

# KEY PRESSURE IN THE NATIONAL PARK

## INVASIVE NON-NATIVES SPECIES

### INTRODUCTION

Invasive non-native plants literally invade, spread and settle resulting in a significant loss of native plant and invertebrate biodiversity.

The native plants in these habitats are used to co-existing with each other, evolving over a significant period of time together. When a non-native species is introduced to this established habitat, the native species are out competed.

In the National Park our focus is on the following five invasive non-native species:

1. RHODODENDRON PONTICUM
2. JAPANESE KNOTWEED
3. HIMALAYAN BALSAM
4. AMERICAN SKUNK-CABBAGE
5. GIANT HOGWEED

### 1. RHODODENDRON PONTICUM

Rhododendron ponticum escaped from beautiful, managed rhododendron gardens taking over whole sections of our native woodlands and forests. It blocks out light to the forest floor, so no other plants are able to survive.



*Rhododendron ponticum*

### 2. JAPANESE KNOTWEED

Japanese Knotweed as the name suggests is originally from Japan, where it is in fact a rare plant. It was first recorded in the wild in the UK in South Wales, in 1886. It was introduced to large gardens as an ornamental plant. All plants in the UK are a male-sterile clone, so luckily no seeds are produced, however, the plant can spread easily from small fragments of the roots, stems or leaves. Large stands of knotweed often become established in the wild, particularly along waterways where fragments of the plant or soil containing its roots are washed downstream during floods. The small fragments of the plant become established on the banks of rivers and lochs growing into dense stands over time.



*Site of Japanese knotweed along the south Loch Earn Road before treatment...*



*...and after treatment*

These dense stands rapidly expand and take over, replacing the native plants which once grew there, often resulting in an ever increasing lifeless monoculture of knotweed. As well as having a negative impact on biodiversity, large patches of the plant can prevent access to riverbanks and lochsides and can also cause structural damage to property.

The best method of controlling it is by using chemicals. This is usually done by spraying the leaves directly but can also be done by injecting the chemical directly into the hollow stems of the plants. This is a time consuming process and it can take several years before the plants are showing no signs of regrowth.

### 3. HIMALAYAN BALSAM

These attractive plants with purple flowers are native to the western and central Himalaya. They were introduced to Kew Gardens in London in 1839. Unfortunately, it is now a major weed problem throughout the UK, especially on riverbanks, wet woodlands and waste land.



Himalayan Balsam

Himalayan Balsam only spreads by seeds, not from fragments of roots or leaves. The plants flower from July to October, setting seed from mid-July onwards. Each plant can easily produce as many as 800 seeds, scattered widely from explosive pods. The seeds float and can travel long distances before becoming lodged and germinating in soft, muddy areas such as riverbanks. Where plants have become dominant, they quickly shade out native species resulting in the loss of native biodiversity. There are a few ways to control Himalayan Balsam. If the plant has formed very dense stands, then spraying with chemical is an option, however, the most common way to control it is by pulling them up by hand before they have a chance to set seed. The plants are very shallow rooted and are easy to pull up. This is usually done in early July as the plants come into flower. The uprooted plants can simply be left to rot down in a pile.

### 4. AMERICAN SKUNK-CABBAGE



American Skunk-cabbage in flower

Native of western North America, its normal habitat is wet woodland, where it grows in nutrient-rich mud. It produces large yellow flowers in spring which emit a strong odour like that of a skunk. The plant has large leathery leaves which can grow up to about 1 m in length. In the UK it has been widely planted beside ponds and bog gardens.

Unfortunately, under the right conditions, it is very invasive, especially in muddy ditches and wet woodlands. The plant produces green berries which ripen in July. The berries can be transported downstream where they become lodged on muddy loch-shores and riverbanks. New colonies of the plant establish and replace native plants by competing with them for light, nutrients and water. These plants can be dug up, but this is very muddy hard work and not always successful. A more practical solution is to treat them with chemical. Removing the flowers can also help prevent the plants from setting seed.



Giant Hogweed

### 5. GIANT HOGWEED

Aptly named 'giant', this plant has flowering stems typically 2-3 m high bearing large white flowers which can grow to be over 1 m in diameter with leaves often 1 m or more in size. It is especially abundant by streams and rivers but also occurs widely on waste ground. Originally from southwest Asia it was planted as an ornamental in gardens beside streams and ponds. It spreads entirely by seeds which are dispersed by wind, water and in contaminated soils. A single plant can easily produce over 20,000 seeds each year.

The mature plants form dense impenetrable stands, preventing access to riverbanks, reducing species diversity, and posing a serious health risk. The plant produces phytotoxic sap which in contact with human skin and combined with sunlight causes severe burns and blisters. Chemical treatment is an effective method of control and is best carried out during late spring or early summer when the plants are still small and pose less of a risk.

**OUR FUTURE NATURE PROGRAMME AND KEY PRESSURES**

What is the future for nature in our National Park? We face a global biodiversity crisis and even in our most special landscapes, nature as a whole is still in real trouble. If we do not halt and reverse this decline, then our world and all of us will have a poorer and more uncertain future.

Our Future Nature programme aims to deliver a positive, exciting vision of this National Park as an exemplar where people can understand, experience and contribute towards a shared vision for restoring nature.

# Future Nature

**FUTURE NATURE IS CONCENTRATING ON THE FOLLOWING FOUR KEY PRESSURES:**



**WATER QUALITY**

Negative impacts on freshwater and marine water bodies from problems such as pollution from surrounding land uses.



**INVASIVE NON-NATIVE SPECIES**

The spread of invasive non-native species, which displace our rich native wildlife.



**HERBIVORE PRESSURE**

Unsustainable levels of wild and domesticated grazing and browsing animals in some upland and woodland areas, leading to reduced tree cover and the erosion of soils, which are important carbon stores.



**CLIMATE CHANGE**

The impacts of climate change leading to warmer, wetter weather patterns and a subsequent increase in flood events, major landslides and rapid shifts in natural ecosystems.



**1  
RHODODENDRON  
PONTICUM**



**2  
JAPANESE  
KNOTWEED**



**3  
HIMALAYAN  
BALSAM**



**4  
AMERICAN  
SKUNK-CABBAGE**



**5  
GIANT  
HOGWEED**

We're working in partnership with landowners, fishery trusts, government agencies and volunteers to reduce the extent and damaging impact of these species. Wherever possible, we are seeking to remove invasive non-native plants completely.

These species can take over and out compete natural vegetation like wildflowers, shrubs and trees. When these invasive plants are removed the native plants begin to return.

## RHODODENDRON

In 2014 the National Park was recorded to have 5,787 ha of native woodland, with an estimated 7% (396 ha) being adversely affected by the presence of rhododendron, although the area of Rhododendron cover is likely to have expanded since. The task of Rhododendron eradication is large, difficult and takes a long time and can only be accomplished with co-ordinated work over multiple land holdings to ensure no plants remain as seed sources. The following steps are key to achieving eradication:

- Development by the National Park Authority of a Rhododendron eradication strategy so that a systematic approach (rather than piece-meal) is put in place.
- Monitor clearance sites and co-ordinate follow-up treatments to remove regrowth.
- Prioritise areas designated for their natural heritage, such as SSSIs.
- Work with private landowners (estates, farms, householders) and Forestry and Land Scotland to tackle Rhododendron.
- Identify the extent, accessibility and size of Rhododendron.
- Help landowners access funding to undertake Rhododendron mapping, clearance, monitoring and eradication.

## RIPARIAN INNS

The removal of INNS from beside rivers and lochs will allow native plants to recolonise resulting in an increase in Biodiversity

### OBJECTIVES BY 2030

- Reduce riparian INNS that negatively affect habitats in the National Park along with active control of any spread, prioritising designated sites.
- Continue to develop control programmes at a catchment level to remove known riparian INNS from the , the Falloch, Fillan, Dochart, Forth, Teith, Loch Lomond, Endrick, Blane, Eachaig and Goil catchments, and ensure management of contamination downstream.
- Continue to use agreed monitoring and recording process which will also report on indicators of success.
- Work with land managers, fishery trusts, government agencies, communities and volunteers to reduce the extent and damaging impact of these species and, wherever possible, remove them completely.
- Develop rapid response measures for removal and control to any new outbreaks of riparian INNS.
- Train volunteers and land managers involved in projects to control riparian INNS.
- Raise awareness of how to avoid spreading riparian INNS through both formal and informal education.
- Work with partners to keep up-to-date records of known INNS locations.
- Map the locations of INNS and use treatment and survey data.

## REMOVAL OF RHODODENDRON AND INNS WILL HELP WITH A NUMBER OF KEY THREATS TO WILDLIFE

- Natural riverside habitats will be restored and better connected providing corridors for wildlife.
- Bank erosion will be reduced as the root systems of native trees and shrubs become established.
- The amount of sediment and diffuse pollution entering rivers will be reduced as natural vegetation provides a natural buffer.
- Soil health will improve increasing the ability of the soils to store carbon
- Restored habitats will reduce the impacts of climate change such as storm events and flooding.
- Increased dappled shade, leaf litter and woody debris will improve freshwater habitats for invertebrates and fish.
- Removal of rhododendron will improve the health of woodlands and allow native trees to grow increasing their ability to store carbon.



*Rhododendron ponticum*

## UPPER TAY INVASIVE NON-NATIVE SPECIES PROJECT

The Upper Tay Invasive Non Native Species Project (UTINNS) was established in 2012.

The aim of the project is to improve the quality of habitats by controlling the spread of invasive Knotweed, American Skunk cabbage, Himalayan Balsam and Giant Hogweed, within the upper catchment of the River Tay within the National Park. Control of these non-native invasive plants will result in the restoration and enhancement of degraded riverside and lochside habitats including woodlands and wetlands.



Volunteer treating invasive knotweed



Before treatment



After treatment

The project is working in partnership with land managers, local communities and volunteers and has assisted 29 landowners within the project area including several large Estates, local businesses, community groups and private households. The co-ordinated, innovative approach to the project has allowed for flexible, proactive treatment of INNS providing multiple benefits including habitat enhancement, improved access and improved water quality.

## UPPER TAY INVASIVE NON-NATIVE SPECIES PROJECT OUTPUTS & OUTCOMES

### PROJECT OUTCOMES 2024

- 21 locations of Himalayan Balsam hand pulled
- 102 locations of Japanese Knotweed chemically treated
- 18 locations of American Skunk-cabbage chemically treated
- In 2024 Giant hogweed remains absent from the entire project area.
- The number of locations where no regrowth of Japanese knotweed, Himalayan balsam and American Skunk-cabbage has risen from 47 sites in 2019 to 84 sites in 2024.
- In 2024 51 INNS locations have shown a large decrease in size and density.
- Himalayan balsam has been significantly reduced from lochside and woodland locations within St Fillans, improving habitat connectivity, reducing bankside erosion and improving water quality. Nine sites in Lochearnhead and St Fillans are now known to be clear of Himalayan Balsam.
- Improved partnership working with landowners, community groups and local businesses, achieving multiple public benefits.
- Providing opportunities for volunteers to become actively involved in a landscape scale conservation project within the National Park.

## WHY DO WE CONTROL INVASIVE NON-NATIVE PLANTS?

These species can take over and out compete natural vegetation like wildflowers, shrubs and trees. When these invasive plants are removed the native plants begin to return.

**How does this improve water quality and reduce the pressures of climate change?**

- Natural riverside habitats will be restored and better connected providing corridors for wildlife.
- Bank erosion will be reduced as the root systems of native trees and shrubs become established.
- The amount of sediment and diffuse pollution entering rivers will be reduced as natural vegetation provides a natural buffer.
- Increased dappled shade, leaf litter and woody debris will improve freshwater habitats for invertebrates and fish.
- Restored habitats will reduce the impacts of climate change such as storm events and flooding.



Volunteer treating Japanese knotweed

## QUESTIONS AND PUPIL ENQUIRY

- What are the main causes of the spread of invasive non-native species?
- Explain how invasive non-native species out compete native wildlife.
- List the number of ways to remove invasive non-native species.
- What are the benefits of a removing invasive non-native species?

## FURTHER READING

### Online

- [Learn more about our Future Nature programme](#)
- [Learn more about our key pressures to nature and Invasive Non-Native Species](#)

### Site visits

- Balmaha on eastern shore of Loch Lomond is a great location to base a field visit, with the [National Park Visitor Centre and Outdoor Classroom](#) available for school groups. If you follow the Millennium path look out for rhododendron ponticum where the path goes through woodland alongside the visitor centre car park. You will also see Himalayan Balsam growing along the foreshore.
- Other sites suitable for field visits include the hills around Luss, west Loch Lomond.