they don't have the competition, natural predators, and diseases to keep them under control.

Without these controls to slow them down, these species may grow faster and bigger than the native species they are competing with, and in time, can change the original habitat completely.

Many people are surprised to learn that some of the plants they have in their gardens or see along roadsides or in parks are not native. Some examples of introduced plants in the UK are Spanish bluebells, passion flowers, Douglas fir (Christmas tree).

Why it's a problem?

Having moved from its native area to a new home, it can become a nuisance, spread rapidly causing damage to the natural environment, by taking over all the space, eating all the food supply, or introducing an illness, impacting on our economy, our health, and the way we live. Moving into a new area often means that there isn't a local species that might control the new alien invader.

This leads to a reduction in the biodiversity of that environment.

INNS are costing the Welsh Government approximately £125 million annually and rank as the second greatest threat to global biodiversity (first being habitat loss). There are approximately 3,000 non-native species established in GB, with 10-12 new non-native species becoming established every year. Of these, there are over 300 that are of particular interest in Wales as listed in the NBN Atlas Wales [INNS Portal](#).

What does it look like?

For an example of what this looks like in one area of Wales, let's delve into the [Gwent Levels](#). The Gwent Levels are an iconic landscape of national significance. Reclaimed from the sea in Roman times, the Gwent Levels are a crisscrossed network of fertile fields and historic watercourses, known locally as reens.

Due to the interconnected nature of the Gwent Levels reens, it is particularly vulnerable to INNS. The best way to protect the Gwent Levels from INNS damage is to stop INNS from establishing in the first place. Once colonisation occurs, control becomes costly, time consuming and often unsuccessful.

There are over 3000 non-native species in Britain, but this long list has been refined to create a list of INNS species as being of key concern for the Gwent Levels, they are:

Existing species: Japanese knotweed, Himalayan balsam, parrots feather, water hyacinth, mink, and signal crayfish.

Threat/horizon species (i.e., not present yet): New Zealand pygmy weed, floating pennywort, curly waterweed, killer shrimp, giant hogweed and zebra mussel.

How have we been invaded?

Bringing new species to Wales and UK is nothing new! Our ancestors brought seeds on purpose and by accident. They opened forests, disturbed the ground, and planted crops and weeds. Did you know that the foods we eat are technically non-native species (as they have been deliberately introduced) such as wheat, corn, cattle, and sheep? Most of these plants and animals are considered beneficial, and they don't pose a threat to natural areas. Many have been important economically, for example the many forestry and crop species introduced for cultivation. Many non-native plant species in the UK are common, but not invasive, and go largely unmanaged e.g., pineapple weed. It is only when they start out-competing native species that they become a problem.

It isn't just about securing the borders from people who want to harm the country in some way or bring in illegal goods. We need to think about how the threat of invasive species are managed too. People are the main cause of invasive species – sometimes on purpose, and sometimes by accident. Every day, people travel around the world, cross international borders, trade with other countries, holidays in pristine natural areas, travel to developing countries, ship materials across the oceans, and obtain plants and animals for fun and profit. Each move, each transaction, each development opens a door transporting invasive species to places they could never have gone by themselves.

By learning about them and acting to prevent their spread, we can do a great deal to preserve our native species and habitats, and protect our ecosystems, economy, and society. You can help make a difference!

With the global increases in travel, tourism, and trade, the chances for foreign plants and animals to arrive in Wales/UK has also increased.

Some are stowaways aboard ships, aircrafts, and containers. Most invasive non-native species are incredibly adaptable and can take advantage of opportunities for invasion. However, they rarely swim across oceans, walk over mountain ranges, or hop continents without help from people! INNS are more likely to be a problem in ecosystems which have been disturbed by humans (for example by forest clear-cutting, or fire) and they are a particular problem on small islands (where they can take over more rapidly) and in the sea (where they are hard to control).

Making people aware of the problems that invasive species cause is one way to slow the intentional and unintentional introduction of new species.

Climate change is expected to cause native species ranges to shift and may also allow some non-native species to become invasive when previously they were not.

While many native species are also invasive, e.g., brambles or gorse, species outside of their native ranges are more likely to become invasive because:

- they no longer have the natural enemies (predators, competitors, pests, or diseases) that existed in their native environment
- non-natives can utilise resources (such as light, water, nutrients) which are unused by native species

- disturbance in the environment (often by humans) provides new conditions to which non-native species may be better suited than native species

Predicting which non-native species will become invasive and which will not, is extremely difficult, some have claimed impossible. Some non-native species exist in the environment for many years without causing problems, then undergo an explosion in numbers to become invasive for reasons unknown.

Ref: Scottish Parliament ICe Briefing Invasive Non-Native Species June 2010

So how do INNS travel?

Aquatic

- Boat – How do you think a boat could move plants and animals from one body of water to another? (Bilge water, Propellers and Ballast water)
- Aquarium fish and creatures – What do we do with dead goldfish? Pet fish are sometimes flushed down the toilet. If they are alive, they won't survive due to chemicals and temperature changes in the sewage system. Dispose of dead fish by tying it up in a bin bag and place it in the bin or you can bury **fish** in the garden
- Aquarium plants - What happens to these aquatic plants when someone empties an aquarium into a pond or lake? Some may die but some will make the new pond/lake their new home. Non-native plants to the area can outcompete native species for light/oxygen/space.
- Fishing equipment – Could rods, nets, bait etc. transport invasive species? Yes! clean off plants, animals, and mud from gear and equipment including waders, footwear, ropes, anchors, bait traps, dip nets, downrigger cables, fishing lines, and field gear before leaving water area. What do you do with leftover bait? Dispose of unwanted bait, fish parts, and packing materials, in the bin; do not dump them in the water or on land

Terrestrial

- Boots/Wellies/shoes – How could shoelaces, shoe treads spread invasive species? Have you ever had seeds stuck on your shoelaces? What did you do with them? What do you do with the mud that gets stuck in your boot/welly tread? Seeds can get stuck on your boots, laces, socks, and clothing. They may be in the mud between your boot treads, or caught in between your shoes and socks, or they may have simply attached themselves to your clothes like Velcro. Then, while on your next adventure, you accidentally disperse the seeds, spreading invasive species into a new place. To stop this happening follow the simple *Check/Clean/Dry* campaign. Clean your footwear, clothes, and any other gear by picking off seeds and burrs and brushing off extra dirt.
- Bike/Car treads – How could vehicles like 4X4s, bikes, scramblers transport invasive plants? How might an off road/off trail vehicle damage the landscape? How could this damage increase the number of invasive plants? Species can get caught within the treads of your bike, ATV, and pram tyres so before leaving a location clean the equipment by removing mud and seeds. Off roading can damage fragile natural environment by rutting, eroded plants growing and leaving bare ground. This is when opportunistic alien invaders can step in and grow in place of native species.

- Shopping - Why do you think nurseries sell plants that are known invasive species? Sometimes these plants are marketed as fast-growing, maintenance-free, or quick-spreading, giving privacy, wall, and ground cover. Plants might be alien invaders in disguise.
- Mailable seed packet – What are some problems with picking up seeds on holiday and posting them to your friends? Seeds native to one country can be a problem in another as not native. The species can outcompete native species.
- Walking pets (Dogs) – Do seeds ever get stuck in pet fur? What do you do with the seeds? Seeds and plant pieces can attach to our unsuspecting pets' fur. Before leaving a location, clean pets by removing mud and seeds.
- Tent stake – Have you ever had seeds or soil stuck on your camping equipment? What have you done about it? Before leaving a location, clean equipment by removing mud and seeds.
- Aeroplane – How could the inside or outside of a plane transport invasive species? Inside they have people! People could transport on clothes/shoes/bags. or even have taken seeds on purpose from the place they have travelled from. Or animals like bugs/flies, etc. could hitch a ride in cargo holds, aircraft cabin areas. Seeds or plant fragments can attach to the outside of a plane and then drop off somewhere else.
- Livestock – How could cattle, sheep, pigs, or other livestock transport invasive species? Similar to pets, seeds and plant fragments can attach to fur/hoooves of animals as they move around. They can also be spread via poo! Animals eat the invasive species and may not be fully digested, seeds come out in poo and voila invasive has been spread!
- Construction and farm machinery – How does development add to the problem of invasive species? As previously explained, invasive seeds/plant fragments can attach to machinery and then when moved to a different place it spreads the invasive.

What is being done to prevent invaders spreading?

In Wales we regulate the importation of wildlife: It's intended to keep our farm animals, native wildlife and crops safe from contamination by non-native diseases or pests, protect our endangered species, and prevent invasive species from entering our country. Controls also exist to preserve public health. These include the Wildlife & Countryside Act, 1981 and the Invasive Alien Species (Enforcement & Permitting) Order 2019. <http://www.nonnativespecies.org/beplantwise>

What can you do - Get INNS-volved!

- Biosecurity helps prevent the spread of INNS and can be as simple as cleaning your boots or drying your equipment thoroughly. Check out the Non-native Species Secretariat Biosecurity pages or complete the free biosecurity e-learning on the www.nonnativespecies.org/elearning/
- Follow national campaigns including:

- **Check – Clean - Dry**



Check your gear 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 nets, waders, and areas that are damp and hard to access. Use hot water if possible.



Dry everything for as long as possible before using elsewhere as some invasive plants and animals can survive for two weeks in damp conditions.



- **Be Plant Wise**

Know what you can grow,
Compost with care,
Stop the spread.



Be Plant Wise – don't dump garden waste contaminated with invasive species in the countryside or move to other ponds or gardens or you could be found guilty of an offence.

Spotted an Invasive Non-Native Species?



If you think you have spotted a non-native species, it's super easy to send a record using a smartphone and the LERC Wales biological recording app. Take a photo if you can.

You can also send your record in manually via the Local Record Centre:

www.sewbrec.org.uk/

For more information on recording INNS, species information, current projects, treatment please visit the Great Britain Non-Native Species Secretariat website:

www.nonnativespecies.org

See Natural Resources Wales Invasive Alien [Species Licensing](#) pages for further information on plants and animals covered by the Invasive Alien Species (Enforcement & Permitting) Order 2019.

The INNS advice [booklet](#) explains what to do if non-native species are discovered. In general, don't dig up, strim, mow or disturb in anyway. Take a photo of the plant/animal and send into the recording app.

Do not dig up plants or strim plants you will only spread further into the area. In most cases, you can't just compost in your garden certain invasive species must be securely contained and disposed of at a licensed waste disposal site if removed from a site.