

Beauly Catchment Biosecurity Plan

2021- 2030



American skunk cabbage on Kirkton Burn, April 2020



Scottish Invasive Species Initiative



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What is Biosecurity?

Scotland's Environmental and Rural Services (SEARS) in their Biosecurity Guidance state that "Good biosecurity practice refers to a way of working that minimises the risk of contamination and the spread of animals and plant pests and diseases, parasites and non-native species".

What are Invasive Non Native Species?

Invasive non-native species are those that have been transported outside of their natural range and that damage our environment, the economy, our health, and the way we live.

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Abbreviations

Abbreviation	Organisation
BFB	Beaully Fishery Board
BTA	British Trout Association
CBD	Convention on Biological Diversity
DSFBs	District Salmon Fisheries Boards
FLS	Forestry and Land Scotland
FMS	Fisheries Management Scotland
HISF	Highland Invasive Species Forum
INNS	Invasive Non-Native Species
MS	Marine Scotland
NatureScot	NatureScot (was Scottish Natural Heritage)
NBFT	Ness and Beaully Fisheries Trust
NDSFB	Ness District Salmon Fishery Board
NH AAG	North Highland Area Advisory Group
NNSS	Non- Native Species Secretariat
SEPA	Scottish Environment Protection Agency
SISI	Scottish Invasive Species Initiative
SFCC	Scottish Fisheries Co-ordination Centre
SG	Scottish Government

1. Summary

This plan describes the biosecurity issues of the River Beaully catchment on behalf of Ness & Beaully Fisheries Trust and presents actions that have been agreed with stakeholders for the prevention, early detection, control and mitigation of the introduction and spread of selected invasive non-native invasive species (INNS), fish diseases and parasites. The vision of this plan is:

‘To develop a sustainable framework to prevent, detect, control and eradicate invasive non-native species within the Ness and Beaully fisheries districts through the coordination of data collection, management, liaison and education’.




This vision will be achieved through the realisation of three objectives:

Objective 1: Reduce the risk of introduction and spread of identified INNS within the Beaully district.

Objective 2: Establish a framework for the detection and surveillance of identified INNS, linked to rapid response protocols.

Objective 3: Develop coordinated control and eradication programmes for specified INNS.





These objectives are in accordance with established protocols for fish diseases and with the three key elements of [The Great Britain invasive Non-native Species Strategy](#)¹:

-  Prevention,
-  Early detection, surveillance, monitoring and rapid response,
-  Mitigation, control and eradication





The objectives of this plan will be achieved through a partnership approach to implement the agreed actions.

The ultimate key to the effectiveness of this plan is the building of local awareness, capacity and partnerships to ensure the success and long-term sustainability of the presented actions.

The implementation of this biosecurity plan will bring many socio-economic and environmental benefits and a summary of these are described below:

-  The prevention of the deadly salmon parasite *Gyrodactylus salaris* from entering the Beaully fishery district, which would cause catastrophic economic and environmental loss;
-  A strategic, collaborative control programme of riparian INN plants;
-  Increased biodiversity and the conservation of important natural habitats for native species such as Otter, Atlantic salmon, European eel and Freshwater pearl mussel;
-  The visual conservation and increased amenity value of local landscapes;

¹www.nonnativespecies.org/index.cfm?sectionid=55

-  The protection of the endangered water vole from American mink;
-  The prevention of species such as Zebra mussel from entering the district's watercourse helps protect nationally important hydro-electric schemes from extremely costly mitigation measures;
-  The prevention of the encroachment of American signal crayfish from the Nairn catchment with associated negative ecological and economic implications; and
-  Rapid response mechanisms to contain and where possible eradicate new incidences of identified INNS.

2. Introduction

This Biosecurity Plan follows on from the previous 2009 to 2015 version produced by the NBFT. Unlike the previous version, it only relates to the Beaully catchment and is prepared by the Beaully District Salmon Fishery Board, with a separate plan being produced for the Ness catchment by the Ness District Salmon Fishery Board.

The plan provides a platform for local action to address biosecurity issues. It details work that has been undertaken and recommends actions required to address biosecurity issues within the area. It will remain active, being updated as a result of new research and findings. It has a lifespan of ten years and, as part of an adaptive management cycle, its outcomes and impacts will be reviewed and incorporated in the next generation of the plan. The successful implementation of this plan will rely on the formation of strong local partnerships founded on solid legal and policy principles by a range of interested parties.

This is one of 10 biosecurity plans being produced around the north of Scotland as part of a regional programme of action implemented through the Scottish Invasive Species Initiative (SISI) with backing and support from the National Lottery Heritage Fund (NLHF) and NatureScot. SISI operates over approximately 29,500 km² of northern Scotland and is a partnership project led by NatureScot but with ten fishery trust and fishery board delivery partners (including the NBFT) and one academic partner (the University of Aberdeen).

The project runs from 2017 – 2021 (but may be extended to 2022) and is delivering a programme of prioritised management and control of a suite of invasive plant species (Giant hogweed, Himalayan balsam, Japanese knotweed, American skunk cabbage and White butterbur) and the American mink as well as raising public and community awareness of invasive non-native species and biosecurity issues.

In SISI invasive species control is delivered by a combination of staff, contractor and community and volunteer-based control. Further information about the project can be found on its [website](#)².

The need for ongoing action on biosecurity issues was identified in the last [Beaully District Fisheries Management Plan](#)³ and [The river basin management plan for the Scotland river basin district: 2015–2027](#)⁴

As the spread of INNS is not isolated to the River Beaully catchment this plan will also facilitate coordination and communication with the neighbouring Fisheries Trusts, Boards and other stakeholders of neighbouring areas e.g. in Cromarty, Ness, and Wester Ross.

²www.invasivespecies.scot

³www.beaully.dsfb.org.uk/files/2012/08/beaully-catchment-fisheries-management-plan-version-1.pdf

⁴www.sepa.org.uk/media/163445/the-river-basin-district-2015-2027.pdf

3. The Context

3.1 Biosecurity: The Nature of the Problem

Biosecurity issues are of increasing economic and ecological significance. Globalisation has expanded the possibilities, extent and complexity of world trade and the growth of the tourism market has expanded the number of destinations for activity holidays and travellers.




These trends have led to the increased probability of the unintentional as well as intentional introduction, establishment and spread of INNS, parasites and diseases in Scotland and the UK. In the context of this plan, biosecurity issues in the rivers and lochs of Scotland are considered in relation to the potential introduction and spread of a priority list of INNS and fish diseases.

Invasive non-native species are those that have been transported outside of their natural range and damage our environment, the economy, our health and the way we live.

According to The Convention on Biological Diversity ([CBD, 2006](#))⁵, INNS are the second greatest threat to biodiversity being capable of rapidly colonising a wide range of habitats and excluding the native flora and fauna. Furthermore, over the last 400 years INNS have contributed to 40% of the animal extinctions where the cause of extinction is known.



As water is an excellent transport medium for the dispersal of many of these species, rivers and lochs and their banks and shorelines are amongst the most vulnerable areas to the introduction, spread and impact of these species. The ecological changes wrought by INNS can further threaten already endangered native species and reduce the natural productivity and amenity value of riverbanks, shorelines, and their waterbodies.

The threat from INNS is growing at an increasing rate assisted by climate change, pollution, and habitat disturbance with a correspondingly greater socio-economic, health and ecological cost. Many countries including Scotland are now facing complex and costly problems associated with invasive species, for example:

-  The Great Britain Invasive Non-native Species Strategy, 2015 estimates that INNS cost the UK economy £1.7 billion per year;
-  In the UK Japanese Knotweed is thought to affect an area roughly the size of London and the Review of Non-Native Species Policy (2003) estimated the total cost of its removal using current techniques at £1.56bn.
-  A Scottish Government report estimated the potential Net Economic loss to Scotland of the introduction of [Gyrodactylus salaris](#)⁶ at £633 million with severe consequences for rural communities.

⁵www.cbd.int/gbo2/

⁶www.gov.scot/binaries/content/documents/govscot/publications/factsheet/2019/11/marine-scotland-topic-sheets-aquaculture/documents/gyrodactylus-salaris-updated-october-2016.pdf

-  A Forest Research report (2008)⁷ estimated the current cost of clearing the invasive *Rhododendron ponticum* from Argyll and Bute as £9.3m that could rise to £64m in the next 50 years. Invasive species have already changed the character of iconic landscapes and waterbodies in Scotland reducing the amenity value of those areas.
-  Invasive species have already changed the character of iconic landscapes and waterbodies in Scotland reducing the amenity value of those areas.

3.2 Policy and Legislation

Given the high costs for the mitigation, control and eradication of INNS and fish diseases once they are established, this plan emphasises the need for prevention and rapid response to the introduction of INNS before they become established. Furthermore, the host of pathways for entry and spread as well as the persistence of many of these species means that a partnership approach to prevent introductions and involving diverse stakeholders is essential.

The partnership approach encapsulated in this plan is a key requirement for increased public awareness and engagement, optimisation of the use of resources and the provision of clear guidance for inter-agency working is necessary to address the biosecurity issues of the Beaully fishery district. These approaches are consistent with The Great Britain invasive non-native species strategy and the [Species Action Framework](#)⁷ both of which were approved by the Scottish Government.

The actions presented in this plan will also conform to, and be supported by, UK and Scottish Government legislation associated with the prevention, management and treatment of invasive non-native species, fish diseases and parasites. Please See [Appendix 1](#) for relevant legislation.

The procedures for the detection, notification and control of fish disease procedures are already well defined by fisheries legislation. This stipulates that Marine Scotland acts on behalf of the Government in respect to the suspicion of the presence of notifiable fish diseases and organises and coordinates the response to that outbreak. As such, the actions in this plan will raise awareness and provide mechanisms for the realisation of those procedures at the local level.

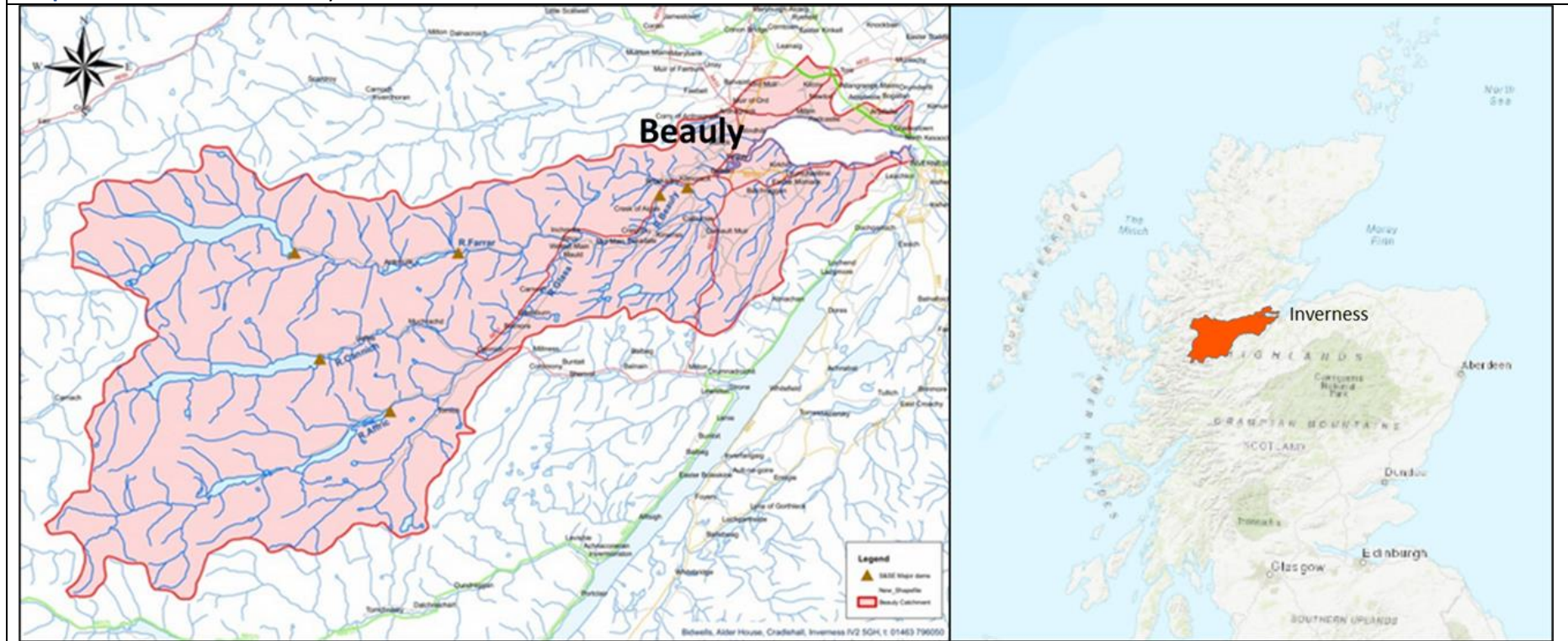
⁷www.nature.scot/species-action-framework-handbook

4. Scope of the Plan

4.1 The Beauly Catchment

The River Beauly drains a catchment of approximately 1000 square kilometres of land thus making it the second largest catchment north of the Great Glen. The catchment extends almost to the west coast with the most westerly tributaries being only approximately 7km east of Loch Duich. The main rivers are the Beauly, Farrar, Glass, Affric, Cannich, and Abhainn Deabhag. The mean altitude of the catchment is more than 385m and several peaks are more than 1000m. There are also numerous lochs and small coastal catchments that support a variety of fish species including Atlantic salmon, trout, lamprey, eels, and flounder. Angling and kayaking are common recreational activities that occur on the system. [Map 1](#) shows location.

Map 1: Location of River Beauly main river and Coastal Catchments

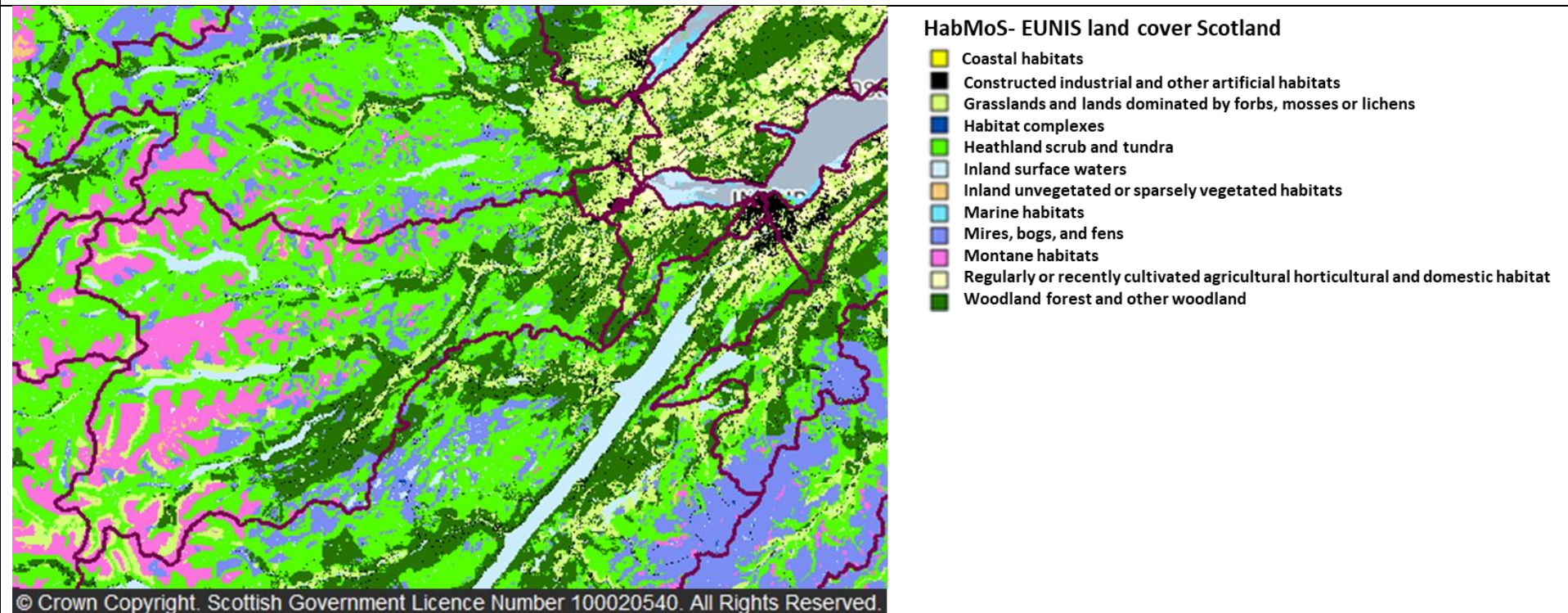


4.2 Land-Use Summary

Land use within the Beauly catchment ([Map 2](#)) is broadly similar to neighbouring catchments with large areas owned by sporting estates and forestry enterprises (often utilised for deer stalking), rough grazing for cattle and sheep and both commercial timber forestry and native woodland. The largest urban conurbation is Beauly, located in the lower reaches of the River Beauly system. Glen Affric contains a large remnant of the Caledonian Forest and has been designated as a National Nature Reserve. The Beauly catchment in general has relatively extensive riparian tree cover.




The Beauly catchment is host to seven large hydro-electric dams built between 1951- 1963 which were fundamental in bringing electricity to the Highlands. Of particular relevance to the salmon populations of the Beauly system are Kilmorack, Aigas and Beannacharan dams operated by SSE.

Map 2: Land use in the Beauly catchment



5. Biosecurity threats

This section identifies 36 INNS, translocated species, and fish diseases for inclusion in the Biosecurity Plan of which 15 high priority species are already present plus 4 species considered to have a high potential risk of introduction. These will be the focus for action. The priority species were identified as those that:

-  Already exist within the Beaully and wider NBFT area;
-  If introduced would have severe consequences for local biodiversity and economy; and /or
-  Have a high risk of introduction due to nature of the pathways for their introduction and their current geographic proximity.

5.1 Current Biosecurity Threats

Current biosecurity issues are particularly associated with 12 INNS and 3 translocated native species that are currently found in both the Beaully and neighbouring Ness catchment, see [Appendix 2](#) for INNS plant locations. The [National Biodiversity Network Atlas](#)⁸ is useful for viewing the location of some of these:

American mink (*Mustela vison*) are present in the Beaully and all neighbouring catchments. Mink spread by land-based migration to seek new territories before and after breeding seasons. They are voracious predators and can impact general biodiversity along rivers. They kill juvenile salmon and trout, water vole, ground nesting birds, water- fowl, and small mammals.

Canadian pondweed (*Elodea canadensis*) has been recorded on the south side of the Black Isle and occurs in both Ness and Conon catchments. It is spread by disposal of plants or plant fragments near waterways, escapes from garden ponds during flood episodes and possibly by birds and other animals. Canadian pondweed dominates native macrophyte communities which can lead to their extinction and thereby impacts local invertebrate communities. It can also increase metal loads within waterbodies that compounds its impacts on native flora and fauna.

Nuttall's pond weed (*Elodea nuttallii*) has been recorded on the south side of the Black Isle, and in the neighbouring Conon catchment. Nuttall's pond weed dominates native macrophyte communities and can lead to their local extinction. Impacts have also been recorded on invertebrate communities. All *Elodea* species take up metals from the sediment and release them into the water. *E. nuttallii* is very tolerant of copper in particular.

Australian swamp stonecrop/New Zealand pigmy weed (*Crassula helmsii*) has been recorded in a large garden pond above Bunchrew and in several locations in the Caledonian Canal (Ness). Australian swamp stonecrop can out-compete native species, and when dying off can lead to associated problems such as reduced dissolved oxygen levels.

Rhododendron (*Rhododendron ponticum* & hybrids) is present in the Beaully catchment (e.g. at Aigas, Erchless, Redcastle) and neighbouring catchments. It spreads by natural seed and vegetative dispersal after intentional planting in gardens, parks, and demesnes. It forms dense thickets and out-competes native plants for space and resources with impacts on fish and invertebrate communities as well as preventing site access.

⁸www.nbnatlas.org

Japanese knotweed (*Fallopia japonica*) has been recorded as generally being occasionally present at low levels in the Beaully catchment with a very large stand of it downstream of Beaully towards the estuary. It occurs at the top of the A. Deabhag on FLS land and in discrete patches further down and in the coastal catchments e.g. on Eilean Aigas and at Millennium Garden Kirkhill. It has spread along rivers by movement of plant fragments by water and is found in many other areas through the movement of plant debris in soil and on vehicles. It forms dense thickets which can exclude native plants and prohibits regeneration. Dense growth of Japanese knotweed can also hinder access, reduce biodiversity, and alter the habitat for wildlife.

Himalayan balsam (*Impatiens glandulifera*) is known to be present in several locations on the lower Beaully and coastal catchments. It is subject to localised eradication efforts in Beaully and Moniack. It also occurs in neighbouring catchments. It spreads through natural dispersion by wind or water from areas in which it has been planted or introduced through the transport of contaminated soil. It forms thick monospecific stands that can shade out low level native plants reducing biodiversity and denuding riverbanks of understory vegetation. Winter dieback of the plants exposes soil to erosion.

Giant hogweed (*Heracleum mantegazzianum*) although not currently known to be present in the Beaully catchment is present in several locations in the Ness and has been the subject of eradication efforts, particularly in Glen Urquhart. It spreads through seed dispersal and the movement of soil contaminated by its seeds. It is a public health hazard due to the toxins in the sap reacting with UV light to blister skin. Giant hogweed out competes native vegetation for space and resources and can result in a loss of plant and invertebrate diversity. Winter dieback exposes soil to erosion with loss of riverbanks and increased sedimentation.

Rainbow trout (*Oncorhynchus mykiss*) have been introduced to ponds/fisheries throughout the area for angling. Farmed fish are a potential source of viral and bacterial diseases affecting wild salmonids and they also compete for resources with native species if allowed to escape.

Minnow (*Phoxinus phoxinus*) is a translocated species that has been introduced into the Beaully (and Ness) catchments by anglers for live bait. Electro-fishing data shows them to be widespread. Minnows compete for food and territory with native species, but they also provide another food resource for kingfishers, herons, sawbill ducks and other larger fish species.

Pike (*Esox lucius*) have been introduced to the Beaully (and Ness) catchments. Pike are prevalent, with some reaching very large sizes in the mainstem Beaully and Glass. Pike are significant predators on native fish species and are likely to limit smolt production from some areas, especially in the artificial slack areas behind dams.

Perch (*Perca fluviatilis*) are anecdotally thought to occur in the Beaully catchment in some lochs (e.g. in the small lochs on the way to Drumnadrochit) and are present in the Ness catchment in several lochs. They are also significant predators on native fish species.

Phagocata woodworthi an American flatworm, although not known to be in the Beaully catchment is believed to have been introduced to Loch Ness via equipment being used to search for the Loch Ness monster. Likely to compete with other invertebrates for food.

Pink salmon (*Oncorhynchus gorbuscha*) has spread naturally to the area, appearing initially in 2017 and in lesser numbers in 2019. The impacts of a spawning pink salmon population on the native species within our waters are currently unknown but may include competition for resources both in freshwater and marine areas. Where animals are caught during routine activities they are dispatched.

American skunk cabbage (*Lysichiton americanus*) is present in several locations including the Kirkton area (Beaully coastal), and a pond at Achnagairn estate. It spreads by natural seed and berry dispersal after intentional planting in gardens. The large leaves outcompete smaller plants and can adversely affect native vegetation.

5.2 Potential Biosecurity issues

The 21 invasive non-native species listed below are not currently present within the Beaully (or Ness) fishery districts. They have been classified as High or Medium level threats depending on their likely impact on the local economy and biodiversity in combination with the likelihood of their introduction. The level of risk of introduction was based on the pathways for the introduction of INNS, their current geographic proximity, and the user groups within the NBFT district.

High Threat: Species with **Severe** consequences for local biodiversity and economy and a **High to Medium** risk of introduction.

Medium Threat: Species with **Moderate** consequences for local biodiversity and economy with a **Low to High** risk of introduction.

There are eleven High threat level species that could be introduced into the Beaully fishery district and they include one fish parasite, four fish species, five invertebrates and one aquatic plant species (**Table 1**).






Table 1: High threat Species, Risk and Impact		
Species	Risk of Introduction	Local Impacts
<i>Gyrodactylus salaris</i> (Freshwater external parasite of salmon)	High - Through unintentional introduction from angler, water sport enthusiasts and other water users: <ul style="list-style-type: none"> ▪ Contaminated fish ▪ Clothing/equipment which has been in contact with infected water including canoes ▪ Ballast water ▪ Aquaculture transfers 	<ul style="list-style-type: none"> ▪ Projected catastrophic impact on salmon (<i>Salmo salar</i>) populations throughout Scotland. (It has largely exterminated <i>S. salar</i> in 41 Norwegian rivers).
North American signal crayfish (<i>Pacifastacus leniusculus</i>)	High - Through intentional/ unintentional introduction from an existing population nearby. Present in nearby Nairn catchment. Unconfirmed reports of presence in Ness catchment.	<ul style="list-style-type: none"> ▪ Burrows into riverbanks causing destabilisation. ▪ Diet includes small fish, fish ova and invertebrates.
Zebra mussel (<i>Dreissena polymorpha</i>) Freshwater Bivalve	High - Through unintentional introduction from contaminated boat/canoe hulls and engines and bilge water. Caledonian Canal possible transfer vector.	<ul style="list-style-type: none"> ▪ Major economic impact on all subsurface water structures e.g. blocking pipes and impacting upon hydro-electric schemes ▪ Varied and unpredictable ecological impacts including changes to freshwater nutrient cycles, extinction of local mussels

		and changes to stream substrate affecting spawning areas.
Chinese mitten crab (<i>Eriocheir sinensis</i>) Resides in freshwater but migrates to the sea for breeding.	High - Through unintentional introduction from boat hulls and live food trade	<ul style="list-style-type: none"> ▪ Burrowing in high density populations damages riverbanks ▪ Concern over impacts on local species ▪ Intermediate host for the mammalian lung fluke <i>Paragonimus ringer</i>, known to infect humans.
Ruffe (<i>Gymnocephalus cernuus</i>)	Medium - Popularity of Pike angling in the Beaully catchment increases the risk of transfer by visiting anglers.	<ul style="list-style-type: none"> ▪ Ruffe populations have a minimum population doubling time of less than 15 months and the species is an aggressive predatory species of zooplankton and other food sources of native species of fish as well as fish eggs. ▪ The introduction of Ruffe to Loch Lomond has had disastrous consequences for the Powan and has significantly altered the ecology of the loch.
Roach (<i>Rutilus rutilus</i>)	Medium - Roach have become established in several large Scottish still waters. Movement by anglers is the most likely means of introduction	<ul style="list-style-type: none"> ▪ The introduction of Roach would significantly alter the ecology of a water body.
Stone Loach (<i>Barbatula barbatula</i>)	Medium - Stone loach have been introduced to the Kyle of Sutherland district probably by visiting Trout anglers.	<ul style="list-style-type: none"> ▪ Stone loach occur in very high densities and are likely to compete for habitat and food with native salmonids
Bullhead (<i>Cottus gobio</i>)	Medium - Translocated species recorded in central Scotland that could be introduced deliberately or as live bait	<ul style="list-style-type: none"> ▪ Bullhead occur in very high densities and are likely to compete for habitat and food with native salmonids.
Slipper limpet (<i>Crepidula fornicata</i>)	Medium - The presence of the port in Inverness increases the risk of introduction to the Moray Firth. The likely pathways of introduction are by hull fouling and in ballast water.	<ul style="list-style-type: none"> ▪ Inhabits shallow subtidal area below low water mark often attached to oysters and mussels. ▪ In France has altered benthic habitat through smothering of bed with densities of 1000/m² that trap suspended silt, and faeces. ▪ Exclude other bivalves including oysters to whose beds they are a serious threat. ▪ Also, a major threat to other protected species.
Didemnum Tunicates/Sea Squirts <i>Didemnum vexillum</i>	Medium - Vectors for introduction are uncertain but fouling of ocean-going vessels and/or contamination of aquaculture produce are possibilities. The presence of a port in Inverness increases the risk of introduction. Once established, it can spread rapidly by both sexual reproduction and asexually by fragmentation of the colonies.	<ul style="list-style-type: none"> ▪ Marine habitat changes through overgrowth of sedentary benthic organisms such as seaweed, scallops, mussels, and oysters. ▪ Produces chemicals that deter most fish and other animals. ▪ Increases fouling of underwater structures such as docks, moorings, and boat hulls.
Curly waterweed (<i>Lagarosiphon major</i>)	Medium - Found in a small number of locations throughout Scotland especially in the central belt area and spread through: <ul style="list-style-type: none"> ▪ Disposal of garden waste ▪ Animals and human activity ▪ Fragmentation by wind dispersal, boat movement, angling equipment and possibly waterfowl 	<ul style="list-style-type: none"> ▪ Capable of forming very dense infestations in suitable habitats and occupying the full water column in waters up to 6m deep with significant impacts on native plants, insects, and fish ▪ It is a serious threat to tourism, angling, boating and other recreational pursuits as well as conservation goals.




There are also ten Medium threat level species of which there are five species with a medium risk of introduction and five species with a low risk of introduction (**Table 2**). [The UK TAG⁹](#) website lists other alien species which may also be at risk of introduction.

Table 2: Medium threat Species, Risk, and Impact		
Species	Risk of introduction	
Water primrose (<i>Ludwigia grandiflora</i>)	Medium	Unintentional introduction from boat hulls and ponds
Orfe (<i>Leuciscus idus</i>)	Medium	Through intentional/unintentional introduction from an existing population nearby
Water fern (<i>Azolla filiculoides</i>)	Medium	Through intentional/unintentional introduction from numerous locations throughout Scotland, especially central belt.
Wireweed (<i>Sargassum muticum</i>)	Medium	Through unintentional introduction.
Cord Grass (<i>Spartina anglica</i>)	Medium	Present within neighbouring Cromarty Firth catchment.
Large-flowered waterweed (<i>Egeria densa</i>)	Low	Found across England and as far north as East Lothian. Possible introduction from ponds.
Floating pennywort (<i>Hydrocotyle ranunculoides</i>)	Low	One report in the Lossie catchment. Also in England and N. Ireland. Possible introduction from ponds.
Parrot's feather (<i>Myriophyllum aquaticum</i>)	Low	One report in West Sutherland. Through intentional/unintentional introduction from populations in the south of Scotland
Fanwort (<i>Cabomba caroliniana</i>)	Low	Found in southern Scotland possible introduction from ponds.
Asian topmouth gudgeon (<i>Pseudorasbora parva</i>)	Low	Recorded in England. Could be introduced as live bait, in ballast water or as releases from aquaria.

From **Tables 1** and **2**, the main pathways or means of introduction of both High and Medium Threat level species into the Beaully fishery district are:

-  Intentional introduction or planting.
-  Sale from garden and pond centres.
-  Escapes from garden ponds.
-  Contaminated water sports equipment, e.g. from anglers, canoeists.
-  Movement of contaminated soils or vehicles.

⁹[www.wfduk.org/sites/default/files/media//characterisation of the water environment/alien species guidance modified from feb 04- march 2013.pdf](http://www.wfduk.org/sites/default/files/media//characterisation%20of%20the%20water%20environment/alien%20species%20guidance%20modified%20from%20feb%2004-%20march%202013.pdf)

-  Fouling and ballast water of marine vessels.
-  Improper control and disposal measures, e.g. cutting and dumping without treatment, fish factory waste.
-  Introduction of live fish, contamination of water used to transport live fish.

To prevent the spread of these INNS and diseases these pathways need to be restricted. Where feasible, existing populations should be controlled or eradicated, and their impacts mitigated.








6. Stakeholders

The engagement of key stakeholders is imperative for the success of this plan. Regulatory agencies and bodies associated with other relevant management plans include the following:

Table 3: The main pathways with relevant stakeholders	
Main Pathways	Stakeholders
Intentional introduction or planting	Plantlife, riparian landowners, members of the public, Marine Scotland, Highland council.
Sale from garden and pond centres	Horticultural Trade Association, local garden centres, ornamental fish producers
Escapes from garden ponds etc	Marine Scotland, Planning Authorities, Aquaculture companies, Plantlife, riparian owners, members of the public
Contaminated water sports equipment, e.g. from anglers, canoeists.	BFB, Inverness Canoe Club, water sports organisations, anglers, angling associations, local fishing agents and tackle shops, SEPA
Movement of contaminated soils or vehicles	Highland Council, SEPA, Beaully quarry, building contractors, Forestry and Land Scotland.
Fouling and ballast water of marine vessels	Inverness Harbour Trust, Scottish Canals.
Fouling and ballast water of freshwater vessels	Inverness Harbour Trust, Scottish Canals, UK Government, water sports organisations.
Improper control and disposal measures, e.g. cutting and dumping without treatment, fish factory waste	Highland Council, SEPA, Environmental health, Plantlife, riparian owners, members of the public, Forestry and Land Scotland.
Introduction of live fish, contamination of water used to transport live fish	Aquaculture companies, Marine Scotland, still water fisheries, angling associations.
Other stakeholders (not mentioned above): Policy and Legislation: Scottish Government, NatureScot, Fisheries Management Scotland Land Resources: National Farmers Union, Highland Invasive Species Forum, Scottish Land and Estates, Local estates, and landowners Water Resources: North Highland Area Advisory Group, Scottish Water, Scottish and Southern Energy, Scottish Canals, Inverness Marina, Moray Firth Partnership Fisheries Management: BFB, NDSFB, NBFT, Association of Still Water Fisheries Recreation: Commercial canoe companies, Ramblers Association, Fishing proprietors (e.g. Beaully Angling club), Caley Marina. Conservation and Biodiversity: Scottish Wildlife Trust, Royal Society for the Protection of Birds, Scottish Native Woods, Trees for Life. Inverness & Nairn Local Biodiversity Action Group, Highland Biological Recording Group, Highland Environment Forum, Beaully Eco Group, Kirkhill and Bunchrew Community Council, Reelig Community Woodland.	

7. Existing INNS Control Activities




There have been limited INNS control activities within the Beaully catchment in the past. What has been done was carried out prior to 2014 by NBFT and more recently in 2020 by BFB. In between these times some work appears to have been carried out by local volunteers, individual landowners, or small groups. Currently, work is overseen by the BFB (on behalf of NBFT) as part of the Scottish Invasive Species Initiative. This work is funded by National Lottery Heritage Fund and NatureScot. See [Appendix 3](#) for photos of each invasive.

-  **Himalayan balsam** - Pre 2014 some Himalayan balsam control was carried out by contractor Choire Alba on Bridgend Burn in Beaully. Historical control in the form of hand pulling has taken place around the Beaully area by local volunteers including the Beaully Eco group. Himalayan balsam occurs on the far bank, opposite Beaully amongst wetland vegetation and access to this area is tricky. Hand pulling has been carried out for over 10 years in the Moniack area by interested locals.
-  **Japanese knotweed** - FLS carried out stem injection control of a large patch of Japanese knotweed at the top of the catchment prior to 2020 but this was unsuccessful. Repeat stem injection control by FLS is planned for 2021 with follow-ups to be undertaken by BFB as part of the SISI project. The Aird Community Trust carried out stem injection of Japanese knotweed in Kirkhill prior to 2020. The Kirkhill and Bunchrew Community Council plan to control the Japanese knotweed in the Kirkhill Millennium Garden. Prior to 2014, contractor Choire Alba carried out Japanese knotweed control downstream of Beaully, towards the estuary.
-  **American skunk cabbage** - BFB carried out control of American skunk cabbage on Kirkton Burn in 2020. Follow-up control and assessments will be necessary.
-  **American mink** - NBFT and NDSFB were co-ordinating mink control volunteers prior to 2020 as part of the Scottish Invasive Species Initiative and previous projects. This work is now overseen by the BFB. Currently there are 11 mink control volunteers active in the Beaully catchment as part of the SISI project. One mink was dispatched in September 2020. However, this capture may not properly reflect mink abundance in the catchment - mink are proving to be relatively numerous in Wester Ross which neighbours the Beaully catchment. More volunteers are planned to be recruited in 2021 to increase mink control effort in the catchment and with new staffing arrangements at the BFB to support these volunteers.
-  **Fish Species** - Liaison with anglers to check that live fish are not being used as bait and enforce laws relating to their use has been limited. With the employment of full-time BFB staff this situation should improve.
-  **Aquatic INNS** - BFB provided information and advice to the owner of the crassula pond above Bunchrew in summer 2020.
-  **Gyrodactylus salaris** - NBFT disseminated information in the form of leaflets and publicity material regarding the possible introduction of the parasite to the area. This work will be revisited by BFB to ensure that information notices have been placed at key locations (i.e. those frequently utilised by anglers and kayakers) within the catchment. BFB will encourage letting agents, angling clubs etc to supply their clients with information and require a declaration form to be signed prior to the granting of permission to fish.

NBFT promoted and advised on biosecurity and the prevention of introduction and spread of INNS. This has taken the form of talks, displays at outreach events, discussion with landowners, local businesses and anglers, the use of social media, on the website and through printed materials. In the future this will be done by BFB.

8. Biosecurity Management Strategy

The objectives of this plan will be achieved through a partnership approach to implement the following crucial actions:

-  OBJECTIVE 1: Prevention;
-  OBJECTIVE 2: Early detection, Surveillance, monitoring and rapid response; and
-  OBJECTIVE 3: Mitigation, control, and eradication.

8.1 Objectives and Outputs of the Beaulieu Catchment Biosecurity Plan





This section describes the expected outputs from implementation of the three plan objectives and the actions required for their realisation. Agreed actions for prevention are focussed on the disruption of the pathways for the introduction and spread of INNS, translocated species and fish diseases and include a mixture of awareness raising and practical measures. Awareness activities take note of The Invasive Non-native Species Media and Communications Plan for Great Britain (2017)¹⁰. Increased probability of early detection of the introduction or spread of INNS is realised through surveys to establish the location of existing populations, establishment of a coordinated local surveillance and reporting system supported by routine monitoring of established populations or sites vulnerable to the introduction and spread of these species.

Objective 1: Prevent the introduction and spread of INNS within the Beaulieu catchment.

Output 1.1– All key stakeholders aware of:

1. The ecological and economic impacts of INNS.
2. The potential pathways for introduction and spread.
3. Management best practices to prevent introduction and spread.

Awareness activities will be focussed on addressing the identified local priorities as well as supporting the INNS Media and Communications Plan for GB and its key messages:

-  INNS are any non-native animal or plant that has the ability to spread causing damage to the environment, the economy, or health and the way we live;
-  Invasive non-native species damage our environment, the economy, our health, and the way we live.
-  We require the support of stakeholders to increase awareness and better understanding of INNS issues and impacts; and
-  Invasive Non-Native Species threaten our native plants, animals, and habitats; Cost the British economy between £2 and £6 billion pounds each year; Can threaten our health.

¹⁰The Invasive Non-native Species Media and Communications Plan for Great Britain (2017) NNSS GB non-native species secretariat.

The local priorities for awareness will focus on disrupting the pathways for the introduction and spread of INNS in the Ness catchment. The key stakeholders, the identified areas of priority and the proposed mechanisms for delivery are presented below in **Table 4**, as are the roles and actions of key government agencies and non-government bodies in promoting awareness of INNS issues (**Table 5**).

Table 4: Priority areas for Awareness and Delivery Mechanisms according to Stakeholder group		
Stakeholder Group	Priority Area	Mechanism of Delivery
Local Fish Farms	<ul style="list-style-type: none"> - Impact of INNS. - Use of sufficient screens and other biosecurity measures. - Dangers of importing stock from contaminated areas. - Controls on movement of stock and water 	<ul style="list-style-type: none"> - BFB to encourage local fish farms to adopt the Association of Scottish Still Water Fisheries Code of Good Practice. - BFB to work with local industry and trade associations to advise members regularly of best practice in respect of INNS. - Enforcement agencies (DSFBs) to undertake site visits to discuss and advise on issues involving INNS e.g. rainbow trout - SISI biosecurity website ¹¹ and GB NNSS website ¹²
Port Authorities	<ul style="list-style-type: none"> - Avoid pumping out of non-sterilised ballast water in harbour when possible - Role of hull fouling in the introduction and spread of INNS 	<ul style="list-style-type: none"> - Continue best practice requiring sterilised ballast water to be discharged or non-sterilised ballast water to be discharged away from harbour where possible - SISI biosecurity website and GB NNSS website.
Scottish Canals	<ul style="list-style-type: none"> - Avoid discharge of ballast in freshwater - Role of hull fouling in the introduction and spread of INNS 	<ul style="list-style-type: none"> - NDSFB to assist with the supply of posters and other awareness material for display and signage. - SISI biosecurity website and GB NNSS website
Local Garden Centres	<ul style="list-style-type: none"> - Promote existing codes of practice covering the security and disposal of INNS to all garden centres. - Target gardeners to dispose plant material and/or soils in a responsible manner 	<ul style="list-style-type: none"> - BFB to work with garden centres to encourage distribution of codes of practice and posters (available from Plantlife). - GBNS be plant-wise ¹³ webpage
Local Aquarium and Pond stockists	<ul style="list-style-type: none"> - Promote code of practice to all pet shops and suppliers of ornamental fish. 	<ul style="list-style-type: none"> - BFB to work with retailers to encourage distribution of codes and posters (available from Plantlife). - GBNS be plant-wise webpage

¹¹www.invasivespecies.scot/biosecurity

¹²www.nonnativespecies.org/index.cfm?sectionid=58

¹³www.nonnativespecies.org/beplantwise

Table 4 continued : Priority areas for Awareness and Delivery Mechanisms according to Stakeholder group		
Stakeholder Group	Priority Area	Mechanism of Delivery
Water User associations (canoeists, sailing clubs)	- Promote awareness to clubs and participants of the dangers arising from INNS	- BFB to work with associations etc to promote disinfection of equipment and provide appropriate facilities to eliminate the risk of accidental transfer of INNS - SISI Biosecurity webpage , CHECK, CLEAN, DRY ¹⁴
Landowners	- Promote knowledge of biosecurity issues amongst all tenants and resource users - Hold good relations with locals to act as “eyes” for NBFT and BFB.	-BFB to work with landowners to ensure dissemination of best practices and appropriate signage to reduce threats from INNS -BFB to offer training for locals -SISI biosecurity website
Angling clubs	- Promote knowledge of biosecurity issues amongst all members and visiting anglers - Promote the distribution of information and erection of signage in fishing huts and recognised car parks. -Recommend suitable members to act as “eyes”.	- BFB to ensure dissemination of best practices and appropriate signage to reduce threats from INNS. -BFB to work with associations etc to promote disinfection of equipment and provide appropriate facilities to eliminate the risk of accidental transfer of INNS. -BFB to offer training for “eyes” -BFB to supply disinfection chemicals -SISI biosecurity website, CHECK, CLEAN, DRY
General Public	- General awareness of impacts and measures to prevent/control INNS - Promote the Biosecurity Plan to all retail outlets who deal with INNS e.g. pet shops, garden shops	- Post SISI updates on Facebook page, Beaulieu Eco group and BFB webpage. - Be in contact with the Kirkhill and Bunchrew Community Council and other local groups (e.g. Reelig Glen community woodland). -Put biosecurity Plan on website. Use of websites (FMS, SISI, GBNNSS) - SISI biosecurity Website

¹⁴ <http://www.nonnativespecies.org//checkcleandry/index.cfm?>

Table 4 continued : Priority areas for Awareness and Delivery Mechanisms according to Stakeholder group		
Stakeholder Group	Priority Area	Mechanism of Delivery
Schools	- General awareness of impacts and measures to prevent/control INNS.	- School visits - Field trips - SISI website , Alien detectives
Contractors / Ground Maintenance Workers	- General awareness of impacts and measures to prevent/control INNS	- Ensure dissemination of best practices - Training for “eyes” - SEPA construction site INNS guidance ¹⁵

Table 5: Roles and/ or actions of Key Government and Non- Governmental bodies (see Non-native species: code of practice 2012) ²⁰		
Organisation	Role and/or action	Delivery mechanisms
Beaully Fishery Board	- Continue to promote awareness to anglers, angling clubs, and general users of the biosecurity plan and the dangers arising from INNS.	- Continue to promote disinfection of equipment and provide appropriate facilities - See actions for BFB above
Highland Council	- Promote use of codes of best practice for construction, haulage, horticulture, aquaculture amongst local business and relevant departments particularly construction, garden, and pet trade. - Promote awareness of planning, waste disposal and transport regulations amongst local business - Promote awareness of the INNS Media and Communications Plan for Great Britain to the public	- Councils to promote best practice e.g. planning applications and building warrants - Production (by Council’s legal department) and distribution of information leaflets on all relevant legislation relevant to INNS - Holding of awareness event/open days to promote biosecurity issues
Forestry and Land Scotland	- Co-ordinating body responsible for INNS in woodland and the national forest estate. Committed to maintaining and enhancing the quality of the environment. - Priorities tend to be led by legal designations i.e. SACs, SSSIs, SPAs in favourable status lead the work programme	- Continual improvement in forestry design planning seeks to improve riparian zones for the broad range of habitats and species that exist within these zones - Control of INNS - Change in procedure to allow the dispatch of mink on their land (occurred 2020). - Plan to tackle Japanese knotweed near Plodda in 2021.

¹⁵ <https://www.sepa.org.uk/media/163480/biosecurity-and-management-of-invasive-non-native-species-construction-sites.pdf>

Table 5 continued: Roles and/ or actions of Key Government and Non- Governmental bodies (see Non-native species: code of practice 2012) 20

Organisation	Role and/or action	Delivery mechanisms
SEPA	<ul style="list-style-type: none"> - Co-ordinating body responsible for INNS in freshwater habitats (still and flowing). - SEPA record INNS at survey sites and make this info available on NBN atlas. They can also provide advice for dealing with INNS via their website and specific staff. - Incorporate INNS issues into CAR and planning guidance documents and through River Basin Management Plans. - SEPA has moved to a sector approach to improve how businesses are regulated. INNS work is an area of work that cuts across all sectors. 	<ul style="list-style-type: none"> - SEPA INNS web page ¹⁶ - River Basin Management Planning - North Highland Area Advisory Group
NatureScot	<ul style="list-style-type: none"> - Co-ordinating body responsible for all terrestrial and wetland habitats and species in situations not listed by others. - National: Promotion of good practice in the prevention, control, and eradication of INNS 	<ul style="list-style-type: none"> - NatureScot INNS web page ¹⁷ (info on INNS ID, reporting, control advice). - Holding of NatureScot Sharing Good Practice events - Grant funding may be available for some projects - SISI project, also providing funding to get local volunteers their INNS control certificates.
Marine Scotland	<ul style="list-style-type: none"> - Co-ordinating body responsible for the marine environment - Fish Health Inspectorate part of Marine Scotland is lead body with respect offish diseases and escape 	<ul style="list-style-type: none"> - Undertake site visits to discuss and advise on issues involving INNS. - Promote disinfection of equipment and provide appropriate facilities to eliminate the risk of accidental transfer of INNS.

¹⁶www.sepa.org.uk/environment/biodiversity/invasive-non-native-species¹⁷www.nature.scot/professional-advice/protected-areas-and-species/protected-species/invasive-non-native-species

Objective 2: Establish framework for the detection and surveillance of INNS, linked to a protocol to ensure a rapid management response.



Output 2.1 - ‘Reporting system’ established for key INNS in Beaully district.

A local surveillance network will be the “eyes” of the early warning system and will consist of members of the public, bailiffs, ghillies, canoeists and walkers with reported sightings verified by trained BFB staff. A sighting of a GB or local high priority species will be verified as soon as possible. If confirmed, it will initiate the appropriate GB or local high priority response (see Output 2.2 below). Reports of priority species will be verified as time permits.

Output 2.2—Develop strategic monitoring of INNS in Beaully district.

BFB will work with Scottish Fisheries Coordination Centre, SEPA and NatureScot to develop and agree national protocols for INNS surveying and monitoring as well as ensuring that INNS data is stored in a format which can readily be shared. BFB will incorporate improved recording of INNS into its survey programmes, habitat surveys etc.

Output 2.3—Rapid response mechanism established for new INNS which pose significant threats to local biodiversity and economy.

The type of response will depend on the severity of the species detected and is proportionate to the threat posed. There are three levels of response, see [Table 6](#):

- 🌿 A GB level response that will be undertaken by national governmental institutions as part of the GB INNS strategy;
- 🌿 A high priority local rapid response; and
- 🌿 A priority local rapid response.

Table 6: Response level for 34 invasive INNS and translocated species		
GB Response	High Priority Local Response	Priority Local Response
<i>Gyrodactylus salaris</i> Asian topmouth gudgeon Ruddy duck <i>Didemnum</i> spp (marine tunicate) Wireweed Water primrose	American signal crayfish Ruffe Bullhead Mitten crab Zebra mussel Stone loach Slipper limpet	American mink Canadian pond weed Japanese knotweed Himalayan balsam Giant hogweed American skunk cabbage Rhododendron Minnow Pike Water fern Parrot's feather Curly waterweed Australian swamp stonecrop Orfe Common cord grass Fanwort Large-flowered waterweed Floating pennywort Slipper limpet Nuttall's pondweed <i>Phagocata woodworthi</i>

There are likely to be some species which will not qualify for a GB rapid response which are considered priorities at a Scottish level and action may therefore be instigated by Scottish agencies or the Scottish Government.

A confirmed sighting of a GB priority species will trigger the GB contingency plan for that species e.g. *Gyrodactylus salaris*. However, there is still a need for local level protocols to link with the GB response as well as for local level contingency plans for local priority species. The elements to be included in the response to detection of a GB priority species or the contingency plans for local priority species are outlined below ([Table 7](#)).

Table 7: Response to GB priority, local high priority, and priority species		
GB response	Local High Priority Response	Local Priority Response
<ul style="list-style-type: none"> - Report to local and GB institutions - Determine the extent of infestation - Isolation of area where practicable 	<ul style="list-style-type: none"> - Report to local and GB institutions - Determine the extent of infestation - Isolation of area where practicable - Establish source and check related sites - Closure of all pathways - Decision on appropriate action eradication/containment - Approved eradication methodology - Monitor 	<ul style="list-style-type: none"> - Report to local and GB institutions - Determination of the extent of infestation - Surveys in course of normal work to establish and map distribution - Inclusion of new areas in existing eradication/control programmes - Identification and closure all pathways - Monitor as part of planned catchment monitoring programme

Objective 3: Develop coordinated control and eradication programme for INNS (Table 8).



Output 3.1 –Coordinated control, eradication and habitat restoration programmes established and operational.

Surveys will identify INNS distributions within the Beaulieu catchment. Survey information will be recorded and analysed to target nascent and “upstream or source” populations of INNS that are potential sources of spread and re-infestation.

Control and eradication programmes will be phased with treatment commencing at the upstream point of distribution and then systematically progressing downstream. A combination of trained volunteers, community groups, BFB staff and contractors will be used depending on the management requirements of the area involved and the resources available.







Envisaged mitigation, eradication and control measures for the INNS present in the Beaulieu catchment are presented below. Eradication and control activities will be undertaken in a strategic and systematic way that supports existing works and those in adjacent areas.

Table 8: INNS control and Education in the Beaully catchment		
Species	Action	Treatment/ Post-Treatment Actions
Japanese Knotweed	<u>Control/ Eradication</u> - by FLS contractors - by community groups - also by BFB staff with a few core volunteers, some trained. <u>Identify and Close pathways</u> The most upstream occurrence of JK appears to have been identified near Guisachan on FLS land.	- Chemical control with Glyphosate via stem injection/ spray - Link volunteers up with training where available.
Himalayan balsam	<u>Control/ eradication</u> - mostly by volunteers (e.g. Beaully Eco Group and other locals) with support from BFB. <u>Identify pathways and close.</u>	- Manual removal
American mink	<u>Control/ Eradication</u> - by volunteers and dispatchers co-ordinated and supported by BFB.	- Continued support to volunteers and further expansion to the volunteer network within the Beaully catchment.
American skunk cabbage	<u>Control/Eradication</u> - by BFB staff and volunteers	- Manual removal and chemical control
Crassula	Monitor distribution. Link landowners up with eradication advice	
Minnow/ pike/ perch	Restrict to present distribution	- Monitor distribution and reduce spread and introduction to watercourses utilising existing fisheries protection activities

9. Monitoring and Review

Biosecurity promotion and measures are being initiated within the Beaulieu catchment area by the BFB on behalf of Ness and Beaulieu Fisheries Trust. However, the continuation of this, for example after the end of the SISI programme, will be dependent on available resources and uptake by other stakeholders and partners. Any work completed will, however, be monitored and the results evaluated particularly in light of changing circumstances e.g. climate change.











To ensure the effective implementation of this plan, it is vital that the outcomes and impacts of the actions are monitored including a mid-plan review in 2025 to ensure that the objectives are being met. Thus, a fully co-ordinated monitoring programme must be established to ensure efficacy and sustainable treatment initiatives and include:

-  Assessment of efficacy of surveillance and rapid response systems;
-  Occurrence and distribution of the selected INNS within the district;
-  Effectiveness of control/eradication programme, including:
 - Application/delivery of effective concentrations of biocides
 - Checking that treatments have been effective
 - Re-treating immediately where there is doubt
 - Monitoring any apparent resistance to treatments
 - Surveying the area for signs of dormant plants becoming activated
-  Assessment of the ability to close established pathways of transmission;
-  Monitoring the effectiveness of all legislation and codes of practice especially those which are aimed at restricting/closing pathways; and
-  Monitoring general activities within the district and assessing them in terms of risk for the introduction of INNS.

A monitoring programme will be developed based on the agreed objectives and outputs of this plan. Monitoring activities will be undertaken by BFB staff in conjunction with stakeholder representatives who by virtue of their work are out in the catchment on a regular basis e.g. roads department and access officers employed by local councils.

This plan has an operational period of 10 years covering the years 2021 –2030. It will be subject to a mid-plan review in 2025 where significant changes or revisions can be made or updates included.

Appendix 1: Relevant Legislation

-  Section 14 of [The Wildlife and Countryside Act \(1981\)](#)¹⁸ makes it an offence to allow any animal (including hybrids) which is not ordinarily resident in Great Britain, to escape into the wild; or release it into the wild; or to release or to allow to escape from captivity, any animals that is listed on Schedule 9 of the 1981 Act. It is also an offence to plant or otherwise cause to grow in the wild any plant listed on schedule 9 of the 1981 Act.
-  Local Authorities have powers to take action against giant hogweed and Japanese knotweed where it is a threat to the local amenity of an area or if it is considered a statutory nuisance.
-  Section 179 of the [Town and Country Planning \(Scotland\) Act 1997](#)¹⁹ empowers local authorities to serve notice requiring an occupier to deal with any land whose condition is adversely affecting the amenity of the other land in their area.
-  The [Possession of Pesticides \(Scotland\) Order 2005](#)²⁰ regulates the use of pesticides and herbicides for the control and eradication of INNS.
-  [Environmental Protection Act 1990](#)²¹ contains a number of legal provisions concerning “controlled waste”, which are set out in Part II. Any Japanese knotweed or giant hogweed contaminated soil or plant material discarded is likely to be classified as controlled waste. This means that offences exist with the deposit, treating, keeping or disposing of controlled waste without a licence.
-  [The Waste Management Licensing Regulations 1994](#)²² define the licensing requirements which include “waste relevant objectives”. These require that waste is recovered or disposed of “without endangering human health and without using processes or methods which could harm the environment”.
-  [Controlled Waste \(Registration of Carriers and Seizure of Vehicles\) Regulations 1991](#)²³ and the Environmental Protection (Duty of Care) Regulations 1991 provide guidance for the handling and transfer of controlled waste.
-  The [Aquaculture & Fisheries \(Scotland\) Act 2007](#)²⁴ that regulates against the unauthorised introduction of fish to inland waters.
-  The [Salmon and Freshwater Fisheries \(Scotland\) Act 2003](#)²⁵ requires that permission be obtained to release fish into inland waters.
-  The [NetRegs](#)²⁶ and GB non-native species secretariat websites contain useful guidance on INNS and their control.

¹⁸www.legislation.gov.uk/ukpga/1981/69/2020-05-25, ¹⁹www.legislation.gov.uk/ukpga/1997/8/contents,

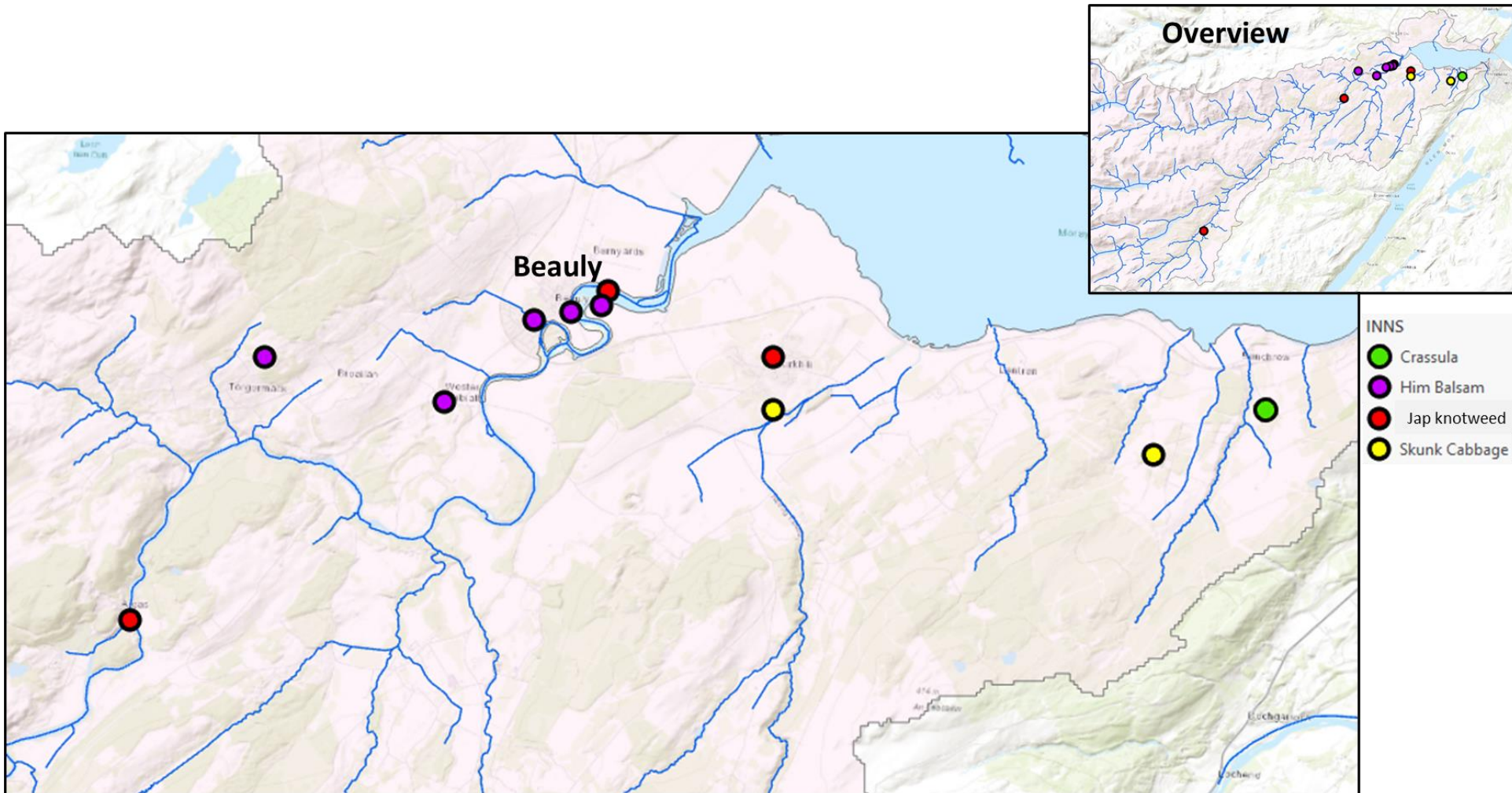
²⁰www.legislation.gov.uk/ssi/2005/66/contents/made, ²¹www.legislation.gov.uk/ukpga/1990/43/contents

²²www.legislation.gov.uk/uksi/1994/1056/contents/made, ²³www.legislation.gov.uk/uksi/1991/1624/contents/made




²⁴www.legislation.gov.uk/asp/2007/12/contents, ²⁵www.legislation.gov.uk/asp/2003/15/pdfs/asp_20030015_en.pdf,

²⁶www.netregs.org.uk

Appendix 2: Map of known INNS plants in the Beaulieu Catchment, January 2021 (excluding Rhododendron)



Appendix 3: INNS photos from GBNNS gallery (ID Guides available at <http://www.nonnativespecies.org/index.cfm?sectionid=47>)

Himalayan balsam	Japanese knotweed	Crassula helmsii
		
American skunk cabbage	American mink	Gyrodactylus (sciencephotolibrary)
