

River Spey Bio-Security Plan

2010 – 2015

FINAL VERSION 1



Prepared by

The Spey Foundation

March 2010

Scottish Charity (SC 005794)

What is Biosecurity?

Scotland’s Environmental and Rural Services 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 plan 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.

Abbreviations

Abbreviation	Organisation
ASSG	Association of Scottish Shellfish Growers
BTA	British Trout Association
DSFBs	District Salmon Fisheries Boards
FCS	Forestry Commission Scotland
MS	Marine Scotland
NNSS	Non Native Species Secretariat
RAFTS	Rivers and Fisheries Trusts of Scotland
SEPA	Scottish Environment Protection Agency
SFCC	Scottish Fisheries Co-ordination Centre
SF	Spey Foundation
SG	Scottish Government
SNH	Scottish Natural Heritage
SSPO	Scottish Salmon Producers’ Organisation
TWG	Tripartite Working Group

Table of Contents

Table of Contents.....	i
Executive Summary.....	ii
1. Scope and Purpose	1
2. Background.....	2
3. The Context.....	3
3.1 Biosecurity: The Nature of the Problem	3
3.2 Policy and Legislation.....	4
3.3 Existing Planning Framework.....	6
4. Scope of the Plan.....	7
4.1 Spey Fishery District.....	7
4.2 Summary of district land use	8
4.3 Biosecurity: Current and potential threats	9
4.3.1 Current biosecurity issues.....	9
4.3.2 Potential biosecurity issues.....	11
4.4 Stakeholders	13
4.5 Existing INNS control activities	14
5. Biosecurity management strategy	15
5.1 Objectives and outputs of Spey District Biosecurity Plan	15
5.2 Actions and Timeframes	21

Executive Summary

This plan describes the biosecurity issues of the Spey Fisheries District 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 establish a sustainable framework that will prevent, detect, control and eradicate invasive non-native species within the Spey district through appropriate management, data collection, liaison, and education’




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

Objective 1: Reduce the risk of the introduction and spread of identified INN species within the Spey district.

Objective 2: Develop coordinated detection and surveillance of, and rapid response to, new INN species

Objective 3: Develop coordinated control and eradication programmes for identified INN species



These objectives are in accordance with established protocols for fish diseases and with the three key elements of the [Invasive Non Native Species Framework Strategy for Great Britain](#)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 Spey district which would cause catastrophic economic and environmental loss.
-  A holistic and collaborative control programme of INN plants such as Giant hogweed which is a threat to human health.

¹ www.nonnativespecies.org

- 🌿 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.
- 🌿 The protection of the endangered water vole from American Mink and the rare stonefly, *Brachyptera putata* from siltation.
- 🌿 The prevention of species such as Zebra mussel from entering the district watercourse helps protect vital local businesses such as whisky distilleries as this species are extremely costly to mitigate against.

The table below presents the actions required to realise the objectives and outputs described in Section 5.1 along with the lead agency, key partners and timeframe required for their implementation.

Action	Lead	Partners	TIMEFRAME								
			2010	2010	2011	2011	2012	2013	2014	2015	2016
Objective 1: Reduce the risk of the introduction and spread of identified INN species within the Spey district.											
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											
Launch of Spey Biosecurity plan through national and local press release	Spey Foundation			—							
Produce leaflet on legislation including waste management & planning regulations	Highland & Moray Councils	AAG		—							
Produce posters on biosecurity issues and distribute to the general public	RAFTS	SF AAG Highland Council, SNH		.....						
Continue to promote and install disinfection facilities for anglers at all angling proprietors fishing huts/parking points	Spey Fishery Board & Foundation		.....							
Distribute Codes and posters to relevant retail outlets and clubs at open days and events such as agricultural shows	HISFI/SF	SF AAG members			.....					
Engage with Landowners and angling clubs to promote awareness of measures to tenants, resource – users, members and visitors	Spey Foundation	CNPA, SFB, AAG, Angling Associations, River User Groups, SNH		—							

Action	Lead	Partners	TIMEFRAME								
			2010	2010	2011	2011	2012	2013	2014	2015	2016
Work with environmental groups and local schools to enhance awareness of INNS	Spey Foundation	Spey Anglers Association, SNH			.....	.....	.....	.....	.....	.....
Objective 2: Develop coordinated detection and surveillance of, and rapid response to, new INN species											
Output 2.1 - 'Reporting system' established for INN species in district.											
Train SF/SFB staff in the identification of INNS	SF/SFB	RAFTS		=====							
Train SF as trainers	SF/SFB	RAFTS		=====							
Work with user and interest groups to identify "reporting network"	SF/SFB	Local Council AAG SEPA		=====							
Training of "reporting network"	SF/SFB	RAFTS/LBAP SEPA		=====		=====	=====	=====	=====	=====	
Establish, test and refine communication mechanisms within 'early warning' system	SF/SFB	RAFTS SEPA National		=====							
Produce database to record and manage INNS sightings	RAFTS			=====							
Monitor and periodically evaluate efficacy of system	SF & other partners			.....	.....	.....	.....	.....	.....	.....
Output 2.2 – Develop strategic monitoring of INN species in district.											
Develop and agree protocols	SFCC	SEPA/SNH		=====							
Produce database to manage INNS survey data	SFCC	SEPA SNH		=====							
Training of Trust and other agency staff in monitoring methods	SF	SFCC/RAFTS SEPA Highland Council		.....	.....	.....	.....	.....	.....	.....
Develop monitoring manual	SFCC	RAFTS SEPA (National)		=====							
Output 2.3 – Rapid response mechanism established for new INN species which pose significant threats to local biodiversity and economy.											
Formulate contingency plans for key species	RAFTS, SF	Highland & Moray Council SEPA and SNH,		=====							
Identification of personnel for response teams	SF,	Highland & Moray Council SEPA and SNH,		=====							

Action	Lead	Partners	TIMEFRAME								
			2010	2010	2011	2011	2012	2013	2014	2015	2016
Training of personnel to execute contingency plans	SF,	Highland & Moray Council SEPA and SNH		—	—						
Identification of funding resources	RAFTS, SF	Highland & Moray Council, SEPA and SNH, RAFTS		.....	.....	.....	.....	.....	.....	.....
Refresher training	SF	RAFTS, SNH					—	—	—	—	—
Monitor populations/treated areas	SF	SNH, SEPA		.....	.....	.....	.....	.....	.....	.....
Objective 3: Develop coordinated control and eradication programmes for INN species											
Output 3.1 – Coordinated control, eradication and habitat restoration programmes established and operational											
Initiate and complete catchment wide surveys by trained personnel	SF	SFCC Water User Groups		—————	—————	—————	—————	—————			
Develop GIS database for recording and mapping INNS within Spey district	SF	SFCC, SEPA		—							
Continuation of Mink eradication programme	Mink Project	SFB, RAFTS	—	—	—	—	—	—	—	—	—
Implementation of phase 1 of INNPS control/ eradication programme	SF	Water User Groups SEPA ²		—	—	—	—	—	—	—	—
Implement habitat restoration scheme within successful control areas taking into account all relevant species	SF	Water User Groups SEPA ³			—	—	—	—	—	—	—
Monitor the effectiveness of control programmes	SF	SEPA		—	—	—	—	—	—	—	—
FRS monitoring Red vent syndrome	Marine Scotland			—————	—————	—————	—————	—————	—————	—————	—————
Output 3.2 - Coordinate activities with SEPA AAG and relevant others to ensure continuity of prevention and control of INNS within the Spey District											
Complete draft Biosecurity plan	SF	RAFTS	—								
Consultation with all stakeholders to agree Biosecurity plan	SF		—								

² May be eligible for funding from the Restoration Fund

³ May be eligible for funding from the Restoration Fund

Action	Lead	Partners	TIMEFRAME									
			2010	2010	2011	2011	2012	2013	2014	2015	2016	
Discuss INNS continuity issues at Highland Invasive Species Forum and SEPA AAG	SF	Highland Invasive Species Forum SEPA AAG	---	---	---							
Identify and develop opportunities for future funding of eradication projects	SF	Highland Invasive Species Forum SEPA AAG FC SNH		---	---	---	---	---	---	---	---	---

1. Scope and Purpose

This plan describes the biosecurity issues of the Spey Fishery District 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 establish a sustainable framework that will prevent, detect, control and eradicate invasive non-native species within the Spey district through appropriate management, data collection, liaison, and education’




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

Objective 1: Reduce the risk of the introduction and spread of identified INN species within the Spey district.

Objective 2: Develop coordinated detection and surveillance of, and rapid response to, new INN species

Objective 3: Develop coordinated control and eradication programmes for identified INN species



These objectives are in accordance with established protocols for fish diseases and with the three key elements of the [Invasive Non Native Species Framework Strategy for Great Britain](#)⁴:

-  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 Spey district which would cause catastrophic economic and environmental loss.
-  A holistic and collaborative control programme of INN plants such as Giant hogweed which is a threat to human health.

⁴ www.nonnativespecies.org

- 🌿 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.
- 🌿 The protection of the endangered water vole from American Mink and the rare stonefly, *Brachyptera putata* from siltation.
- 🌿 The prevention of species such as Zebra mussel from entering the district watercourse helps protect vital local businesses such as whisky distilleries as this species are extremely costly to mitigate against.

2. Background

Although prepared by the Spey Foundation (SF), this plan is one of a set of 20 biosecurity plans being produced throughout Scotland as part of a national programme of action implemented through the Rivers and Fisheries Trusts of Scotland (RAFTS) with backing and support from the Scottish Government (SG), Scottish Natural Heritage (SNH), Scottish Environment Protection Agency (SEPA) and the Esmeé Fairbairn Foundation (EFF).

The need for action on biosecurity issues has been identified in the Trust's new Fisheries Management Plan ([Spey Fisheries Management Plan 2009-2014](#)⁵) and in the Draft [North East Scotland Area Management Plan](#)⁶ 2009-2015. This biosecurity plan provides a platform for local action to address those biosecurity issues. This plan has a lifespan of six years and as part of an adaptive management cycle its outcomes and impacts will be reviewed and incorporated in the next generation plan. Although this plan is not a legal instrument in itself it utilises existing legal and regulatory instruments to support the implementation of its actions and in pursuance of the realisation of its objectives. As such 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.

The plan was produced using a participatory planning process coordinated by the Spey Foundation through which stakeholders identified and agreed the aims, outputs and actions presented in this plan. The plan builds partnerships of differing groups of stakeholders to implement the actions required to address the complex issues associated with biosecurity. This plan therefore represents the agreed approach of the Spey Foundation, stakeholders and appropriate local regulatory for the prevention, early detection and control of non native invasive species, fish diseases and parasites. As the spread of INNS is not isolated to Speyside this plan will also facilitate coordination and communication with the neighbouring fisheries Trusts, Boards, local authorities and other stakeholders of neighbouring areas e.g Findhorn, Nairn and Lossie, Tay and Deveron, Bogie and Isla.

⁵ <http://www.rafts.org.uk/projects/fisheriesmanagementplanning>

⁶ http://www.sepa.org.uk/water/river_basin_planning

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 first 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.

A [survey](#)⁷ commissioned by Scottish Natural Heritage in 2000, shows there are approximately 1000 non native species present in Scotland the majority of which exist in small populations with little impact on native flora and fauna. However, a small but significant proportion of these non native species are invasive.

Invasive non native species (INNS) 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.

According to [CBD \(2006\)](#)⁸, **invasive non native species (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:

-  [DEFRA](#)⁹ have estimated that INNS cost the UK economy £2 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 \(2003\)](#)¹⁰ has estimated the total cost of its removal using current techniques at £1.56bn.

⁷ www.snh.org.uk/pdfs/publications/review/139.pdf

⁸ <http://www.cbd.int/gbo2>

⁹ <http://www.defra.gov.uk/wildlife-countryside/wildlife-manage/non-native/index.htm>

¹⁰ <http://www.defra.gov.uk/wildlife-countryside/pdf/wildlife-manage/non-native/review-report.pdf>

- 🌿 A Scottish Government [report](#)¹¹ estimated the potential Net Economic Value loss to Scotland of the introduction of *Gyrodactylus salaris* at £633 million with severe consequences for rural communities.
- 🌿 A Forestry Research [Report](#)¹² estimates 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.

There is also a growing recognition of the impacts of **translocated species**. Translocated species are native species that have been transported outside of their natural range and they can also have severe ecological impacts. Examples of translocated species that are impacting the ecology of Scotland's rivers and lochs are the minnow (*Phoxinus phoxinus*) and ruffe (*Gymnocephalus cernuus*). The ruffe in particular has decimated the once significant and diverse population of the rare and protected Powan (*Coregonus lavaretus*) in Loch Lomond.

Without a coordinated and systematic approach to the prevention of introduction and control of the spread of INN species and fish diseases, it is likely that the ecological, social and economic impacts and the costs for mitigation, control and eradication of these species and diseases will continue to increase. This plan is the first step to set out and implement such an approach at a local level for selected species and diseases that significantly impact freshwater fisheries and the aquatic environment. This local plan and its implementation is also part of a strategic and coordinated approach to INNS management being undertaken across Scotland by RAFTS members.

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 necessary to address the biosecurity issues of the Spey District. These approaches are consistent with the [GB Invasive Non Native Species Framework Strategy](#)¹³ and the [Species Action Framework](#)¹⁴ both of which have been 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:

¹¹ www.scotland.gov.uk/resource/doc/1062/0042434.pdf

¹² [http://www.forestresearch.gov.uk/pdf/Argyll_Bute_rhododendron_2008_costs.pdf/\\$FILE/Argyll_Bute_rhododendron_2008_costs.pdf](http://www.forestresearch.gov.uk/pdf/Argyll_Bute_rhododendron_2008_costs.pdf/$FILE/Argyll_Bute_rhododendron_2008_costs.pdf)

¹³ www.nonnativespecies.org

¹⁴ www.sng.org.uk/speciesactionframework

- 🌿 Section 14 of [The Wildlife and Countryside Act \(1981\)](#)¹⁵ 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](#)¹⁶ 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](#)¹⁷ regulates the use of pesticides and herbicides for the control and eradication of INNS.
- 🌿 [Environmental Protection Act 1990](#)¹⁸ 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](#)¹⁹ 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](#)²⁰ and the [Environmental Protection \(Duty of Care\) Regulations 1991](#)²¹ provide guidance for the handling and transfer of controlled waste.
- 🌿 [The Aquaculture & Fisheries \(Scotland\) Act 2007](#)²² that regulates against the unauthorised introduction of fish to inland waters.
- 🌿 The [Prohibition of Keeping or Release of Live Fish \(Specified Species\) Order 2003](#)²³ requires that a licence be obtained for the keeping or release of species listed on Schedules 1 and 2.
- 🌿 The [NetRegs](#)²⁴ website contains useful guidance on INNS and their control

¹⁵ www.opsi.gov.uk/RevisedStatutes/Acts/ukpga/1981/cukpga_19810069_en_1

¹⁶ www.opsi.gov.uk/acts/acts1997/ukpga_19970008_en_1

¹⁷ www.opsi.gov.uk/legislation/scotland/ssi2005/20050066.htm

¹⁸ www.opsi.gov.uk/acts/acts1990/ukpga_19900043_en_1

¹⁹ http://www.opsi.gov.uk/si/si1994/uksi_19941056_en_1.htm

²⁰ www.opsi.gov.uk/si/si1991/uksi_19911624_en_1.htm

²¹ www.opsi.gov.uk/si/si1991/uksi_19912839_en_1.htm

²² http://www.opsi.gov.uk/legislation/scotland/acts2007/asp_20070012_en_1





²³ <http://www.scotland.gov.uk/resource/doc/47133/0009766.pdf>

²⁴ <http://www.netregs.gov.uk/netregs/default.aspx>

The procedures for the detection, notification and control of fish diseases 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.

3.3 Existing Planning Framework

This Biosecurity Plan links Government policy, legislation and strategic action with local actions, and reflects the provisions and requirements of the following existing plans (see also Table 1):

-  The Spey Fisheries Management Plan 2009-2014,
-  The North East Scotland Area and River Basin District Management Plans,
-  Spey Catchment Management Plan 2003,
-  Cairngorm and NE Scotland Local Biodiversity Action Plans.

Furthermore, it supports the conservation objectives of designated conservation areas (SAC, SSSI) in the Spey district.

Table 1 Identified Actions in the Spey Foundation Biosecurity Plan supporting provisions or requirements of other relevant plans

Provision or Requirement of Existing Plan	Action in DFD Biosecurity Plan
<p>Plan: The Spey Fisheries Management Plan²⁵ 2009-2014.</p> <p>Provision/s: Produce and implement a Biosecurity plan for the district.</p>	<p>This plan fulfils the requirement of the Spey District FMP to produce a biosecurity plan. Its key elements are to prevent introduction of new high impact INNS as well as the control and where possible eradication of existing populations.</p>
<p>Plan: Gyrodactylus salaris (Gs) Contingency Plan²⁶:</p> <p>Provision/s: A strategy to rapidly contain and eradicate Gs if introduced to Scotland.</p>	<p>Formulate rapid response protocols for new INN species which pose significant threats to local biodiversity and economy</p>
<p>Plan: North East of Scotland Biodiversity Action Plan²⁷</p> <p>Provision/s: Where necessary employ appropriate mink control as a conservation tool to protect large breeding water vole populations. (5.3.2) (5.3.3).</p>	<p>Continue existing collaboration with the North East Water Vole Project and commence new control programmes within areas not yet covered.</p>
<p>Plan: River Spey Catchment Management Plan²⁸.</p> <p>Provision: Further the knowledge and understanding of the impact of rainbow trout on native fish species and co-ordinate fish farming with other fishery activities.</p>	<p>Continue and increase awareness of the impacts of INNS species.</p> <p>Ensure all riverine & coastal water users comply with codes of best practice to minimise risk of INNS species introduction, spread and cross catchment contamination.</p> <p>Continue annual inspection of commercial fishery 'screens'.</p>

²⁵ www.rafts.org.uk/projects/fisheriesmanagementplanning.asp

²⁶ www.scotland.gov.uk/Topics/Fisheries/Fish-Shellfish/18610/diseases/g-salaris/GsCGrev

²⁷ www.ukbap.org.uk/lbap.aspx?ID=431

Provision or Requirement of Existing Plan	Action in DFD Biosecurity Plan
<p>Plans supporting designated conservation areas (SACs and SSSIs). Scotland's Biodiversity: A strategy for the conservation and enhancement of biodiversity in Scotland²⁹.</p>	<p>Supports the conservation of biodiversity target species through the control and eradication of INNS detrimental to their ecology</p>
<p>The RBMP for Scotland³⁰</p> <ul style="list-style-type: none"> • identification of appropriate actions to manage species that threaten high and good status sites, together with identification of potential sources of re-infestation in the surrounding area; • establishment of detection /surveillance /control strategies for problem species; • risk assessment of pathways for entry of problem species into the Scotland river basin district; • research and development to define species causing deterioration of good ecological status/potential and to identify new methods of control; and <p>development of biosecurity plans to prevent movement of species between catchments and respond quickly to new infestations</p>	<p>RBMPs can help facilitate a coordinated and widespread response to biosecurity issues through the area advisory groups (AAGs) and the implementation of the area management plans by:</p> <ul style="list-style-type: none"> • Raising awareness of biosecurity issues • Acting as a conduit for national initiatives into the local management sphere • Develop and encourage catchment-based approach to control and eradication • Ensure control methods do not impact on the water environment <p>Monitoring and reporting progress</p>

4. Scope of the Plan

4.1 Spey Fishery District

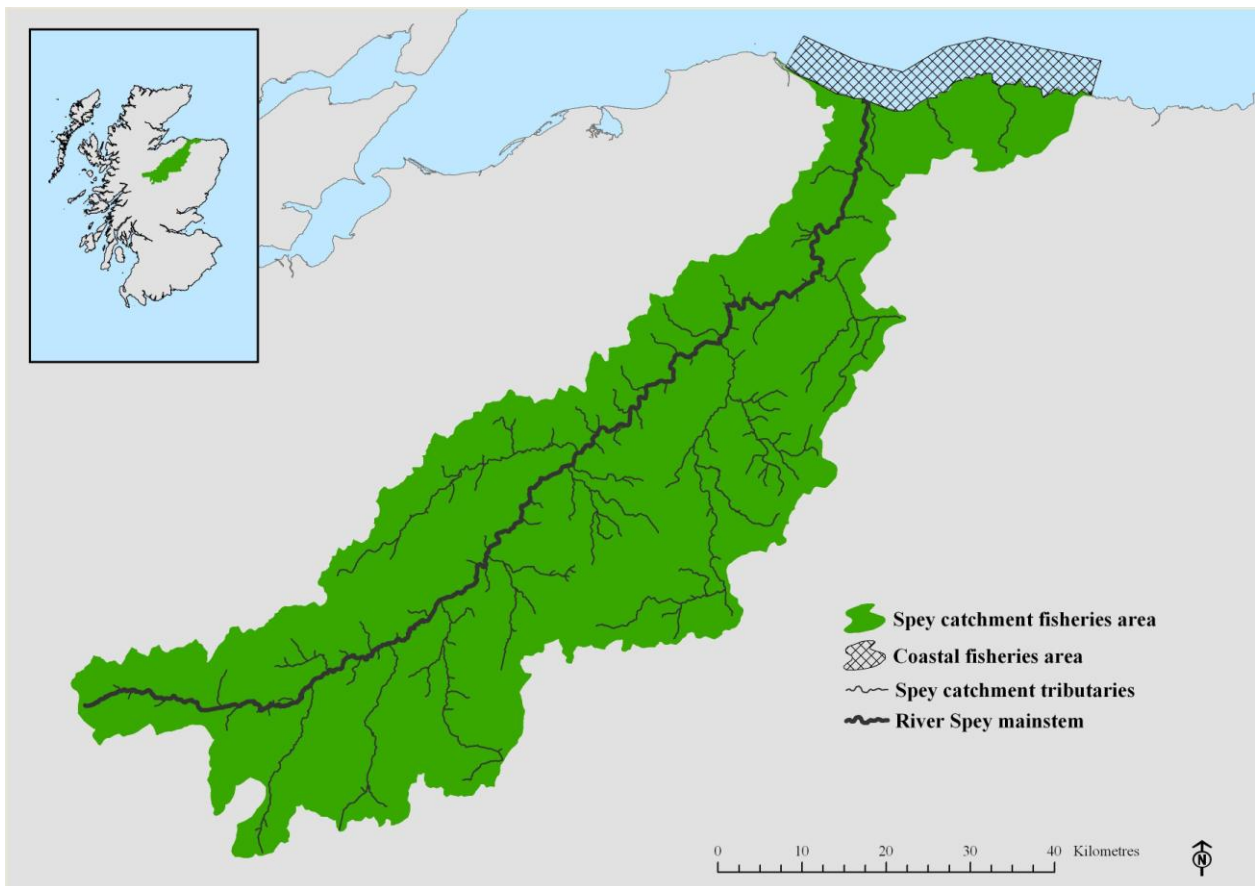
The Spey Biosecurity Plan (SBP) covers the management area of the Spey Fishery Board (SFB) within the Highland Council and Moray Council regions (Map 1). The district comprises of the river Spey and its tributaries and all other watercourses that discharge into the Moray Firth, between Cowhythe Head to the east and Lossiemouth to the west, including the Cullen Burn, Buckie Burn and Tynet Burns. The Spey itself supports an internationally renowned salmon and sea trout fishery with fishing for brown trout, charr and pike also available. In terms of salmon catches it is regularly in the top three rivers in Scotland. The Spey also contains several commercial rainbow trout put and take fisheries. These include Rothies Glen, Rothiemurchus, Craggan and Inverlochty.

The Spey borders with the Deveron Fishery Board to the east and the Lossie and Findhorn Fisheries Boards to the west.

²⁸ http://www.sepa.org.uk/water/river_basin_planning

²⁹ www.scotland.gov.uk/Publications/2004/05/19366/37239

³⁰ www.sepa.org.uk/water/river_basin_planning.aspx



Map 1: Spey Fishery District

4.2 Summary of district land use

The catchment is split between two Local Authority administrations, the Highland and Moray Councils, and 63% of the catchment is within the Cairngorms National Park (Figure 2).

Badenoch, Strathspey and Speyside can be classed as a low population density area. The settlement pattern is one of small planned towns housing less than 3,000 residents, e.g. Kingussie, Granttown, Aberlour and Fochabers, and, small villages of less than 500 residents, e.g. Nethybridge, Carrbridge, Craigellachie and Garmouth. However, recent years has seen a substantial growth in housing within the Aviemore area increasing demands for water supply in particular.

Hill farming, forestry and sporting estates dominate the land-use pattern in the upper catchment, while cattle rearing, extensive commercial forestry and arable farming become more prevalent as the valley floor widens.




The flow of water through the catchment is monitored by SEPA, using a network of gauging stations. The lowest station at Boat o'Brig shows an average daily flow of about $65\text{m}^3\text{s}^{-1}$ with a dry weather flow of about $19\text{m}^3\text{s}^{-1}$. There are two major sources of potable water abstraction in the River Spey catchment, a surface water abstraction from Loch Einich and a groundwater abstraction from the river terrace gravels at Fochabers (the Dipple Wellfield). There also remain a few local village supplies as well as numerous private sources.

There are two main hydro schemes in operation in the upper catchment. Firstly, Scottish & Southern Energy plc diverts water from the catchments of the rivers Tromie and Truim to Loch Ericht (Tummel/Tay

catchment). Secondly, Rio Tinto Alcan diverts water from the upper Spey at Spey Dam to Loch Laggan for hydro-power generation at Fort William.





4.3 Biosecurity: Current and potential threats

This section identifies 31 INNS and fish diseases for inclusion in the Spey Foundation Biosecurity Plan of which 18 high priority species will be the main focus for action. The priority species were identified as those that:

-  Already exist within the Spey 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.

4.3.1 Current biosecurity issues

Current biosecurity issues are associated with seven INNS, one translocated native species and one fish parasite that are currently found in the Spey catchment:

-  American mink (*Mustela vison*) is present throughout the Spey catchment and is likely to be also present on coastal rivers. Mink spread by migration and kill water fowl, small mammals and juvenile salmon and trout. Mink are linked to the decline of water voles in the Cairngorms National Park area with 94% of sites occupied by water voles in the 1950s now being unoccupied. A mink eradication project is now underway in the Cairngorms area of the catchment and is already producing some success.
-  Japanese knotweed (*Fallopia japonica*) is now extensive along the lower Spey catchment and some smaller burns. 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 also present in the lower catchment and often associated with areas of Japanese knotweed. 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 river banks of understory vegetation. Winter dieback of the plants exposes soil to erosion.
-  Giant hogweed (*Herculeum mantegazzianum*) is widespread in the lower catchment particularly near the mouth of the Spey. 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. Dense stands can hinder access. 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 river banks and increased sedimentation.

- 🌿 Rainbow trout (*Oncorhynchus mykiss*) are present in several put and take fisheries and reared for the table market at Rothiemurchus. Rainbow trout have been introduced to smaller lochs throughout the area for angling. Although there are no complete records of stocking or distribution. 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 found through the mainstem Spey and in some tributaries. They are a translocated species introduced into the Spey district by anglers. 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.
- 🌿 Other Non Native Fish (incl Goldfish, Tench, Orfe, Roach, Rudd, Carp, Asp) Indiscriminate and misguided stocking of these fish species occurred throughout the late 1990s and has led to populations of Roach and Rudd establishing in some Lochs and ponds within the catchment. These can compete with existing fish populations for food and habitat. Removal is difficult although in one pond location this may be possible.
- 🌿 *Anasakis sp* is a nematode worm that causes Red Vent Syndrome (RVS). RVS has been found in salmon in over 50 Scottish rivers since June 2007. It can cause varying degrees of bleeding and swelling to salmon vents and it may also affect humans who become infected from eating raw meat for example sushi.
- 🌿 Ranunculus (*Ranunculus sp.*) Ranunculus is part of the water crowfoot plant family and grows extensively in the mainstem river Spey. It is native to many rivers in the British Isles but not to the Spey where it was introduced in the early 1970s reputedly from a pond near Grantown-on-Spey and spread rapidly from there downstream. Chemical control through “Midstream” was highly effective however the active ingredient is now banned for use in freshwater within the EU. Thus only hand removal is available. Prospects for new chemical controls are limited but need to be pursued. Ranunculus grows in long strands and roots into the substrate. The plant also collects substrate around the root base which can choke substrate and habitat from both salmonids and pearl mussels. At peak growth it can completely choke pools rendering them difficult to fish.
- 🌿 Canadian pondweed (*Elodea canadensis*) has been reported in the Spey district but an improved survey or assessment is required to ascertain its distribution. 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.
- 🌿 Rhododendron (*Rhododendron ponticum & hybrids*) is present in many locations throughout the middle and lower Spey and coastal river catchments but is not a significant threat. 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.

4.3.2 Potential biosecurity issues

The invasive non native species listed below are not currently present within the Spey district. 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 uses within the Spey 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 six High Threat level species that could be introduced into the Spey district and they include one fish parasite, three freshwater invertebrates and two aquatic plant species (Table 3).

Table 3 High threat level species their impacts and risk of introduction

SPECIES	RISK OF INTRODUCTION	LOCAL IMPACTS
<i>Gyrodactylus salaris</i> (Freshwater external parasite of salmon)	High- Through unintentional introduction from anglers and water sport enthusiasts through: <ul style="list-style-type: none"> ▪ Contaminated fish ▪ Clothing/equipment which has been in contact with infected water including canoes ▪ Ballast water 	<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>Pacifasticus leniusculus</i>)	<ul style="list-style-type: none"> ▪ High- Through intentional/ unintentional introduction from an existing population in the nearby River Nairn. 	<ul style="list-style-type: none"> ▪ Burrows into river banks causing destabilisation ▪ Diet include small fish, fish ova and invertebrates
Australian swamp stonecrop (<i>Crassula helmsii</i>)	High – Through introduction from two existing populations nearby other pathways include: <ul style="list-style-type: none"> ▪ Garden trade³¹ ▪ Disposal of garden waste ▪ Spread by animals and human activity 	<ul style="list-style-type: none"> ▪ Suited to a wide range of slow moving freshwater systems. ▪ Out competes native species. ▪ Forms dense carpets choking ponds and ditches. ▪ Reduced light levels below dense growths can cause die off of waterweeds and algae and reduce water oxygen levels

³¹ Note that although the sale of species that are or can become invasive is not illegal, garden centres should be made aware of the impacts of known or potential INNS if they are released into the wild.

SPECIES	RISK OF INTRODUCTION	LOCAL IMPACTS
Zebra mussel (<i>Dreissena polymorpha</i>) Freshwater Bivalve	Medium -through unintentional introduction from contaminated boat/canoe hulls and engines and bilge water.	<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.	Medium -through unintentional introduction from boat hulls and live food trade.	<ul style="list-style-type: none"> ▪ Burrowing in high density populations damages river banks ▪ Concern over impacts on local species ▪ Intermediate host for the mammalian lung fluke <i>Paragonimus ringer</i>, known to infect humans
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 water fowl 	<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 15 Medium Threat level species of which there is a high risk of introduction for two species, a medium risk for eight species and a low risk for five species (see Table 4 below).

Table 4 The risk of introduction of Medium Threat level INNS.

SPECIES	RISK OF INTRODUCTION	
Ruddy duck (<i>Oxyura jamaicensis</i>)	High	Could migrate from a number of locations in eastern Scotland
Water primrose (<i>Ludwigia grandiflora</i>)	Medium	Unintentional introduction from boat hulls and ponds
Water fern (<i>Azolla filiculoides</i>)	Medium	Through intentional/unintentional introduction from numerous locations throughout Scotland, especially central belt
Slipper limpet (<i>Crepidula fornicate</i>)	Medium	Through unintentional introduction
Didemnum Tunicates / sea squirts (<i>Didemnum vexillum</i>)	Medium	Unintentional introduction from marine fishing boat hulls
Wireweed (<i>Sargassum muticum</i>)	Medium	Through unintentional introduction
Ruffe (<i>Gymnocephalus cernuus</i>)	Medium	Currently recorded in central Scotland and could be introduced as live bait or in ballast water
Bullhead (<i>Cottus gobio</i>)	Medium	Translocated species recorded in central Scotland that could be introduced deliberately or as live bait
Common cord grass (<i>Spartina anglica</i>)	Medium	One location near St Andrews
Large flowered waterweed (<i>Egeria densa</i>)	Low	Only found to date in East Lothian. Possible introduction from ponds
Floating pennywort (<i>Hydrocotyle ranunculoides</i>)	Low	Currently only in England up to the midlands. Possible introduction from ponds
Parrot's feather (<i>Myriophyllum aquaticum</i>)	Low	Through intentional/unintentional introduction from two existing populations in the south of Scotland
Fanwort (<i>Cabomba caroliniana</i>)	Low	Only found in one location in southern Scotland possible introduction from ponds
Asian topmouth gudgeon (<i>Pseudorasbora parva</i>)	Low	Currently only recorded from 5 locations in England. Could be introduced as live bait, in ballast water or as releases from aquaria

From Tables 3 and 4, the main pathways or means of introduction of both High and Medium Threat level species into the Spey district are:

- 🌿 Intentional introduction or planting
- 🌿 Fouling and ballast water of marine vessels
- 🌿 Fouling and ballast water of freshwater vessels
- 🌿 Escapes from garden ponds
- 🌿 Contaminated water sports equipment (e.g. from anglers, canoeists)
- 🌿 Movement of contaminated soils or vehicles
- 🌿 Improper control and disposal measures e.g. cutting and dumping without treatment.

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

4.4 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:

- **Policy and Legislation**
 - Scottish Government Edinburgh
 - Scottish Natural Heritage
 - Scottish Environment Protection Agency
 - Marine Scotland
 - Association of Salmon Fishery Boards
 - Rivers and Fisheries Trusts Scotland
- **Land Resources**
 - Cairngorms Nation Park Authority
 - Forestry Commission
 - Highland Council
 - National Farmers Union
 - Highland Invasive Species Forum
 - Landowners Association
- **Water Resources**
 - North Highland Area Advisory Group
 - Scottish Water
 - Scottish and Southern Energy
- **Fisheries Management**
 - All local Moray Firth Fishery
 - Association of Still Water Fisheries
- **Recreation**
 - Canoe Clubs
 - Ramblers Association
 - Local Angling Associations

➤ **Conservation and Biodiversity**

Scottish Wildlife Trust

Royal Society for the Protection of Birds

Scottish Native Woods

Local Biodiversity Action Groups (Cairngorms and Highland)

Plant Life

Highland Biological Recording Group

British Trust for Conservation Volunteers

Other groups that are also important for the prevention of introduction and spread of INNS were identified from an analysis of the pathways presented in Table 5.

Table 5 Pathways and stakeholder groups in the Spey District

Pathway	Stakeholders
Intentional introduction or planting	Plantlife, riparian landowners, members of the public, Marine Scotland, local councils
Fouling and ballast water of marine vessels	Local harbour authorities/SEPA
Fouling and ballast water of freshwater vessels	Port Authority/SEPA/UK Government; local canoe and water sports organisations
Sale from garden or pond centres	Horticultural Trade Association/Ornamental Fish Producers
Contaminated water sports equipment (e.g. from anglers, canoeists)	SFB, Local canoe/water sports organisations, anglers, angling associations, fishing agents and tackle shops.
Escapes from fish farms, ponds, gardens, and desmesnes.	Marine Scotland/ SEPA/ Planning Authorities/ Plantlife/ riparian owners/ members of the public
Movement of contaminated soils or vehicles	Local Councils/SEPA/quarries/ building contractors
Improper control and disposal measures e.g. cutting and dumping without treatment	Local councils/SEPA/environmental health/ Plantlife/riparian owners/members of the public

This plan identifies key actions required to change the behaviour and practices of the above groups so as to reduce the opportunities for the introduction and spread of INNS and fish diseases.

4.5 Existing INNS control activities

Control of INNS has been patchy in recent years partly due to lack of a co-ordinating body and finance. However, the recent mink control project in the Cairngorms indicate that success can be gained. Control of hogweed has been conducted by the Moray Council but in recent years they have only had sufficient resource to control the weed on their own estate land or land where it is likely to affect the public. There is some control on of Japanese knotweed and Himalayan balsam by estate proprietors but at best this is piecemeal. Similarly although populations of roach rudd and possible orfe have established eradication is difficult to fund and achieve. A recent attempt to clear Grantown pond did receive funding but the necessary expertise to carry out the removal was unavailable.

Effective control of *Ranunculus* had been previously realised using chemical treatments with the active ingredient Dichlobenil (e.g “Midstream”). However, the recent ban of Dichlobenil for use in freshwater by the EU has left only hand removal as the only means of removal. In deep fast flowing rivers this is not

a realistic option. There is a clear need for the development and testing of effective control of nuisance aquatic plants such as *Ranunculus*.

This plan will include and support ongoing existing INNS control programmes.

Gyrodactylus salaris

During 2007 as part of a national campaign, the Spey Fishery Board instigated a publicity campaign to prevent the introduction and spread of the parasite *Gyrodactylus salaris*. Interviews were given to local press and leaflets and posters distributed to angling and canoeing outlets. Information and warning signs were also installed at access points to rivers. In addition to the publicity campaign, anglers fishing in the district now sign a declaration form before fishing to ensure that their equipment is free from possible infection. This effort is ongoing each year.

Highland Invasive Species Forum




Formed in June 2008 its aims are to:

- bring together the key players and take stock of the situation regarding invasive non-native species in Highland;
- raise awareness and spread good practice;
- identify any major gaps and prioritise key areas for future work; and
- work together to secure new resources and funding.

The forum has identified five key INNS, *Rhododendron ponticum*, Japanese knotweed, Himalayan balsam, giant hogweed and mink as high priority species and recently completed mapping their distributions in the area. A strategy has been produced and a Highland Rhododendron Officer appointed. The forum collaborates with the RAFTS Biosecurity and Invasive Species Programme and also supports control work of riparian INNS being undertaken by four fisheries trusts in the Highlands.

5. Biosecurity management strategy

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

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

5.1 Objectives and outputs of Spey District 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 GB Awareness and Communication Strategy. 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: Reduce the risk of the introduction and spread of identified INN species within the Spey district.

- 🌿 **Output 1.1 – All key stakeholders aware of;**
 - **The ecological and economic impacts of INNS**
 - **The potential pathways for introduction and spread.**
 - **Management best practices to prevent introduction and spread.**

Awareness activities will be focussed on addressing the identified local priorities as well as supporting the GB Awareness and Communication strategy and its key messages to the general public:

- 🌿 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
- 🌿 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

The local priorities for awareness will focus on disrupting the pathways for the introduction and spread of INNS in the Spey Fisheries District. The key stakeholders, the identified areas of priority and the proposed mechanisms for delivery are presented in Table 6 below. The roles and actions of key government agencies and non government bodies in promoting awareness of INNS issues is presented in Table 7.

Table 6 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"> - SF to work with local industry and trade associations to advise members regularly of best practice in respect of INNS - SF and FHI to undertake site visits to discuss and advise on issues involving INNS e.g. rainbow trout - Invasive Species Scotland³² 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"> -SF to work with garden centres to encourage distribution of codes of practice and posters such as Be Plantwise and Scottish Plantlife campaigns.
Hydro and water transfer agencies	<ul style="list-style-type: none"> -Risk of cross catchment transfer of INNS 	<ul style="list-style-type: none"> -SF to liaise with these agencies to minimise risks
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"> -SF to work with retailers to encourage distribution of codes and posters (available from Plantlife and Be Plantwise)

³² www.invasivespeciesscotland.org.uk

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	-SF to work with associations to promote disinfection of equipment and provide appropriate facilities to eliminate the risk of accidental transfer of INNS -RYA campaign -FACT campaign and web site -Invasive Species Scotland website
Landowners & Farming Units	- Promote knowledge of biosecurity issues amongst all tenants and resource users - Identification of suitable persons to act as “eyes” for the SF	-Work with SF to ensure dissemination of best practices and appropriate signage to reduce threats from INNS -SF to offer training for “eyes” -Invasive Species Scotland 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”	-Work with SF to ensure dissemination of best practices and appropriate signage to reduce threats from INNS -SF to work with associations to promote disinfection of equipment and provide appropriate facilities to eliminate the risk of accidental transfer of INNS -SF to offer training for “eyes” -Invasive Species Scotland website
Schools	- General awareness of impacts and measures to prevent/control INNS	-School visits -Field trips -Invasive Species Scotland website
Contractors / Ground Maintenance Workers	- General awareness of impacts and measures to prevent/control INNS	- Work with SF to ensure dissemination of best practices - SF to offer training for “eyes” Invasive Species Scotland website

Table 7 Roles and/or actions of key government and non government agencies in promoting awareness of INNS issues

Organisation	Role and/or action	Delivery Mechanisms
SF	- Promote awareness to key water user groups promoting the Biosecurity Plan and highlighting the dangers from INNS - Disseminate material from broader awareness campaigns	- Promote and launch Biosecurity Plan - See actions for SF above - Holding of open days, field visits and demonstrations
SFB	-Continue to promote awareness to anglers and angling clubs of the dangers arising from INNS.	-Continue to promote disinfection of equipment and provide appropriate facilities - Holding of open days, field visits and demonstrations
Highland and Moray Councils	- 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	- Councils to promote codes of best practice at every opportunity e.g. including them with 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 -Distribute leaflets with council tax bills - Display posters (produced by RAFTS) in council offices, libraries and other public places
SEPA	- Clarify SEPA responsibilities for INNS to both staff and customers - Incorporate INNS issues into relevant guidance documents (as they are developed or updated)	- Page on website with links to relevant SEPA information and other sites e.g. Non-Native Species Secretariat, RAFTS, Scottish Canoe Association. - Digital documents available for download on SEPA Website

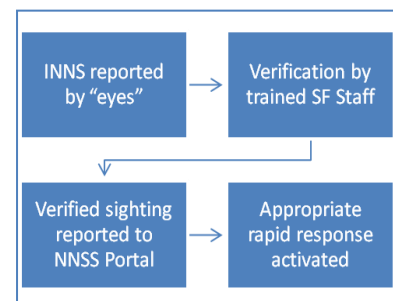
Organisation	Role and/or action	Delivery Mechanisms
SNH	-National: Promotion of good practice in the prevention, control and eradication of INNS -Local: SNH will continue to support and advise the Spey.	- Holding of SNH Sharing Good Practice events. - Grant funding may be available for some projects.
Cairngorms National Park	Promoting a co-ordinated approach to awareness raising and control of INNS within the CNP.	- Promoting training events throughout the Park to training volunteer surveyors etc. - Developing funding packages to help remove the INNS.
Marine Scotland	-Fish Health Inspectorate part of Marine Scotland is lead body with respect to fish diseases and escapes	- 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

The delivery mechanisms form the basis for the actions required to promote awareness amongst the key stakeholders of the Spey Fisheries District. These are presented in Section 5.2 along with the responsible agency and a timeframe for their implementation.

Objective 2: Develop coordinated detection and surveillance of, and rapid response to, new INN species

Output 2.1 - 'Reporting system' established for INN species in district.

The “eyes” of the early warning system (Box 1) will be trained members of the public, bailiffs, ghillies, canoeists and walkers with reported sightings verified by trained SF personnel. A sighting of a GB or local high priority species (Table 9) will be verified within 48 hours. 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. All verified sightings will also be entered onto the SF Geographic Information System to monitor INNS distributions within the Spey Fisheries District. Actions to establish the early warning system are described in Section 5.2.



Output 2.2 – Develop strategic monitoring of INN species in district.

The SF will work with Scottish Fisheries Coordination Centre, SEPA and SNH 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 using GIS. A standardised SFCC recording sheet and data storage protocol would ensure compatibility with existing SFCC habitat data. Manuals on methodologies will be produced and staff trained to ensure that high quality data is collected, stored and shared between agencies.

Output 2.3 – Rapid response mechanism established for new INN species which pose significant threats to local biodiversity and economy.

The type of response will depend on the severity of the species detected (Table 8) and is proportionate to the threat posed. There are three levels of response:




-  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
-  a priority local rapid response

Table 8 Response level for 31 invasive non native species

GB Response	High Priority Local Response	Priority Local Response
Gyrodactylus salaris	American signal crayfish	Ranunculus sp.
Asian topmouth gudgeon	Non native fish species	American mink
Ruddy duck	Mitten crab	Canadian pond weed
Didemnum spp	Zebra mussel	Japanese knotweed
Wireweed	Australian swamp stonecrop	Himalayan balsam
Water primrose	Curly waterweed	Giant hogweed
		Rhododendron
		Red vent syndrome (RVS)
		Nuttal's pondweed
		Water fern
		Common cord grass
		Fanwort
		Floating pennywort
		Parrot's feather
		Large flowered waterweed

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. There is no agreed species list at present; this work is being taken forward by the Scottish Working Group on Invasive Non-Native Species and once agreed, will be circulated to all interests.

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 in Table 9. The actions required to establish and maintain the RRM are presented in Section 5.2

Table 9 Elements of contingency plans or protocols for response to GB priority, local high priority and priority species

GB Response	Local High Priority Response	Local Priority Response
-Report to local and GB institutions	-Report to local and GB institutions	-Report to local and GB institutions
-Determine the extent of infestation	-Determine the extent of infestation	-Determination of the extent of infestation
-Isolation of area where practicable	- Isolation of area where practicable	-Surveys in course of normal work to establish and map distribution
	Establish source and check related sites	-Inclusion of new areas in existing eradication/control programmes
	- Closure of all pathways	- Identification and closure all pathways
	-Decision on appropriate action eradication/containment.	- Monitor as part of planned catchment monitoring programme
	- Approved eradication methodology	
	-Monitor	

Objective 3: Develop coordinated control and eradication programmes for INN species.

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

Activities for the control of mink undertaken as part of the current Cairngorm and NE Scotland Water Vole Conservation Project and for the prevention of *G. salaris* will continue. For other priority species surveys will identify their distributions within the Spey area. Survey information will be entered onto GIS 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. The first phase of control will focus on the main stem and tributaries of the Spey with subsequent phases tackling INNS on the coastal burns. A combination of specialist contractors, volunteers and SF/SFB staff will be used depending on the management requirements of the area involved. Envisaged mitigation, eradication and control measures for the INNS present in the Spey catchment are presented in Table 10. The actions required to establish the proposed control/eradication programme are presented in Section 5.2.

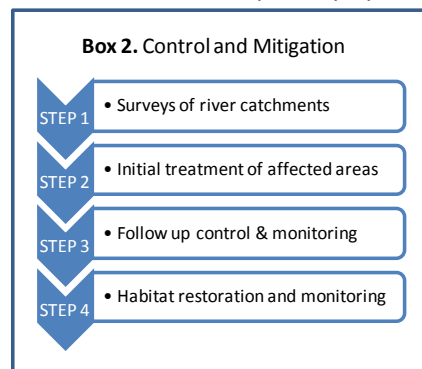


Table 10 Phase 1 of Invasive Non Native Species Control and Eradication in the Spey District

SPECIES	ACTION	TREATMENT/POST TREATMENT ACTIONS
Japanese knotweed (JK)	Control/Eradiation Identify and close pathways.	-Leaf spraying with Glyphosate for existing populations with follow up of stem injection/leaf wipe treatment to maintain control if required. -Spraying to take place spring and autumn over a 5 year period. -Buffer strips identified cleared and maintained where road and rail pathways for re-infection intersect with watercourses. -Requirements for riparian zone habitat restoration assessed and implemented
Himalayan balsam (HB)	Control/Eradiation Identify pathways and close	-Set up a programme to clear the Spey and coastal river catchments in that order of priority. -Monitor catchment for activation of dormant sources of infestation -Habitat restoration if required
Giant hogweed (GH)	Control/Eradiation Identify pathways and close	- Leaf spraying with Glyphosate. Spraying to take place spring and autumn over a 5 year cycle. -Monitor catchment for activation of dormant sources of infestation -Habitat restoration if required
American mink	Control/Eradiation	-Co-ordinated monitoring and trapping. Continue contribution to Mink project. Support work of Mink Project Officer, help liaise with volunteers, storage and delivery of equipment, use bailiffs to help with trapping and involve.

SPECIES	ACTION	TREATMENT/POST TREATMENT ACTIONS
Aquatic plants e.g Ranunculus & Canadian pond weed	Monitor distribution	-Survey of current distributions
Non native fish species	Restrict to present distribution	-Investigate control options
Red vent syndrome	Monitor	-Joint monitoring project with Marine Scotland to begin in 2009. -Raise public awareness of health issues

Output 3.2 Coordinate activities with SEPA AAG and relevant others to ensure continuity of prevention and control of INNS within the Spey District

The delivery of the aims of this plan would be assisted by the coordination of activities with the existing SEPA Area Advisory Group, Highland Invasive Species Forum and others relating to INNS in the Spey Fisheries District.

5.2 Actions and Timeframes

The table below presents the actions required to realise the objectives and outputs described in Section 5.1 along with the lead agency, key partners and timeframe required for their implementation.

Action	Lead	Partners	TIMEFRAME							
			2010	2010	2011	2011	2012	2013	2014	2015	2016
Objective 1: Reduce the risk of the introduction and spread of identified INN species within the Spey district.										
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										
Launch of Spey Biosecurity plan through national and local press release	Spey Foundation			—						
Produce leaflet on legislation including waste management & planning regulations	Highland & Moray Councils	AAG		—	—					
Produce posters on biosecurity issues and distribute to the general public	RAFTS	SF AAG Highland Council, SNH		.....	.....	.....	.....	.....	.....	.....
Continue to promote and install disinfection facilities for anglers at all angling proprietors fishing huts/parking points	Spey Fishery Board & Foundation		.....	.....	.....	.....	.....	.....	.....	.....

Action	Lead	Partners	TIMEFRAME								
			2010	2010	2011	2011	2012	2013	2014	2015	2016
Distribute Codes and posters to relevant retail outlets and clubs at open days and events such as agricultural shows	HISFI/SF	SF AAG members			.....	.....	.....	.....	.....	.....
Engage with Landowners and angling clubs to promote awareness of measures to tenants, resource – users, members and visitors	Spey Foundation	CNPA, SFB, AAG, Angling Associations, River User Groups, SNH		———							
Work with environmental groups and local schools to enhance awareness of INNS	Spey Foundation	Spey Anglers Association, SNH			.....	.....	.....	.....	.....	.....
Objective 2: Develop coordinated detection and surveillance of, and rapid response to, new INN species											
Output 2.1 - 'Reporting system' established for INN species in district.											
Train SF/SFB staff in the identification of INNS	SF/SFB	RAFTS		———	———						
Train SF as trainers	SF/SFB	RAFTS		———							
Work with user and interest groups to identify "reporting network"	SF/SFB	Local Council AAG SEPA		———	———						
Training of "reporting network"	SF/SFB	RAFTS/LBAP SEPA		———		———	———	———	———	———	———
Establish, test and refine communication mechanisms within 'early warning' system	SF/SFB	RAFTS SEPA National		———							
Produce database to record and manage INNS sightings	RAFTS			———							
Monitor and periodically evaluate efficacy of system	SF & other partners				.....	.....	.....	.....	.....	.....
Output 2.2 – Develop strategic monitoring of INN species in district.											
Develop and agree protocols	SFCC	SEPA/SNH	———								
Produce database to manage INNS survey data	SFCC	SEPA SNH		———							
Training of Trust and other agency staff in monitoring methods	SF	SFCC/RAFTS SEPA Highland Council			.....	.....	.....	.....	.....	.....

Action	Lead	Partners	TIMEFRAME									
			2010	2010	2011	2011	2012	2013	2014	2015	2016	
Develop monitoring manual	SFCC	RAFTS SEPA (National)		—								
Output 2.3 – Rapid response mechanism established for new INN species which pose significant threats to local biodiversity and economy.												
Formulate contingency plans for key species	RAFTS, SF	Highland & Moray Council SEPA and SNH,		—								
Identification of personnel for response teams	SF,	Highland & Moray Council SEPA and SNH,		—								
Training of personnel to execute contingency plans	SF,	Highland & Moray Council SEPA and SNH		—								
Identification of funding resources	RAFTS, SF	Highland & Moray Council, SEPA and SNH, RAFTS		.....							
Refresher training	SF	RAFTS, SNH					—	—	—	—	—	
Monitor populations/treated areas	SF	SNH, SEPA		.....							
Objective 3: Develop coordinated control and eradication programmes for INN species												
Output 3.1 – Coordinated control, eradication and habitat restoration programmes established and operational												
Initiate and complete catchment wide surveys by trained personnel	SF	SFCC Water User Groups		—				—				
Develop GIS database for recording and mapping INNS within Spey district	SF	SFCC, SEPA		—								
Continuation of Mink eradication programme	Mink Project	SFB, RAFTS	—	—	—	—	—	—	—	—	—	—
Implementation of phase 1 of INNPS control/ eradication programme	SF	Water User Groups SEPA ³³		—	—	—	—	—	—	—	—	—
Implement habitat restoration scheme within successful control areas taking into account all relevant species	SF	Water User Groups SEPA ³⁴			—	—	—	—	—	—	—	—
Monitor the effectiveness of control programmes	SF	SEPA		—	—	—	—	—	—	—	—	—

³³ May be eligible for funding from the Restoration Fund

³⁴ May be eligible for funding from the Restoration Fund

Action	Lead	Partners	TIMEFRAME									
			2010	2010	2011	2011	2012	2013	2014	2015	2016	
FRS monitoring Red vent syndrome	Marine Scotland			—————								
Output 3.2 - Coordinate activities with SEPA AAG and relevant others to ensure continuity of prevention and control of INNS within the Spey District												
Complete draft Biosecurity plan	SF	RAFTS	———									
Consultation with all stakeholders to agree Biosecurity plan	SF		———									
Discuss INNS continuity issues at Highland Invasive Species Forum and SEPA AAG	SF	Highland Invasive Species Forum	———	———	———	———						
Identify and develop opportunities for future funding of eradication projects	SF	Highland Invasive Species Forum SEPA AAG FC SNH		———	———	———	———	———	———	———	———	