

River Don Trust Bio-Security Plan 2011 – 2016



Prepared by

The River Don Charitable Trust

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Scottish Charity (SC 036015)

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 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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Executive Summary

This plan describes the biosecurity issues of the River Don catchment 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 species (INNS), fish diseases and parasites. The vision of this plan is:

‘To establish a sustainable framework which will prevent, detect, control and eradicate invasive non-native species within the River Don catchment through appropriate management, data collection, liaison, and education’

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

- 🌱 Output 1.1 – All key stakeholders aware of the ecological and economic impacts of INNS, means of introduction and spread as well as management best practices.

Objective 2: Develop optimum detection and surveillance of, and rapid response to, new INNS

- 🌱 Output 2.1 - ‘Early warning system’ established for new INNS in district.
- 🌱 Output 2.2 – Rapid response mechanism established for new INNS which pose significant threats to local biodiversity and economy.

Objective 3: Develop effective control and eradication programmes for INNS.

- 🌱 Output 3.1 – Control, eradication and habitat restoration programmes established and operational
- 🌱 Output 3.2 – Don INNS forum with sufficient funding and resources in place to continue prevention and control of INNS within the RDT area

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

- 🌱 Help prevent the deadly salmon parasite *Gyrodactylus salaris* from entering the River Don catchment, which would cause catastrophic economic and environmental loss.
- 🌱 A holistic and collaborative control programme of invasive non-native plants such as Giant hogweed which is a threat to human health.
- 🌱 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 and American Signal Crayfish from entering the district watercourse helps protect vital local businesses such as whisky distilleries as this species is extremely costly to mitigate against.

The actions required to realise the above objectives and outputs, along with the lead agencies, key partners and timeframes required for their implementation, are presented in the table below.

Action	Lead	Partners	TIMEFRAME						
			2010	2011	2012	2013	2014	2015	2016
Objective 1: Prevent the introduction and spread of INN species within the River Don Catchment.									
Output 1.1 – All key stakeholders aware of the ecological and economic impacts of INNS, means of introduction and spread as well as management best practices.									
Launch of RDT Biosecurity plan through national and local press release	RDT			—					
Produce leaflet on biosecurity risks and the reporting system	RDT/ CNPA/ RAFTS	RAFTS/SNH/SEPA/NEAAG		—					
Produce posters on biosecurity risks and distribute to the general public	RDT/CNPA/ RAFTS	SNH/SEPA	.....	.....	.....	.....	.....	.....
Produce leaflet on legislation including waste management & planning regulations	ACC/AC			—	—				
Continue to promote and install disinfection facilities for anglers at strategic locations throughout the catchment	DDSF/ RDT	Proprietors/Angling Clubs	.....	.....	.....	.....	.....	.....
Distribute Codes and posters to proprietors, relevant retail outlets and clubs at open days and events such as agricultural shows	ACC/AC/RDT/ DDSFB/FC	SNH/SEPA		.....	.....	.....	.....	.....
Engage with Landowners and angling clubs to promote awareness measures to tenants, resource –users, members and visitors	RDT	DDSF/SNH/SEPA/ CNPA/FC		—					
Work with environmental groups of local schools to enhance awareness of INNS	RDT	SNH/CNPA		.....	.....	.....	.....	.....
Objective 2: Develop optimum detection and surveillance of, and rapid response to, new INN species									
Output 2.1 - ‘Early warning system- “eyes” established for new INN species in district.									
Train RDT personnel in the identification of INNS	RDT	CNPA/RAFTS		—	—				

Action	Lead	Partners	TIMEFRAME						
			2010	2011	2012	2013	2014	2015	2016
Train RDT as trainers	RDT	CNPA/RAFTS		—	—				
Work with user and interest groups to identify “eyes”	RDT/DDSFB	NESBReC/CNPA/FC/NELBAP		.....	.....	.....	.....	.....	.....
Training of “eyes”	RDT/DDSFB	SNH/SEPA/RAFTS				—	—	—	—
Produce database to record and manage INNS sightings	RDT	RAFTS/ NESBReC	—	—					
Establish, test and refine communication mechanisms within ‘early warning’ system	RDT/DDSFB	GWLO/ ACC/AC/DDSFB/ RAFTS/FC/SSRS		—	—				
Monitor and periodically evaluate efficacy of system	RDT	RAFTS		.....	.....	.....	.....	.....	.....
Output 2.2 – Rapid response mechanism established for new INN species which pose significant threats to local biodiversity and economy.									
Formulate contingency plans	RDT/DDSFB	ACC/AC/SNH/SEPA/ CNPA		—	—				
Identification and training of personnel	RDT	ACC/AC/SNH/SEPA/ CNPA/SURF		—	—				
Refresher training	RDT					—	—	—	—
Identification of funding resources	RDT	ACC/AC/SNH/SEPA/ CNPA/RAFTS/FC/SURF/NEAAG		.....	.....	.....	.....	.....	.....
Establish local communications systems	RDT	ACC/AC/SNH/SEPA/ CNPA/RAFTS/FC/SURF		—	—				
Monitor riparian and aquatic habitats	RDT			.....	.....	.....	.....	.....	.....
Objective 3: Develop effective control and eradication programmes for INN species.									
Output 3.1 – Control, eradication and habitat restoration programmes established and operational									
Initiate and complete catchment wide plant surveys by trained personnel	RDT	DDSFB/CNPA/AWPR/SURF		—	—	—			
Establish GIS database for recording and mapping INNS within River Don catchment	RDT	NESBReC,		—					
Initiate eradication programmes for Invasive Macrophytes	RDT	DDSFB/CNPA/AWPR/SURF				—	—	—	—
Continuation of NE Scotland Mink eradication programme	RDT	RAFTS/AU	—	—	—	—	—	—	—

Action	Lead	Partners	TIMEFRAME						
			2010	2011	2012	2013	2014	2015	2016
Continue monitoring for presence of American Signal Crayfish.	RDT	DDSF/Landowners		-----	-----	-----	-----	-----	-----
Monitor the effectiveness of control programmes	RDT	RAFTS		-----	-----	-----	-----	-----	-----
Identify sources of rainbow trout and raise awareness of INNS risks to fishery managers.	RDT/DDSF			-----	-----	-----	-----	-----	-----
Continue implementation of Saving Scotland's Red Squirrels (SSRS) Programme	SSRS	RDT/NELBAP/FC/Landowners		-----	-----	-----	-----	-----	-----
Output 3.2 River Don INNS forum with sufficient funding and resources in place to continue prevention and control of INNS within the RDT area									
Complete draft biosecurity plan	RDT		-----						
Consultation with all stakeholders to agree biosecurity plan	RDT		-----						
Consult with representatives from stakeholder groups to form Don Biosecurity Group (DBG)	RDT and all stakeholders			-----					

Lead and Partner Organisations

AC- Aberdeenshire Council

ACC- Aberdeen City Council

AU - Aberdeen University

AWPR – Aberdeen Western Peripheral Route

CNPA - Cairngorms National Park Authority

DDSF – Don District Salmon Fishery Board

FC- Forestry Commission Scotland

GWLO – Grampian Wildlife Liaison Officer

MS – Marine Scotland

NESBReC – North East Biological Recording Centre

NELBAP – North East Local Biodiversity Action Group

NEAAG – North East Area Action Group (Co-ordinated by SEPA), Aberdeen

RAFTS – Rivers and Fisheries Trusts for Scotland

SNH – Scottish Natural Heritage

SEPA – Scottish Environment Protection Agency

SWT – Scottish Wildlife Trust

SURF – Sustainable Urban Fringes

1. Scope and Purpose

This plan describes many of the biosecurity issues of the River Don catchment and presents actions that have been agreed with stakeholders for the prevention, early detection, control and mitigation of the introduction and spread of selected 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 River Don catchment through appropriate management, data collection, liaison, and education’

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

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

Objective 2: Develop optimum detection and surveillance of, and rapid response to, new INNS

Objective 3: Develop effective control and eradication programmes for INNS

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 River Don catchment, which would cause catastrophic economic and environmental loss.
- 🌱 A holistic and collaborative control programme of invasive non-native plants such as giant hogweed, which is a threat to human health.
- 🌱 Increased biodiversity and the conservation of important natural habitats for native species such as otter, Atlantic salmon, European eel and freshwater pearl mussel and red squirrel.
- 🌱 The visual conservation and increased amenity value of local landscapes.

¹ www.nonnativespecies.org

- 🌿 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 River Don catchment helps protect vital local businesses such as whisky distilleries, as this species is extremely costly to mitigate against.
- 🌿 The contribution to the Water Framework Directive objectives of preventing deterioration and improving water bodies to good ecological status.

2. Background

Although prepared by the River Don Trust, this plan is one of a set of approximately 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 Fairburn Foundation (EFF).

The need for action on biosecurity issues has been identified in the Trust's new Fisheries Management Plan ([River Don Fisheries Management Plan 2008-2012](#)²) and in the Draft [North East Scotland Area Management Plan](#)³ 2010-2015. This biosecurity plan provides a platform for local action to address 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 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.

This plan has been produced using a participatory planning process coordinated by the River Don Trust. Through this process, stakeholders identified and agreed the aims, outputs and actions presented in this plan. The plan builds partnerships of different 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 River Don Trust, and stakeholders for the prevention, early detection and control of INNS, fish diseases and parasites.

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. 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

² <http://www.rafts.org.uk/FileLibrary/FMP%20Project/DON%20FMP%20final.pdf>

³ http://www.sepa.org.uk/water/river_basin_planning

of Scotland are considered in relation to the potential introduction and spread of a priority list of INNS and fish diseases.

A [survey](#)⁴ 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 \(2006\)](#)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 INNS. 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 INNS, for example:

- 🌿 [DEFRA](#)⁶ 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 \(2003\)](#)⁷ has estimated the total cost of its removal using current techniques at £1.56bn.
- 🌿 A Scottish Government [report](#)⁸ 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](#)⁹ 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.
- 🌿 INNS have already changed the character of iconic landscapes and waterbodies in Scotland, thereby reducing the amenity value of those areas.

⁴ www.snh.org.uk/pdfs/publications/review/139.pdf

⁵ <http://www.cbd.int/gbo2>

⁶ <http://ww2.defra.gov.uk/>

⁷ <http://www.defra.gov.uk/wildlife-pets/wildlife/management/non-native/documents/review-report.pdf>

⁸ www.scotland.gov.uk/resource/doc/1062/0042434.pdf

⁹ [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)

There is also a growing recognition of the impacts of **translocated species**. Translocated species are native species introduced into suitable habitats within their own country, having been previously excluded from these habitats by natural barriers. 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 INNS 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 River Don catchment. These approaches are consistent with, and support, the [GB Invasive Non Native Species Framework Strategy](#)¹⁰ and the [Species Action Framework](#)¹¹ 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 INNS, fish diseases and parasites:

- 🌿 Section 14 of [The Wildlife and Countryside Act \(1981\)](#)¹² 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 animal that are 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 they are a threat to the local amenity of an area or if they are considered a statutory nuisance.

¹⁰ www.nonnativespecies.org

¹¹ www.sng.org.uk/speciesactionframework

¹² www.opsi.gov.uk/RevisedStatutes/Acts/ukpga/1981/cukpga_19810069_en_1

- ④ Section 179 of the [Town and Country Planning \(Scotland\) Act 1997](#)¹³ 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.
- ④ The [Possession of Pesticides \(Scotland\) Order 2005](#)¹⁴ regulates the use of pesticides and herbicides for the control and eradication of INNS.
- ④ [Environmental Protection Act 1990](#)¹⁵ 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.
- ④ [The Waste Management Licensing Regulations 1994](#)¹⁶ 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”.
- ④ [Controlled Waste \(Registration of Carriers and Seizure of Vehicles\) Regulations 1991](#)¹⁷ and the [Environmental Protection \(Duty of Care\) Regulations 1991](#)¹⁸ provide guidance for the handling and transfer of controlled waste.
- ④ [The Aquaculture & Fisheries \(Scotland\) Act 2007](#)¹⁹ that regulates against the unauthorised introduction of fish to inland waters and the movement of fish within a catchment.
- ④ The [Prohibition of Keeping or Release of Live Fish \(Specified Species\) Order 2003](#)²⁰ requires that a licence be obtained for the keeping or release of species listed on Schedules 1 and 2.
- ④ The [Wildlife and Natural Environment \(Scotland\) Bill \(WANE\)](#)^{20a} was introduced in the Parliament on 9th June 2010. The policy memorandum states that the aim of the Bill is to “deliver a package of measures intended to ensure that the legislation which protects wildlife and regulates the management of the natural environment and natural resources is fit for purpose.”

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.

¹³ www.opsi.gov.uk/acts/acts1997/ukpga_19970008_en_1

¹⁴ www.opsi.gov.uk/legislation/scotland/ssi2005/20050066.htm

¹⁵ www.opsi.gov.uk/acts/acts1990/ukpga_19900043_en_1

¹⁶ http://www.opsi.gov.uk/si/si1994/uksi_19941056_en_1.htm

¹⁷ www.opsi.gov.uk/si/si1991/uksi_19911624_en_1.htm

¹⁸ www.opsi.gov.uk/si/si1991/uksi_19912839_en_1.htm

¹⁹ http://www.opsi.gov.uk/legislation/scotland/acts2007/asp_20070012_en_1

²⁰ <http://www.scotland.gov.uk/resource/doc/47133/0009766.pdf>

^{20a} <http://www.scottish.parliament.uk/s3/committees/rae/bills/WANE/WANEbillpage.htm>

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 River Don Fisheries Management Plan 2008-2012,
- 🌿 The North East Scotland Area and River Basin District Management Plans,
- 🌿 The Deveron, Bogie and Isla Trust Biosecurity Plan 2009-2015
- 🌿 The River Dee Trust Biosecurity Plan 2010.
- 🌿 Aberdeen City Council Nature Conservation Strategy 2010-2015
- 🌿 Existing Local Biodiversity Action Plans.

Furthermore, it supports the conservation objectives of designated conservation areas (Sites of Special Scientific Interest SSSI, National Nature Reserves NNRs) in the River Don Catchment.

Table 1 Identified Actions in the River Don Biosecurity Plan (DFDBP) supporting provisions or requirements of other relevant plans

Provision or Requirement of Existing Plan	Action in Biosecurity Plan
<p>Plan: The River Don Fisheries Management Plan²¹ 2008-2012.</p> <p>Provision/s: Produce and implement a Biosecurity plan for the district.</p>	<p>This plan fulfils the requirement of the River Don 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 Plan²²:</p> <p>Provision/s: A strategy to rapidly contain and eradicate GS if introduced to Scotland.</p>	<p>Formulate rapid response protocols for new INNS which pose significant threats to local biodiversity and economy</p>
<p>Plan: North East of Scotland Biodiversity Action Plan²³</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, Cairngorm and Highland Water Vole Projects and commence new control programmes within areas not yet covered.</p> <p>Continue collaboration in Saving Scotlands Red Squirrels project based in Aberdeenshire.</p>
<p>Plan: Cairngorm National Park Biodiversity Action Plan²⁴.</p> <p>Provision: Where necessary, employ appropriate mink control as a conservation tool to protect large breeding water vole populations.</p>	<p>Continue existing collaboration with the North East, Cairngorm and Highland Water Vole Projects and commence new control programmes within areas not yet covered.</p> <p>Initiate invasive plant surveys within the CNPA boundary and develop monitoring, control and eradication programmes where appropriate.</p>

²¹ www.rafts.org.uk/projects/fisheriesmanagementplanning.asp

²² www.scotland.gov.uk/Topics/Fisheries/Fish-Shellfish/18610/diseases/g-salaris/GsCGrev

²³ www.ukbap.org.uk/lbap.aspx?ID=431

²⁴ www.ukbap.org.uk/lbap.aspx?ID=360

²⁵ www.scotland.gov.uk/Publications/2004/05/19366/37239

Provision or Requirement of Existing Plan	Action in Biosecurity Plan
<p>Plans supporting designated conservation areas (SACs and SSSIs). Scotland's Biodiversity: A strategy for the conservation and enhancement of biodiversity in Scotland²⁵.</p>	<p>Supports the conservation of target species through the control and eradication of INNS detrimental to their ecology.</p>
<p>Plan: Aberdeen City Council Nature Conservation Strategy 2010-2015²⁶ Provision: Continue involvement in tackling INNS which may have an adverse effect on the natural heritage on the City.</p>	<p>Supports the plans principals to raise awareness and directly control or eradicate INNS detrimental to the ecology of the City. Working across boundaries and with partnerships to achieve actions.</p>
<p>Plan: The River Basin Mangement Plan (RBMP) for the Scotland river basin management plan North East Scotland Area Management Plan²⁷ The RBMP for Scotland river basin district contains the following measures relating to biosecurity;</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 reinfestation in the surrounding area. • Establishment of detection / surveillance /control strategies for problem species. • Risk assesment 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. <p>Development of biosecurity plans to prevent movement of species between catchments and respond quickly to new infestations.</p>	<p>This plan will assist with the delivery of all the measures relating to biosecurity outlined in hte RBMP for the Scotland river basin district and key actions highlighted in the North East Area Mangement Plan which are required to bith prevent the water environment of the river basin district from deterioration and restore it to good ecological status.</p>

4. Scope of the Plan

4.1 River Don Catchment

The River Don Catchment Biosecurity Plan (RDCBP) covers the management area of the River Don Salmon Fishery Board (DDSFB) within Aberdeen and Aberdeenshire. The district comprises the River Don and its tributaries and all other watercourses that discharge into the Aberdeen Firth on Aberdeenshire's north coast, between Hill of Menie on the Northern shoreline and its march with the Dee boundary at King's Links by old Aberdeen on the southern shoreline (Map 1).

The main stem of the River Don extends for approximately 135 km, making it the sixth longest river in Scotland. Numerous watercourses make up its catchment which equals approx 1320km². Its main





²⁶ www.aberdeencity.gov.uk/web/files/Natural_Heritage/NatConservationStrategy_2010_15.pdf

²⁷ http://www.sepa.org.uk/water/river_basin_planning

tributary the Urie is approximately 25km, in length; it has several tributaries gathering in along its length from its origin at the Glens of Foundland, past the landmark of Bennachie to its confluence with the main stem at Inverurie.

The catchment has two distinct topographical areas: the mountainous west end and the relatively flat floodplains and farmland between Kildrummy and the coast. The Western tributaries arise in the mountains of the Cairngorms National Park and the Ladder Hills. The highest headwater, the Meoir Veannaich on Brown Cow Hill, has an elevation of 810m, whilst other tributaries begin above 600m. In general, steep gradients are found in the reaches above 400m elevation. Downstream of Kildrummy the topography changes and more of the surrounding land is low gradient agricultural land: 67.1% of the catchment lies between 0m and 300m above sea level. To the east of Kildrummy the land is predominantly below 150m elevation. The gradient increases for the final 8 km or so which historically resulted in the Don's use as a power source for numerous fabric and paper mills. The coastal area of the River Don consists of sandy beaches and dunes and extends to the Hill of Menie on the Northern shoreline and its march with the River Dee boundary at King's Links by old Aberdeen.

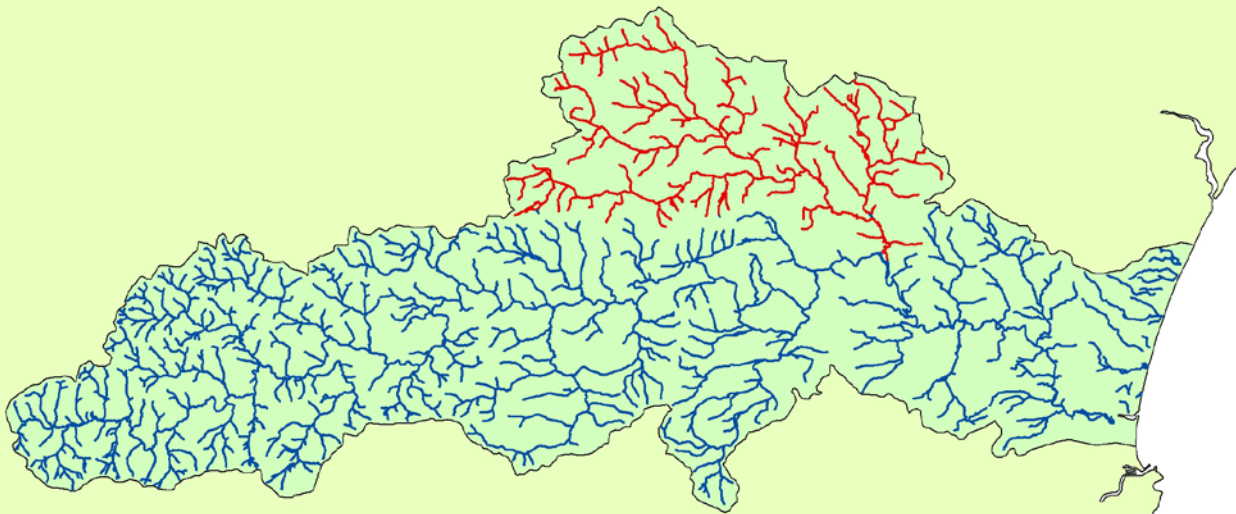
The River Don is a famous and prolific salmon, sea trout and brown trout fishery and in terms of salmon catches has the fifth highest in Scotland. The River Don catchment also contains numerous artificial lochs and ponds, five of which are let commercially for angling. These are:


-  Lochter Activity Centre, Lochter, Oldmeldrum.
-  Ardgeith Fishery, Ardgeith, Strathdon.
-  Inch Fishery, Inch.
-  Mossat Fishery, Mossat, Lumsden
-  Parkhill ADAA Fishery, Parkhill


Map 1 River Don Catchment (page 9)




River Don Fisheries District



River Don and tributaries 

River Urie and tributaries 

 River Don Catchment

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0 5 10 20 Kilometers




4.2 Summary of economic and district land use

There are numerous types of land use and businesses spread throughout the district, varying from large scale arable crops to hoteliers. Business directly linked with the sport of angling is an important local economic driver and is one of the main, but not the only sector, this plan seeks to enhance and protect.

Other activities, including walking, golf, bird watching, canoeing and other riverside activities, rely in part upon the quality of the aquatic and riparian environments to enhance the visitor experience. A 2004 [survey](#)²⁸ of the economic impact of game and coarse angling in Scotland, commissioned by the Scottish Government, revealed that angling is extremely important to Scotland's economy. This is particularly true in rural areas, where anglers spend about £113M annually (see Table 2 for North East Scotland information). When substitution effects are taken into account, this produces an estimated £100M of output in the Scottish economy, and supports around 2,800 full time job equivalents. In addition to fishery proprietors, many businesses, such as hotels, guest houses, restaurants and tackle shops, are to a greater or lesser extent dependent upon angling for their continued trade.

Table 2 Angler expenditure table (£ 000s) for North East Scotland (Aberdeenshire, Angus and Tayside)

Fishery	Value (£ 000s)
Salmon & sea trout	£24,344
Brown trout	£1,589
Rainbow trout	£4,910
Coarse fish	£824
Total	£31,667

The upper reaches of the river support crofting, farming forestry, outdoor activities (e.g. mountain biking and skiing) and countryside sports (e.g. salmon and trout fishing, grouse shooting, deer stalking). Once the river passes Kildrummy the land use changes to more intensive farming practices along its length with a mixture of arable and livestock farming also evident on the Urie, see (Map 2).

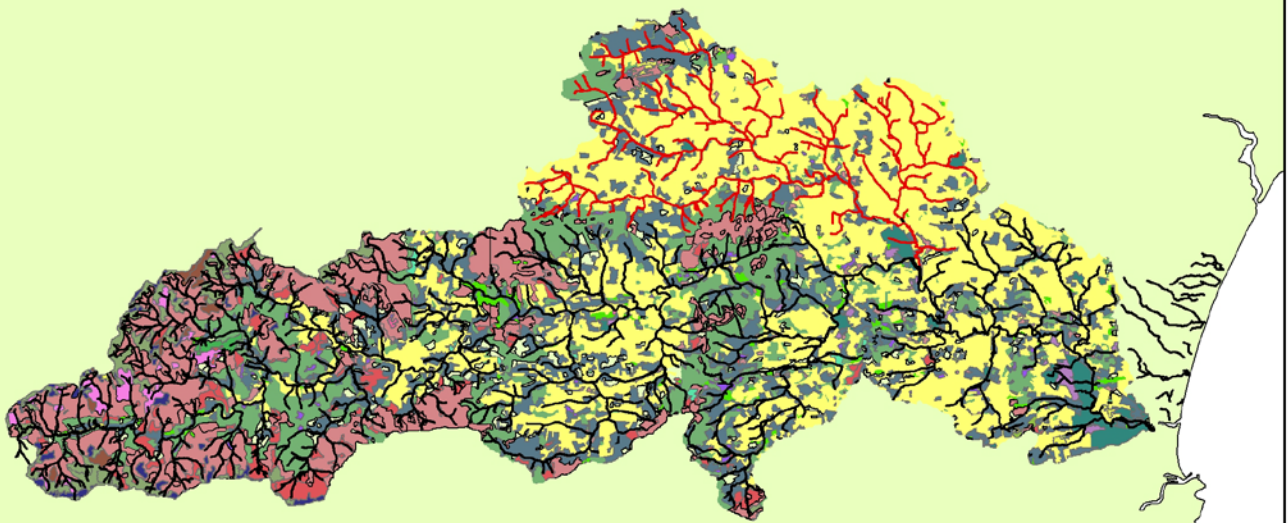
Other important economic and public service activities within the district include commercial quarries; garden centres, pet shops, saw mills, and a distillery.

Map 2 Don Catchment Land Use (page 11)

²⁸ <http://www.scotland.gov.uk/Publications/2004/06/19506/38879>



River Don Fisheries District



Land Use

River Urie and tributaries River Don and tributaries

- Arable
- Broadleaves
- Conifer plantation
- Felled woodland
- Fresh waters
- Good rough grass/heather mosaic
- Good rough grassland
- Heather moorland
- Heather/peatland mosaic
- Improved grassland
- Improved/good rough grassland mosaic
- Mixed woodland
- Montane
- Other mosaics
- Peatland
- Peatland/montane mosaic
- Poor rough grass/heather mosaic
- Recent planting
- Rural development
- Scrub
- Seminatual conifers
- Urban



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4.3 Biosecurity: Current and potential threats


This section identifies 32 INNS and fish diseases for inclusion in the RDT Biosecurity Plan, of which 20 high priority species will be the main focus for action. The priority species were identified as those that:


- 🌿 already exist within the RDT area;
- 🌿 if introduced would have severe consequences for local biodiversity and economy;
- 🌿 Have a high risk of introduction due to the nature of the pathways for their introduction and their current geographic proximity.


4.3.1 Current biosecurity issues


Current biosecurity issues are associated with nine INNS, and one translocated native species that are currently found in the River Don catchment:


- 🌿 American mink (*Neovison vison*) is present throughout the River Don 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.
- 🌿 Canadian pondweed (*Elodea canadensis*) and Nuttall's pondweed (*E. nuttalli*) are present in various locations throughout the River Don catchment. It is spread by disposal of plants or plant fragments near waterways, escapes from garden ponds during flood episodes and is possibly spread by birds and other animals. Canadian pondweed dominates native macrophyte communities, which can lead to their extinction and effects on local invertebrate communities. It can also increase metal loads within waterbodies, which compounds its impacts on native flora and fauna.
- 🌿 Rhododendron (*Rhododendron ponticum* & hybrids) is present in many locations throughout the upper, middle and lower River Don 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.
- 🌿 Japanese knotweed (*Fallopia japonica*) populations are located across the River Don catchment. The Upper and Middle river have small satellite stands whilst the Lower River Don has larger stands situated along the main stem, its islands and the lower tributaries in particular the River Urie. 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 prohibit regeneration. Dense growth of Japanese knotweed can also hinder access, reduce biodiversity and alter the habitat for wildlife.


- 
 Himalayan balsam (*Impatiens glandulifera*) is present in scattered populations throughout the River Don catchment and coastal rivers. 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 (*Heracleum mantegazzianum*) is widespread and is present in large areas of the River Don catchment, from the upper river by Strathdon, to the estuary. The main tributary, the River Urie, is particularly badly infested. Giant hogweed 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*) have been introduced to ponds/fisheries throughout the area for angling. Farmed fish are a potential source of viral and bacterial diseases and parasites affecting wild salmonids and they also compete for resources with native species if allowed to escape.

- 
 Grey squirrels (*Sciurus carolinensis*) have spread throughout the lower and middle reaches of the River Don catchment, emanating from Aberdeen City. The grey squirrel can decimate native red squirrel (*Sciurus vulgaris*) populations through carrying the squirrel pox virus and direct competition. The grey squirrel is also known to impact other native flora and fauna, reducing biodiversity.

- 
 Minnow (*Phoxinus phoxinus*) is a translocated species that has been introduced into the River Don catchment and is now known to be resident in many of the middle and lower tributaries of the River Don, as well as areas of the main stem tributaries. Minnows compete for food and territory with native species, but they also provide another food resource for kingfishers, herons, sawbill ducks and other fish species.

- 
 Monkey Flower (*Mimulus luteus*, *cupreus*, *guttatus* and hybrids) are present in many locations throughout the upper, middle and lower River Don and coastal river catchments. It spreads by natural seed and vegetative dispersal after intentional planting in gardens and parks. Ongoing investigations²⁹ into the impacts of *Mimulus* sp. have suggested that it is already a successful invader and is becoming more widespread, which could exclude native species, decrease diversity and obstruct waterways.

²⁹Truscott, Anne-Marie; Palmer, Steve C.; Soulsby, Chris; Westaway, Sally; Hulme, Phil E.. 2008 Consequences of invasion by the alien plant *Mimulus guttatus* on the-species composition and soil properties of riparian plant communities in Scotland. *Perspectives in Plant Ecology Evolution and Systematics*, 10 (4). 231-240.

4.3.2 Potential biosecurity issues

The INNS listed below are not currently present within the River Don catchment. 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 land/water uses within the River Don catchment.

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 seven High Threat level species that could be introduced into the River Don catchment. They include one fish parasite, four 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>Salmo salar</i> in 41 Norwegian rivers)
North American signal crayfish (<i>Pacifasticus leniusculus</i>)	High- Through intentional/ unintentional introduction from an existing population nearby.	<ul style="list-style-type: none"> ▪ Burrows into river banks causing destabilisation ▪ Diet include small fish, fish ova and invertebrates ▪ Competes for 'within substrate' shelter with fish species
Australian swamp stonecrop an aquatic plant (<i>Crassula helmsii</i>)	High – Through introduction from two existing populations nearby other pathways include: <ul style="list-style-type: none"> ▪ Garden trade³⁰ ▪ 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.
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

SPECIES	RISK OF INTRODUCTION	LOCAL IMPACTS
Killer shrimp (<i>Dikerogammarus villosus</i>) Freshwater shrimp	Medium -through unintentional introduction from contaminated boat/canoe hulls and engines and bilge water.	<ul style="list-style-type: none"> Varied and unpredictable ecological impacts including changes to freshwater nutrient cycles, extinction of local species and wide scale changes to the aquatic ecosystem.
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 6 m 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
Orfe (<i>Leuciscus idus</i>)	High	Through intentional/unintentional introduction from an existing population nearby.
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 (<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 illegal 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	Several populations now found across Scotland
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 River Don catchment 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 fish from unregistered sources;
- 🌿 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:

- 🌿 Scottish Government, Edinburgh
- 🌿 Scottish Natural Heritage, Aberdeen
- 🌿 Scottish Environment Protection Agency, Aberdeen
- 🌿 North East Area Advisory Group (co-ordinated by SEPA), Aberdeen
- 🌿 Forestry Commission, Monymusk
- 🌿 Aberdeenshire and Aberdeen City Council(s)
- 🌿 The River Don District Salmon Fishery Board, Aberdeen
- 🌿 Marine Scotland, Pitlochry (Scottish Government)
- 🌿 River Don Trust, Sauchen
- 🌿 Rivers and Fisheries Trusts for Scotland (RAFTS)
- 🌿 Scottish Wildlife Trust, Edinburgh
- 🌿 Grampian Wildlife Crime Officer
- 🌿 North East Biological Recording Centre
- 🌿 Cairngorm National Park Authority
- 🌿 North East Biodiversity Action Group
- 🌿 Cairngorm National Park Biodiversity Action Group
- 🌿 Aberdeen Western Peripheral Route, Aberdeen
- 🌿 Sustainable Urban Fringes (SURF), Aberdeenshire Council (Lead Partners in SURF), Aberdeen

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 River Don catchment

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 and canoeists)	DDSFb, local canoe/water sports organisations, anglers, angling associations, fishing agents and tackle shops.
Contaminated deliveries of fish for stocking. i.e. either diseased individuals or transport container harbouring American Signal Crayfish from unregistered sources.	DDSFb, local anglers, angling associations, local fisheries.
Escapes from fish farms, ponds, gardens, and desmesnes.	Marine Scotland / 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

Monitoring and control of INNS has been ongoing since 2009 and has focused on giant hogweed and American mink. The DDSFB has mapped areas of the catchment with giant hogweed infestations, with the intention to carry out control under a project partially funded by the Aberdeen Western Peripheral Route AWPR (currently awaiting outcome of public inquiries).

The control of American mink has been undertaken by the RDT in collaboration with the Cairngorm and North East Water Vole Conservation Project. The RDT operated mink rafts in a selection of tributaries during 2009/10 where the presence of mink had been reported or where water voles were known to exist. The rafts provided many positive indications of mink presence and resulted in mink control.

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

During 2007 as part of a national campaign, the DDSFB instigated a publicity campaign to prevent the introduction and spread of the parasite *Gyrodactylus salaris*. Information and warning signs were installed at access points to rivers. In addition to the national and local publicity campaign, it is now

recommended that anglers fishing in the district sign a declaration form before fishing, to ensure that their equipment is free from possible infection.

The Cairngorm National Park Authority has also contracted an environmental consultancy company to undertake non native invasive plant surveys on the River Don Catchment within the Park Boundary. The work was undertaken during the summer and autumn of 2010 and its anticipated that a published report of thier findings should be available early in 2011.

Grey squirrel control is currently undertaken within the River Don Catchment by the Scotttich Wildlife Trust lead iniative Saving Scotlands Red Squirrels. Coordinated Grey Squirrel control has been undertaken in the Lower River Don since 2008. Ongoing control is being focused on Aberdeen city at present with the River Don and Dee identified as the main corridors for dispersal.

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 River Don Trust 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, and 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 River Don Catchment.

Output 1.1 – All key stakeholders aware of the ecological and economic impacts of INNS, means of introduction and spread, and management best practices.

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;
- 🌿 INNS 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;

**INNS:**

- 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 River Don catchment. 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 trout fisheries	<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"> - RDT to work with local industry and trade associations to advise members regularly of best practice in respect of INNS - Invasive Species Scotland³⁰ website
Port authorities	<ul style="list-style-type: none"> - Avoid pumping out of non sterilised ballast water in harbour - Role of hull fouling in the introduction and spread of INNS 	<ul style="list-style-type: none"> -Formulate and implement an interim code of practice requiring non-sterilised ballast water to be discharged on the ebb tide and away from harbour area. -RDT to assist with the supply of posters and other awareness material for display and signage. -Invasive Species Scotland 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"> -RDT to work with garden centres to encourage distribution of codes of practice and posters (available from Plantlife).
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"> -RDT to work with retailers to encourage distribution of codes and posters (available from Plantlife)
Water user associations (canoeists, sailing clubs)	<ul style="list-style-type: none"> -Promote awareness to clubs and participants of the dangers arising from INNS 	<ul style="list-style-type: none"> -RDT to work with associations to promote disinfection of equipment and provide appropriate facilities to eliminate the risk of accidental transfer of INNS -FACT campaign and web site -Invasive Species Scotland website
Landowners	<ul style="list-style-type: none"> - Promote knowledge of biosecurity issues amongst all tenants and resource users - Identification of suitable persons to act as “eyes” for the RDT 	<ul style="list-style-type: none"> - RDT to ensure dissemination of best practices and appropriate signage to reduce threats from INNS -RDT to offer training for “eyes” -Invasive Species Scotland website

³⁰ www.invasivespeciesscotland.org.uk

Stakeholder Group	Priority Area	Mechanism of Delivery
Angling clubs	<ul style="list-style-type: none"> - 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” 	<ul style="list-style-type: none"> - RDT to work with associations to promote disinfection of equipment and provide appropriate facilities to eliminate the risk of accidental transfer of INNS - Work with RDT to ensure dissemination of best practices and appropriate signage to reduce threats from INNS - RDT to offer training for “eyes” - Invasive Species Scotland website
General public	<ul style="list-style-type: none"> - 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 	<ul style="list-style-type: none"> - Local Media Campaigns - Use of websites (RAFTS, NNSS) - RDT to develop a leaflet to promote the Biosecurity Plan, the dangers arising from INNS and the reporting system - Invasive Species Scotland website
Schools	<ul style="list-style-type: none"> - General awareness of impacts and measures to prevent/control INNS 	<ul style="list-style-type: none"> - School visits - Field trips - Invasive Species Scotland website
Contractors / Ground Maintenance Workers	<ul style="list-style-type: none"> - General awareness of impacts and measures to prevent/control INNS - Spread of INNS through ground maintenance crews through inappropriate practices including waste disposal. 	<ul style="list-style-type: none"> - Work with RDT to ensure dissemination of best practices - RDT 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
RDT	<ul style="list-style-type: none"> - Promote awareness to general water users promoting the Biosecurity Plan and highlighting the dangers from INNS 	<ul style="list-style-type: none"> - Promote and launch of Biosecurity Plan to coincide with National Biosecurity Action Day - Develop a leaflet to promote the Biosecurity Plan, the dangers arising from INNS and the reporting system and ensure appropriate distribution to stakeholders - See actions for RDT above
DDSFb	<ul style="list-style-type: none"> - Continue to promote awareness to anglers and angling clubs of the dangers arising from INNS. 	<ul style="list-style-type: none"> - Continue to promote disinfection of equipment and provide appropriate facilities - Facilitating events such as open days, field visits and demonstrations
Local Councils: Aberdeenshire / Aberdeen	<ul style="list-style-type: none"> - 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 GB communications strategy to the general public 	<ul style="list-style-type: none"> - 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

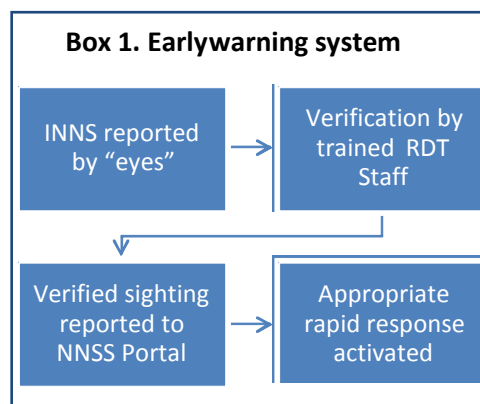
Organisation	Role and/or action	Delivery Mechanisms
SEPA	<ul style="list-style-type: none"> - Clarify SEPA responsibilities for INNS to both staff and customers - Incorporate INNS issues into relevant guidance documents (as they are developed or updated) 	<ul style="list-style-type: none"> - Page on 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
SNH	-National: Promotion of good practice in the prevention, control and eradication of INNS	<ul style="list-style-type: none"> - Possible holding of SNH Sharing Good Practice events. - Grant funding may be available for some projects.

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

Objective 2: Develop optimum detection and surveillance of, and rapid response to, new INNS

Output 2.1 - Early warning system' established for new INNS in district

The “eyes” of the early warning system (Box 1) will be trained members of the public, bailiffs, rangers, ghillies, canoeists and walkers, with reported sightings verified by trained RDT personnel. A sighting of a GB or local high priority species (Table 9) will be investigated 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 RDT Geographic Information System to monitor INNS distributions within the River Don catchment and



reported to the GBNNS and North East Scotland Biological Recording Centre (NESBReC). Actions to establish the early warning system are described in Section 5.2.

Output 2.2 – Rapid response mechanism (RRM) established for new INN species which pose significant threat 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 the 32 INNS

GB Response	High Priority Local Response	Priority Local Response
<i>Gyrodactylus salaris</i>	American signal crayfish	American mink
Asian topmouth gudgeon	Water fern	Canadian pond weed
Ruddy duck	Ruffe	Japanese knotweed
Didemnum spp	Parrot’s feather	Himalayan balsam
Wireweed	Curly waterweed	Giant hogweed
Water primrose	Australian swamp stonecrop	Rhododendron
Killer Shrimp	Zebra mussel	Rainbow trout
	Common cord grass	Minnow
	Fanwort	Nuttal’s pondweed
	Large flowered waterweed	Bullhead
	Floating pennywort	Orfe
		Mitten crab
		Slipper limpet
		Grey Squirrel

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 Rapid Response Mechanism are presented in Section 5.2

Should an illegal activity be suspected relating to INNS within the catchment the River Don Trust will contact the Grampian Wildlife Liaison Officer (GWLO) notifying him/her of the circumstances; advising on any actions which require immediate action and providing assistance throughout the investigations should it be required.

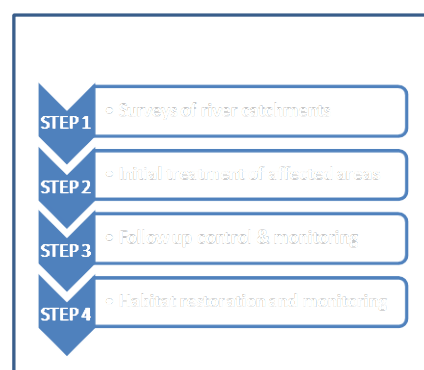
Table 9 Elements of contingency plans or protocols for response to GB priority, local high priority and priority species

GB Response	Local High Priority Response	Local Priority Response
<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 effective control and eradication programmes for INNS

Output 3.1 – 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 will continue. For other priority species, surveys will identify their distributions within the River Don 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 upper River Don, with subsequent phases tackling INNS on the lower River Don, the River Urie and its tributaries and the coastal rivers. A combination of specialist contractors, volunteers and RDT staff will be used depending on the management requirements of the area involved. Envisaged mitigation, eradication and control measures for the 10 INNS present in the River Don catchment are presented in Table 10. The actions required to establish the proposed control/eradication programme are presented in Section 5.

The River Don Trust will ensure that all actions undertaken in order to prevent ingress, monitor, control and eradicate INNS within the River Don Catchment do not compromise any existing species or habitats.

Table 10 Invasive Non Native Species Control and Eradication in the River Don catchment

SPECIES	ACTION	TREATMENT/POST TREATMENT ACTIONS
Japanese knotweed (JK)	Control/Eradication Identify and close pathways.	-Leaf spraying with Glyphosate by RDT/DDSFB staff for existing populations with follow up of stem injection treatment to maintain control if required. -Stem injection for smaller populations and individual plants. -Requirements for riparian zone habitat restoration assessed and implemented
Himalayan balsam (HB)	Control/Eradication Identify pathways and close	-Hand pull -Monitor catchment for activation of dormant sources of infestation -Habitat restoration if required
Giant hogweed (GH)	Control/Eradication Identify pathways and close	-Leaf spray large areas with roundup twice per year; repeat as required -Monitor catchment for activation of dormant sources of infestation -Habitat restoration if required
American mink	Control/Eradication	-Co-ordinated monitoring and trapping
American grey squirrel	Control/Eradication	-Co-ordinated monitoring and trapping
Rhododendron (R)	Monitor distribution	
Canadian pond weed	Monitor distribution	
Rainbow trout	Monitor distribution	-Identify source and engage fish removal by electro-fishing should it be deemed necessary.
Minnow	Restrict to present distribution	
Monkey flower	Monitor distribution	

Output 3.2 River Don INNS forum with sufficient funding and resources in place to continue prevention and control of INNS within the RDT area

The sustainable and effective implementation of the required biosecurity actions at the local level would be facilitated by the establishment of a multi-stakeholder group or forum plan and coordinate the activities on behalf of all stakeholders within the River Don catchment ([ADAS, 2008](#)³¹). The consultation procedure to finalise the River Don Trust Biosecurity Plan would assist in the development of such a group from the principal stakeholders.

³¹ http://www.snh.org.uk/pdfs/publications/commissioned_reports/Report%20No299.pdf

The remit of the proposed River Don Stakeholder Forum would effectively be the implementation of this Biosecurity Plan for the local district. This would also require the services of a Biosecurity officer who could be recruited through the RDT. The Biosecurity officer would be managed by the RDT on a day-to-day basis but would be responsible to the newly set-up group or forum.

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	2011	2012	2013	2014	2015	2016	
Objective 1: Prevent the introduction and spread of INN species within the River Don Catchment.										
Output 1.1 – All key stakeholders aware of the ecological and economic impacts of INNS, means of introduction and spread as well as management best practices.										
Launch of RDT Biosecurity plan through national and local press release	RDT			—						
Produce leaflet on biosecurity risks and the reporting system	RDT/ CNPA/ RAFTS	RAFTS/SNH/SEPA/NEAAG		—						
Produce posters on biosecurity risks and distribute to the general public	RDT/CNPA/ RAFTS	SNH/SEPA	.....	.....	.....	.....	.....	.....	.....	.....
Produce leaflet on legislation including waste management & planning regulations	ACC/AC			—	—					
Continue to promote and install disinfection facilities for anglers at strategic locations throughout the catchment	DDSFB/ RDT	Proprietors/Angling Clubs	.....	.....	.....	.....	.....	.....	.....	.....
Distribute Codes and posters to proprietors, relevant retail outlets and clubs at open days and events such as agricultural shows	ACC/AC/RDT/ DDSFB/FC	SNH/SEPA		.....	.....	.....	.....	.....	.....	.....

Action	Lead	Partners	TIMEFRAME							
			2010	2011	2012	2013	2014	2015	2016	
Engage with Landowners and angling clubs to promote awareness measures to tenants, resource –users, members and visitors	RDT	DDSFB/SNH/SEPA/ CNPA/FC		————						
Work with environmental groups of local schools to enhance awareness of INNS	RDT	SNH/CNPA		.....	.....	.....	.....	.....	.....
Objective 2: Develop optimum detection and surveillance of, and rapid response to, new INN species										
Output 2.1 - 'Early warning system- "eyes"' established for new INN species in district.										
Train RDT personnel in the identification of INNS	RDT	CNPA/RAFTS		————						
Train RDT as trainers	RDT	CNPA/RAFTS		————						
Work with user and interest groups to identify "eyes"	RDT/DDSFB	NESBReC/CNPA/FC/NELBAP		.....	.....	.....	.....	.....	.....
Training of "eyes"	RDT/DDSFB	SNH/SEPA/RAFTS			————	————	—	—		
Produce database to record and manage INNS sightings	RDT	RAFTS/ NESBReC	————							
Establish, test and refine communication mechanisms within 'early warning' system	RDT/DDSFB	GWLO/ ACC/AC/DDSFB/ RAFTS/FC/SSRS		————						
Monitor and periodically evaluate efficacy of system	RDT	RAFTS		.....	.....	.....	.....	.....	.....
Output 2.2 – Rapid response mechanism established for new INN species which pose significant threats to local biodiversity and economy.										
Formulate contingency plans	RDT/DDSFB	ACC/AC/SNH/SEPA/ CNPA		————						
Identification and training of personnel	RDT	ACC/AC/SNH/SEPA/ CNPA/SURF		————						
Refresher training	RDT					—	—	—	—	
Identification of funding resources	RDT	ACC/AC/SNH/SEPA/ CNPA/RAFTS/FC/SURF/NEAAG		.....	.....	.....	.....	.....	.....
Establish local communications systems	RDT	ACC/AC/SNH/SEPA/ CNPA/RAFTS/FC/SURF		————						

Action	Lead	Partners	TIMEFRAME						
			2010	2011	2012	2013	2014	2015	2016
Monitor riparian and aquatic habitats	RDT			.....	.....	.....	.....	.....	.....
Objective 3: Develop effective control and eradication programmes for INN species.									
Output 3.1 – Control, eradication and habitat restoration programmes established and operational									
Initiate and complete catchment wide plant surveys by trained personnel	RDT	DDSFb/CNPA/AWPR/SURF		—————					
Establish GIS database for recording and mapping INNS within River Don catchment	RDT	NESBReC,		———					
Initiate eradication programmes for Invasive Macrophytes	RDT	DDSFb/CNPA/AWPR/SURF			—————				
Continuation of NE Scotland Mink eradication programme	RDT	RAFTS/AU	———	———	———	———	———	———	———
Continue monitoring for presence of American Signal Crayfish.	RDT	DDSFb/Landowners		———	———	———	———	———	———
Monitor the effectiveness of control programmes	RDT	RAFTS		———	———	———	———	———	———
Identify sources of rainbow trout and raise awareness of INNS risks to fishery managers.	RDT/DDSFb			———	———	———	———	———	———
Continue implementation of Saving Scotland's Red Squirrels (SSRS) Programme	SSRS	RDT/NELBAP/FC/Landowners		———	———	———	———	———	———
Output 3.2 River Don INNS forum with sufficient funding and resources in place to continue prevention and control of INNS within the RDT area									
Complete draft biosecurity plan	RDT		———						
Consultation with all stakeholders to agree biosecurity plan	RDT		———						
Consult with representatives from stakeholder groups to form Don Biosecurity Group (DBG)	RDT and all stakeholders			—————					

Action	Lead	Partners	TIMEFRAME						
			2010	2011	2012	2013	2014	2015	2016
Objective 1: Prevent the introduction and spread of INN species within the River Don Catchment.									
Output 1.1 – All key stakeholders aware of the ecological and economic impacts of INNS, means of introduction and spread as well as management best practices.									
Launch of RDT Biosecurity plan through national and local press release	RDT			—					
Produce leaflet on biosecurity risks and the reporting system	RDT/ CNP/ RAFTS	RAFTS/SNH/SEPA		—					
Produce posters on biosecurity risks and distribute to the general public	RDT/CNP/ RAFTS	SNH/SEPA	.....	.....	.....	.....	.....	.....
Produce leaflet on legislation including waste management & planning regulations	ACC/AC			—	—				
Continue to promote and install disinfection facilities for anglers at all angling proprietors fishing huts/parking points	DDSF/ RDT	Proprietors/Angling Clubs	.....	.....	.....	.....	.....	.....
Distribute Codes and posters to relevant retail outlets and clubs at open days and events such as agricultural shows	ACC/AC/RDT/ DDSFB/FC	SNH/SEPA		.....	.....	.....	.....	.....
Engage with Landowners and angling clubs to promote awareness measures to tenants, resource –users, members and visitors	RDT	DDSF/SNH/SEPA/ CNP/FC		—	—				
Work with environmental groups of local schools to enhance awareness of INNS	RDT	SNH/CNP		.....	.....	.....	.....	.....
Objective 2: Develop optimum detection and surveillance of, and rapid response to, new INN species									
Output 2.1 - ‘Early warning system’ established for new INN species in district.									
Train RDT personnel in the identification of INNS	RDT	CNP/RAFTS		—	—				
Train RDT as trainers	RDT	CNP/RAFTS		—	—				
Work with user and interest groups to identify “eyes”	RDT/DDSF	NESBReC/CNP/FC/NELBAP		.....	.....	.....	.....	.....
Training of “eyes”	RDT	SNH/SEPA/RAFTS				—	—	—	

Action	Lead	Partners	TIMEFRAME						
			2010	2011	2012	2013	2014	2015	2016
Produce database to record and manage INNS sightings	RDT	RAFTS/ NESBReC	—	—					
Establish, test and refine communication mechanisms within 'early warning' system	RDT/DDSFB	GWLO/ ACC/AC/DDSFB/ RAFTS/FC/SSRS /NELBAP		—	—				
Monitor and periodically evaluate efficacy of system	RDT	RAFTS		.....	.....	.....	.....	.....	.....
Output 2.2 – Rapid response mechanism established for new INN species which pose significant threats to local biodiversity and economy.									
Formulate contingency plans	RDT/DDSFB	ACC/AC/SNH/SEPA/ CNP		—	—				
Identification and training of personnel	RDT	ACC/AC/SNH/SEPA/ CNP/SURF		—	—				
Refresher training	RDT				—	—	—	—	—
Identification of funding resources	RDT	ACC/AC/SNH/SEPA/ CNP/RAFTS/FC/SURF		.....	.....	.....	.....	.....	.....
Establish local communications systems	RDT	ACC/AC/SNH/SEPA/ CNP/RAFTS/FC/SURF		—	—				
Monitor riparian and aquatic habitats	RDT			.....	.....	.....	.....	.....	.....
Objective 3: Develop effective control and eradication programmes for INN species.									
Output 3.1 – Control, eradication and habitat restoration programmes established and operational									
Initiate and complete catchment wide plant surveys by trained personnel	RDT	DDSFB/CNP/AWPR/SURF		—	—	—			
Establish GIS database for recording and mapping INNS within River Don catchment	RDT	NESBReC,		—					
Initiate eradication programmes for Invasive Macrophytes	RDT	DDSFB/CNP/AWPR/SURF			—	—	—	—	—
Continuation of NE Scotland Mink eradication programme	RDT	RAFTS/AU	—	—	—	—	—	—	—
Continue monitoring for presence of American Signal Crayfish.	RDT	DDSFB/Landowners		—	—	—	—	—	—
Monitor the effectiveness of control programmes	RDT	RAFTS		—	—	—	—	—	—
Monitoring Red vent syndrome	RDT	MS		—	—	—	—	—	—

Action	Lead	Partners	TIMEFRAME						
			2010	2011	2012	2013	2014	2015	2016
Identify sources of rainbow trout and raise awareness of INNS risks to fishery managers.	RDT/DDSFB			---	---	---	---	---	---
Continue implementation of Saving Scotland's Red Squirrels (SSRS) Programme	SSRS	RDT/DDSFB/FC/Landowners		---	---	---	---	---	---
Output 3.2 River Don INNS forum with sufficient funding and resources in place to continue prevention and control of INNS within the RDT area									
Complete draft biosecurity plan	RDT		—						
Consultation with all stakeholders to agree biosecurity plan	RDT		—						
Consult with representatives from stakeholder groups to form Don Biosecurity Group (DBG)	RDT and all stakeholders			—					

6. Monitoring the Biosecurity Plan

Biosecurity is being initiated within the River Don catchment by the RDT. If current resources are not increased, it must be recognised that progress will be limited. However, despite limitations, any work completed by the RDT will be monitored and the results evaluated, particularly in the light of changing circumstances e.g. climate change. In this respect, the RDT will endeavour to evaluate its work and strategy on a 5-year basis.

To ensure the effective implementation of this plan, it is vital that the outcomes and impacts of the actions are monitored and reviewed to ensure that the objectives are being met. A fully coordinated monitoring programme must therefore 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 and investigate;
 - 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;

- 👁️ 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 RDT 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.