

Galloway Rivers Trust put the Spotlight on Coastal Invasives

Invasive non-native species (INNS) pose a significant threat to our native biodiversity. Introduced to the UK outside of their natural range, these species can spread rapidly and outcompete native plants and animals for access to essential resources such as space, light, water, and nutrients. The impacts can be wide-ranging, affecting entire ecosystems, reducing habitat quality for wildlife, and cause substantial economic costs through extensive management and restoration efforts. Once established, many invasive species have proved difficult and costly to control, making early detection and rapid response essential for protecting our natural environment.



Loch Ryan coastal knotweed





Himalayan balsam

As part of the Solway Coastal and Marine Project (SCAMP), Galloway Rivers Trust has been working to raise awareness of invasive non-native plant species along the coastline of Dumfries and Galloway. Dynamic coastal environments are particularly vulnerable to INNS due to the movement of water, strong winds, wildlife activity, and human transport, all contributing to their spread. Seeds and plant fragments can travel considerable distances, allowing invasive species to colonise new areas quickly and making containment challenging.

Several priority invasive species have been identified across the region's coastal habitats, including Himalayan balsam (*Impatiens glandulifera*), Japanese knotweed (*Fallopia japonica*), American skunk cabbage (*Lysichiton americanus*), Giant hogweed (*Heracleum mantegazzianum*), and Gunnera species. These plants can form thick, dense patches that alter habitats and suppress native vegetation, ultimately reducing biodiversity. Some species, such as Giant hogweed, also pose significant risks to human health, as it produces a toxic sap that causes severe skin burns and blistering when exposed to sunlight, while Japanese knotweed is well known for its extensive rhizome system, which can damage infrastructure and is particularly difficult to eradicate because it can readily regenerate and spread from small rhizome fragments.

To help increase public awareness and encourage community involvement, informative flyers have been distributed throughout coastal towns and communities across Dumfries and Galloway. By helping local residents, visitors, and landowners to recognise priority invasive species and report sightings, we can build a clearer picture of their distribution along the coastline. Reports from the public are invaluable in helping us understand the scale of the problem, identify priority treatment areas, and support efforts to protect and restore our valuable coastal habitats.

Alongside community engagement, Galloway Rivers Trust has appointed environmental mapping specialists, Spectral Ecology, to explore the use of multi-spectral sensing technology to improve how invasive species are detected and monitored across large stretches of coastline. This includes a mixture of drone and satellite surveys, with the addition of machine learning for species identification. Traditional ground surveys are an important part of invasive species management but are time-consuming and may miss plants, particularly across remote or inaccessible coastal areas. Surveying extensive sections of remote shoreline on foot requires significant staff time and resources, limiting the frequency and scale of monitoring.

Drones offer a more efficient approach. Equipped with high-resolution sensors and cameras, they can rapidly collect detailed imagery over large areas in a relatively short period of time. This enables surveyors to assess habitats that may otherwise be difficult to

Himalayan balsam





Giant hogweed

access safely and allows for more regular monitoring of known invasive species sites. The imagery collected through drone surveys can then be analysed to identify and map priority INNS populations along the coastline. By creating detailed distribution maps, we can better understand where invasive species are becoming established and how they may be spreading through the landscape. This information is essential for planning effective treatment programmes and targeting resources where they will have the greatest impact.



American skunk cabbage

Remote sensing technology will definitely provide many advantages, but it is important to recognise its limitations too, as small emerging patches or individual strands of plants may not always be detectable through remote imagery alone. However, identifying larger infestations can provide valuable clues about where the source population may be located. Invasive plant species often spread outward from an already established population, meaning that locating larger infestations can help guide follow-up ground surveys and direct surveyors towards potential source areas. This targeted approach can significantly improve the efficiency of fieldwork and increase the likelihood of detecting smaller, previously unnoticed populations. Combining drone technology and ground surveys with community reporting creates a powerful tool for invasive species management. Public sightings are extremely valuable in identifying areas of concern, while drone surveys can provide a broader view of infestation patterns across inaccessible landscapes. Together, these approaches can improve our understanding of invasive species distribution and enable more effective management interventions.

If you spot any of the priority invasive non-native species along the Dumfries and Galloway coastline, please report your sighting through our recording app. Every report helps us build a more comprehensive picture of invasive species spread and supports efforts to safeguard the region's coastal habitats for future generations.



American skunk cabbage

