River Avon Non Native Invasive Plant Forum Strategic Plan

How the groups, organisations and others aim to communicate the problem of non native invasive plants in the Hampshire Avon river catchment, and support their control and eradication.




Author: Wessex Chalk Streams Project, in partnership with the Avon Non Native Invasive Plant Forum

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Front cover photographs:

[Centre] Himalayan Balsam (*Impatiens glandulifera*) ©GBNNSS; [left to right] Japanese Knotweed (*Fallopia japonica*) ©GBNNSS; Giant Hogweed (*Heracleum mantegazzianum*) ©GBNNSS; Floating Pennywort (*Hydrocotyle ranunculoides*) ©GBNNSS; Parrot's Feather (*Myriophyllum aquaticum*) ©Trevor Renals.

Contents

Acknowledgements and contact details

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- Environment Agency
- Hampshire and the Isle of Wight Wildlife Trust
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- Wessex Water
- Wiltshire Council
- Wiltshire Fisheries Association
- Wiltshire Wildlife Trust

Japanese Knotweed (Fallopia japonica)

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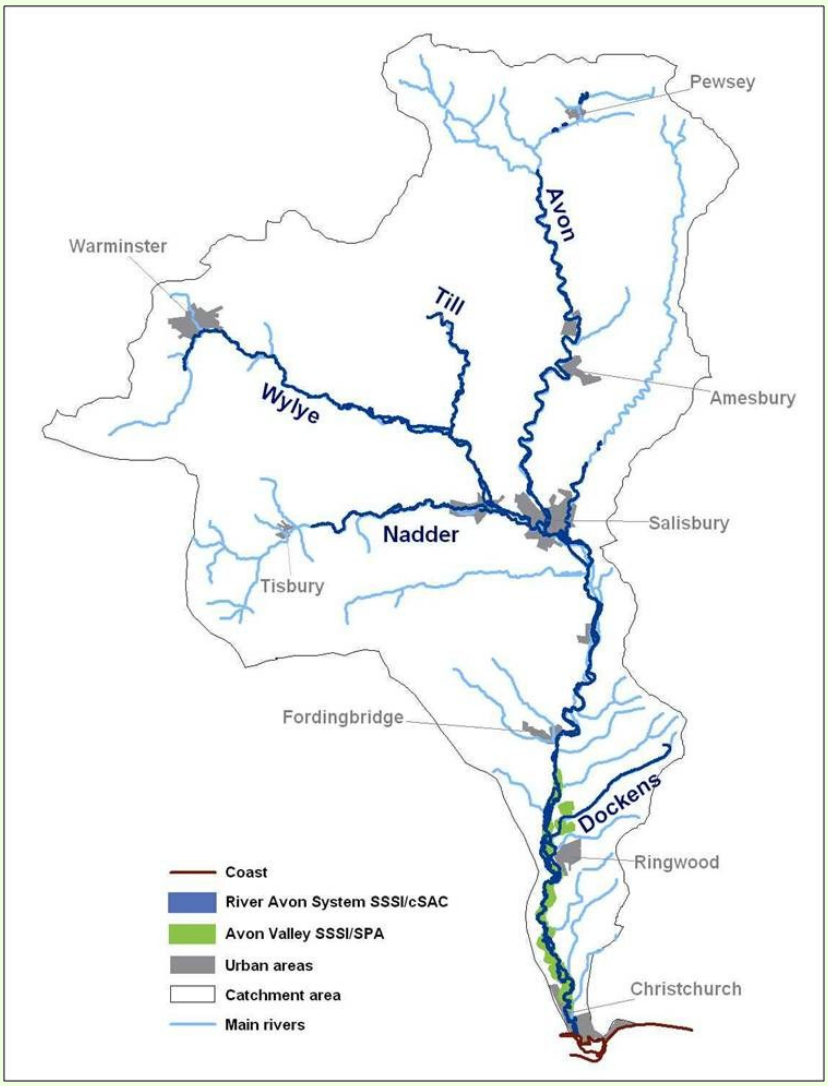
Definitions

Non Native Invasive Plants defines all plants of an invasive nature not originating from Great Britain. All of the plants referred to in this document prefer wet soils and most typically grow on river banks.

Hampshire Avon (often also referred to as the 'Salisbury Avon') is the river system covered by the Forum and the strategy. Starting on the Pewsey Downs and draining Salisbury Plain, the river flows through Salisbury, then runs South to Christchurch and into the English Channel. Tributaries include the Wylye, Till, Nadder, Bourne, Ebble and the Avon (please refer to the map below). The river is designated a Site of Special Scientific Interest (SSSI) and a Special Area of Conservation (SAC).

Avon Non Native Invasive Plant Forum is a group of people with a common interest in the issue of non native invasive plants on the Hampshire Avon.



Map of the Hampshire Avon catchment

Executive Summary

This document has been written by the Avon Non Native Invasive Plant Forum to provide information, guidance and support for people either interested in or directly tackling the problem of non native invasive plants on the Salisbury Avon, yet the principles can be applied to any other river catchment. It outlines the aims and objectives of dealing with non native invasive plants, gives background information on the problem and provides a context for the issue on Salisbury Avon, outlining past efforts and existing work, support mechanisms, roles and responsibilities.

1. Introduction to the Strategic Plan

1.1 The Vision

Our vision is that non native invasive plants in the River Avon catchment will be in a manageable state.

This will be achieved through:

- **widespread awareness and understanding of the risks and adverse impacts associated with these species;**
- **a stronger sense of shared responsibility across government, key stakeholder organisations, land managers and the general public;**
- **a guiding framework for mitigation, control or eradication initiatives.**

1.2 The Avon Non Native Invasive Plant Forum

The problem of non native invasive plants within the River Avon (Wiltshire-Hampshire-Dorset) system is now strongly recognised by land managers, local government and key stakeholder organisations and in recent years successful efforts have been made to increase public awareness of this problem. This has happened through general public invasive species awareness days, press articles in magazines and on local radio, and demonstration days to show landowners how to remove non native invasive plants. This work has highlighted the need for a joined up approach. From 2006 to 2008 representatives from the Environment Agency, Natural England, the Wildlife Trusts, anglers and landowners met to begin this process, leading to the recent formation (May 2009) of the Avon Non Native Invasive Plants Forum, which also includes local government.

Floating Pennywort (Hydrocotyle ranunculoides)

The Forum agreed that their first and most effective action would be the production of a strategic plan for the control of non native invasive plants in the catchment that would give focus to future work.

There is now a huge amount of support for the eradication of invasive plants across the Avon catchment. Many landowners and managers now spend time and money pulling Himalayan Balsam and spraying Japanese Knotweed amongst other efforts. Examples of these people are cited in the yellow boxes throughout the document.

It is proposed that representatives from the following stakeholders will be part of the Forum and therefore take ownership of the Strategy on the Avon:

- Country Land and Business Association
- Dorset County Council
- Dorset Wildlife Trust
- Environment Agency
- Game and Wildlife Conservation Trust
- Hampshire County Council
- Hampshire and Isle of Wight Wildlife Trust
- Natural England
- National Farmers' Union
- Other Invasive Plant forums
- Parish Councils
- Representation from landowners
- Wessex Chalk Streams and Rivers Trust
- Wessex Chalk Streams Project
- Wessex Salmon and Rivers Trust
- Wiltshire Council
- Wiltshire Fishery Association
- Wiltshire Wildlife Trust
- Volunteer groups already dealing with non native invasive plants

Any organisation is encouraged to join the Forum. It is important to note that the Forum is not responsible for delivery on the ground, but to provide a point of contact, offering advice and facilitating decisions on the direction of the strategy. Participation in the Forum is in addition to individual organisations' responsibilities.

The secretariat is responsible for ensuring the sustainability of the Forum, administering Forum meetings and updating the Strategic Plan. This position rotates amongst the Forum member organisations. In the start up phase of the Forum, this 12 month responsibility will be undertaken by the Wessex Chalk Streams Project (Ruth Clarricoates) under Wiltshire Wildlife Trust. The Forum will meet every six months from October 2009 onwards, undertaking an annual review of the Strategy at the end of each invasive plant growing season (October/November).

1.3 Scope of the Strategic Plan Document

The Strategy document is intended for anybody who has an involvement with non native invasive species in the Hampshire Avon catchment. This might include the following people:

- General public including garden and pond owners
- Angling clubs
- Government
- Local government
- Local planners
- Landowners and land managers
- Garden centres
- Conservation organisations and agencies
- Recreational water users

Throughout the document are Case Study boxes illustrating the problem elsewhere (shown in blue) and also Personal View boxes (shown in yellow, as opposite), giving examples of people's involvement in non native invasive plant management.

Giant Hogweed (Heracleum mantegazzianum)

"After seeing the posters and hearing more about the problem of Himalayan Balsam, I started to notice the pink flowers when out fishing. Now I always pull the whole plant up whenever I see it, to stop it spreading."

Angler on the River Nadder, July 2009

Appendix B includes a summary of the following non native invasive plants, their identification and methods of eradication. The Strategy and the Forum have a strong focus on the first three species as they are acknowledged to be of greatest threat (however it acknowledges that other species may be or may become of equal importance, and future review of the Strategy could include new species).

Japanese Knotweed (*Fallopia japonica*)

Himalayan Balsam (*Impatiens glandulifera)*

Giant Hogweed (*Heracleum mantegazzianum*)

- Australian Swamp Stonecrop / New Zealand Pigmyweed (*Crassula helmsii)*
- Parrot's Feather (*Myriophyllum aquaticum)*
- Floating Pennywort (*Hydrocotyle ranunculoides)*
- Creeping Water-primrose (*Ludwigia peploides)*
- Water Fern (*Azolla filiculoides)*

Detailed in Appendix A is a five year work plan outlining the objectives for 2010-2015. This is reviewed bi-annually by the Avon Invasive Plant Forum.

The Strategy will take the form of a document which will be owned by the Avon Non Native Invasive Plant Forum. It will be written by the Wessex Chalk Streams project, approved by the Forum and produced for the use of the Forum members. It will be a live document, updated when required and reviewed at annual intervals.

The Strategic Plan focuses on achieving a 20 year vision for the Avon, broken down into shorter term objectives (See Chapter 2). The objectives are championed by the Forum and are outlined in Appendix A of this document.

Alongside the Strategic Plan, there are many sources of information for landowners on what to do if they have non native invasive plant species on their land. Please refer to the resources section of Appendix B at the end of the document for more information.

Australian Swamp Stonecrop / New Zealand Pigmyweed (Crassula helmsii)

1.4 Review

This Strategy is a live document, to be reviewed and updated by the Forum. The implementation of the Strategy will allow the relevant organisations and individuals to work concertedly to eradicate invasive plants. As part of the Strategy, the Forum will offer advice and provide a support network. It is important however that the Strategy does not look too far ahead, with the risk of becoming irrelevant to the current scale of the problem. The Forum has therefore concluded that a 5 year strategy should be identified as well as a 20 year strategy. Appendix A contains the 5 year work plan (2010-2015) broken down into defined objectives. The objectives will generate targets for delivery and a means to measure progress. These will be driven by the Forum but could occur through other means such as independent invasive plants projects.

2. Aims and Objectives of the Strategic Plan

The overall aim of this Strategy is to reduce the risk of negative impacts caused by non native invasive plant species on the Avon system.

The longer term objective by 2030, is for everyone involved in land management on the Avon catchment to:

- know about non native invasive plants;
- understand the problems they cause;
- be actively managing them.

Shorter term, prioritised objectives will be set and reviewed for the next five years (2010 -2015). These objectives will have more specific associated actions agreed by the Forum, towards which the partner organisations will work. These objectives are outlined below and are detailed in Appendix A.

Himalayan Balsam (Impatiens glandulifera)

Objectives:

1. Raise awareness and provide advice by:

- attending and organising events;
- producing and disseminating leaflets/posters;
- encouraging community involvement (including landowners and volunteers);
- providing training (plant identification, chemical spraying etc).

2. Coordinate a strategic effort by:

- preparing and reviewing a strategic local plan;
- identifying actions to meet the objectives within the plan;
- mapping and reviewing the presence of a species;
- horizon scanning for new scientific thinking;
- involving volunteers and landowners;
- identifying gaps in current work areas;
- Securing long-term sustainability for the Forum.

3. Exchange good practice of experience by:

- identifying and keeping up to date with the best available techniques;
- seeking alternative methods;
- liaising with other groups working on the same species/problems;
- investigating and encouraging uptake of biosecurity methods.

4. Identify and apply for potential funding and financial assistance for priority work areas

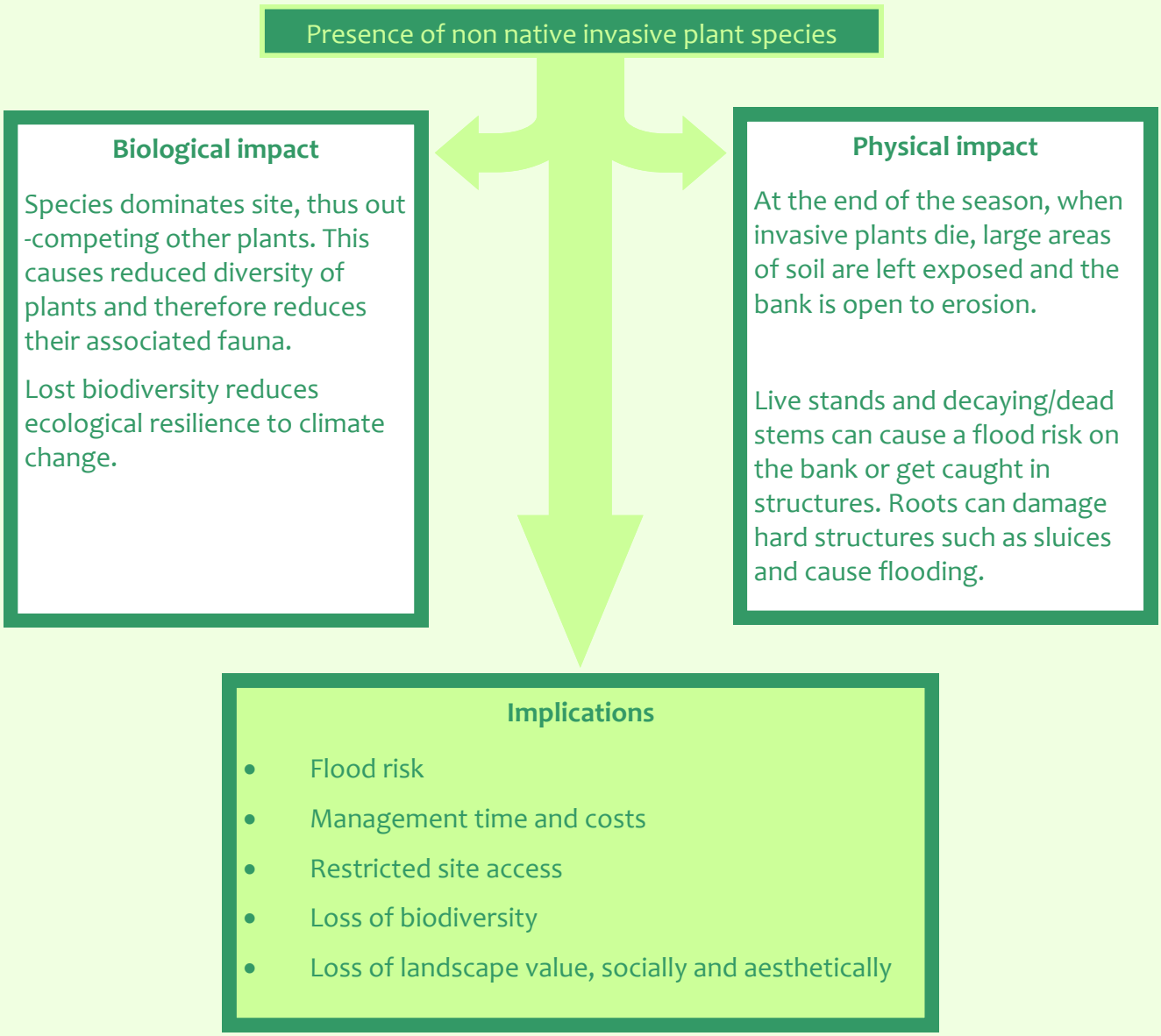
Water fern (Azolla filiculoides)

Publicity campaigns and talks to raise awareness

3. Background

3.1 The problem of non native invasive plants

There are a number of different issues relating to invasive plants; these include biological implications on the ecology and physical changes to the habitat, causing increased flood risk, and greater management time required to resolve the associated problems.



The impact of non native invasive plant species on land

These problems are of differing importance depending on who is concerned. The table below illustrates the typical concerns for invasive plant issues for different groups of land users.

Land user concerns for non native invasive plants

ISSUES	Farmer	Angler	Private Landowner (eg. Gardener)	Public Landowner
Increased threat of flooding of land due to plants trapping debris during high flow, and due to dead plant matter in the river building up at structures or narrow points in the river	X	X	X	X
Health hazards in the case of Giant Hogweed, whose sap causes severe blistering if in contact with human/livestock skin	X	X	X	X
Implications for agri-environment scheme payments*	X		X	X
Maintenance of structures difficult	X	X	X	X
Access to bank side difficult		X	X	X
Erosion of land/banks after plant die-back, especially during increased flows	X	X	X	X
Out-competes other plant species creating an ecological monoculture	X		X	X
Destabilises structures: patios, paths, building foundations	X	X	X	X
Effects on conservation designation status**	X	X	X	X
Financial degradation of fishery; loss of asset, fishery value and SSSI enforcement threat	X	X	X	X
Aesthetics	X	X	X	X
Cost to taxpayer for removal				X

* Implications for agri-environment scheme payments:
Single Payment Scheme – claimants must comply with all other requirements under 'cross-compliance'. If non native invasive plant presence is seen to be in conflict with the Wildlife and Countryside Act, then the landowners may be in breach of their agri-environment scheme (Higher Level or Entry Level Stewardship, Single Payment Scheme), resulting in potential reduction of payment.

** Effects on conservation designation status:
The presence of non native invasive plants on a Site of Special Scientific Interest (SSSI) or a Special Area of Conservation (SAC) site is likely to cause a decline in condition.

3.2 The history of non native invasive plant management in the River Avon catchment

As people have become more informed about the issue of non native invasive plants, there has been an increase in efforts to manage the problem. Organisations such as the Wildlife Trusts, Natural England and many local conservation groups have worked to both eradicate the problem on the ground, and to raise public awareness of the issue through various campaigns.

Volunteers helping to remove Himalayan Balsam

"We were told about the Himalayan Balsam and Japanese Knotweed on our and neighbour's land as we bought our new "Nadder side" property in June 09. The issues were:

Japanese Knotweed drives out all species other than trees and bushes which overshadow them, and does nothing for the ecology of the places where it grows;

Himalayan Balsam, whilst attractive when in flower, also drives out other species. Additionally its lack of root structure leaves banks unsupported during the winter wet season, leading to greatly increased erosion.

We were delighted to accept a free weed-pulling option offered by the Wiltshire Wildlife Trust for the Himalayan Balsam, and now knowing what it looks like and how to deal with it we hope to stay on top of it ourselves.

For the Japanese Knotweed, the Wildlife Trust found us a very competitive person whom we paid to spray the infestation."

Mr Saint,
Water meadows landowner on the River Nadder at Lower Bemerton.

3.3 Relevant Legislation

Dealing with invasive plants is not just voluntary but a legal requirement regulated in the Wildlife and Countryside Act 1981 (WCA 1981). Failure to do so can be a legally enforceable offence. The relevant legislation to be aware of is as follows: it is an offence to "plant or otherwise cause to grow in the wild" plants that are included in Part II of Schedule 9 WCA 1981 (see section 14(2) WCA 1981). It is a defence, however, if it can be proved that the accused took "all reasonable steps and exercised all due diligence to avoid committing the offence" (see section 14(3) WCA 1981).

The plant species listed in Part II of Schedule 9 WCA 1981 include Giant Hogweed, Japanese Knotweed and Himalayan Balsam. The list is kept under review and may be updated from time to time. For example, the invasive species Himalayan Balsam was recently added to Schedule 9 (in April 2010) following a consultation led by DEFRA. Owners or occupiers of land included within a SSSI and who are working with Natural England under a management scheme for the site should also be aware of their obligations under section 28K WCA 1981. This states that:

"(1) Where it appears to Natural England that:
(a) an owner or occupier of land is not giving effect to the provision of a management scheme, and
(b) as a result any flora, fauna or geological or physiographical features by reason of which the land is of special interest are being inadequately conserved or restored, they may if they think fit serve a [management] notice on him"

The presence of and/or resistance to remove non-native invasive plants could be construed as causing harm to the flora and fauna features of a SSSI. In these circumstances, Natural England may serve a management notice requiring the owner or occupier to carry out works in order to remove the invasive plants from the SSSI.

Poster alerting anglers to the problem

3.4 Why do we need to act now?

Tackling the issue of non native invasive plants is an international problem brought about by global human movement. Some of our own native plants are causing problems for other countries abroad, whilst for some countries the same plants pose larger problems than they presently do in the UK.

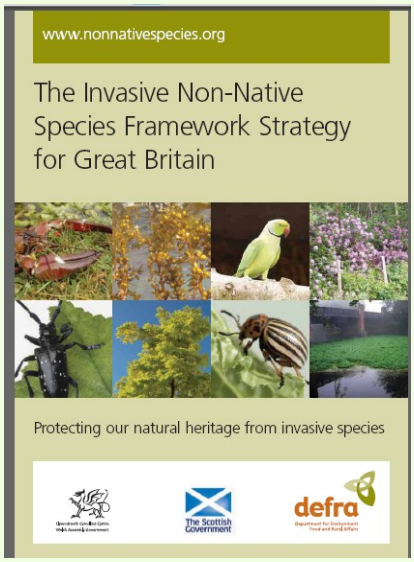
The Cost to Society...

Giant Hogweed in Germany

Giant Hogweed exists across much of Europe, with the UK being the first European country in which it colonised. However, for a variety of reasons it has colonised very successfully in Germany. Here, due to its skin-burning nature and therefore the hazard associated with its removal, the total annual costs due to health impacts and management were estimated in 2003 as approximately €12 million (Reinhardt et al, 2003).

Globally, the problem of invasive species is taken very seriously, and has been identified as *"the second largest threat to biodiversity after habitat loss"* (The Convention on Biological Diversity www.cbd.int).

The government is committed to finding solutions for the eradication of invasive plants. This Hampshire Avon Invasive Plants Strategy looks to be in line with the existing National Non Native Invasive Species Strategy.



Biological Control

The government is supporting the research of biological control solutions for many non native invasive plants. Due to its economic impact, this research is currently focused on Japanese Knotweed growth. This has involved the identification of nearly 200 insects and 40 fungi that attack the plant naturally in Japan. After testing the predators on different British plants, including wheat and apple, scientists identified just two species that could be effective in Britain feeding on only Japanese Knotweed; Aphalara itadori, a 2mm long psyllid louse and Mycosphaerella, a leafspot fungus. Following extensive testing, Aphalara itadori has now been identified to be the most likely successful biological control of Japanese Knotweed. For more information on this process to date please see www.cabi.org/japaneseknotweedalliance.

Aphalara itadori

Mycosphaerella leafspot fungus

Whilst biological control solutions are hopeful, they will operate on local sites initially and it will take some time before they become a widespread solution. It is the Hampshire Avon Invasive Plant Forum's opinion that these solutions are not to be relied upon and that non native invasive plant removal through other methods, as outlined in this Strategy, must continue.

4. Roles and Responsibilities

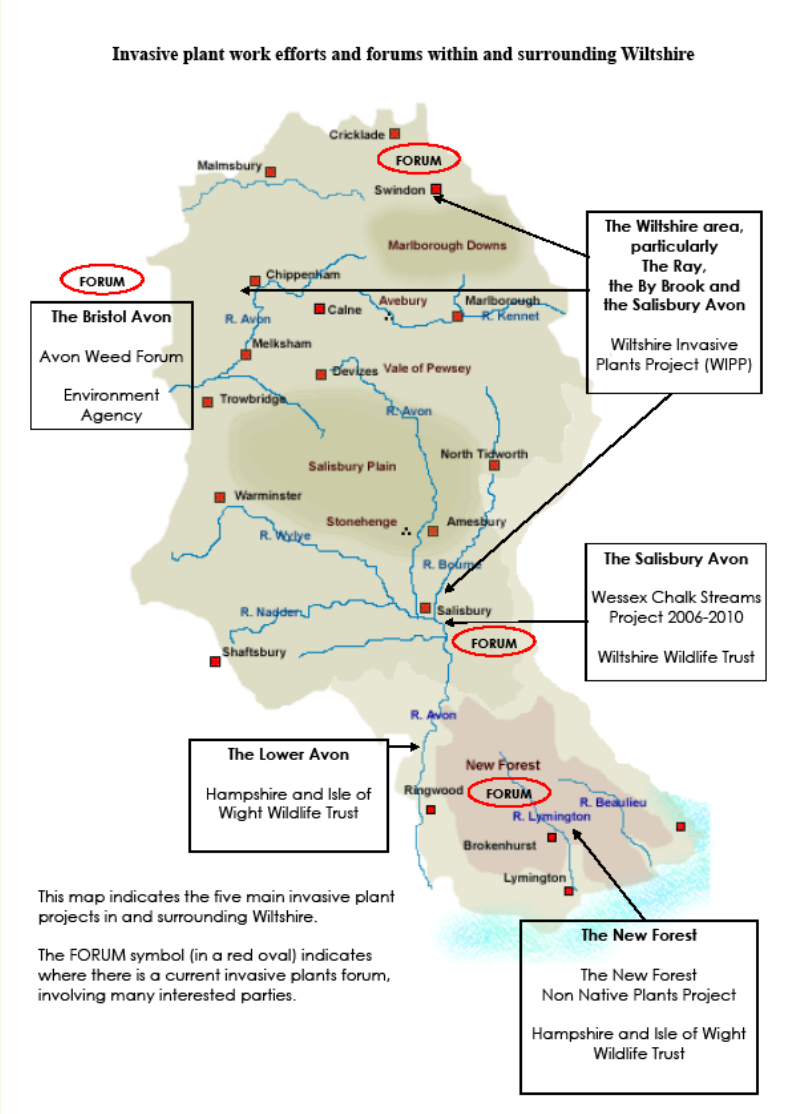
Who is responsible for removing non native invasive plant species?

Landowners are responsible for removing non native invasive plants. As a result of this, a number of organisations have become associated with this issue. For example, Natural England can assist landowners with managing non native invasive plants on sites in Higher Level Stewardship through special projects.

In support of this, there are currently a number of initiatives within different organisations that assist landowners in dealing with the problem, providing advice and on the ground help. These are mainly temporarily funded projects within the Wildlife Trusts.

The Avon Non Native Invasive Plant Forum's responsibility is to provide a point of contact for people requiring advice on the problem. Their intention is to facilitate decisions on the direction of the Strategy and the actions associated with the Strategy objectives outlined in Chapter 2. The Forum is not responsible for direct delivery of non native invasive plant management on the ground.

The map below shows the distribution of projects and the forums within and adjacent to the Hampshire Avon catchment, along with roles and responsibilities.



5. Strategic Approach

The problem of non native invasive plants on the Avon river system can be managed by two different approaches:

1. Prevention of further spread

2. Control and eradication of existing infestations

Part of the Forum's work will be to identify the best balance of the different approaches. These are detailed in Appendix A.

5.1 Prevention

Prevention methods aim to stop initial colonisation of invasive plants from becoming dominant. Success relies on surveillance of the river, monitoring of sites and rapid response to new populations. In addition to this, raising awareness of the problem is essential. Past efforts on the Avon have included signs on the river bank informing people of the issue of Himalayan Balsam, press articles and public awareness events.

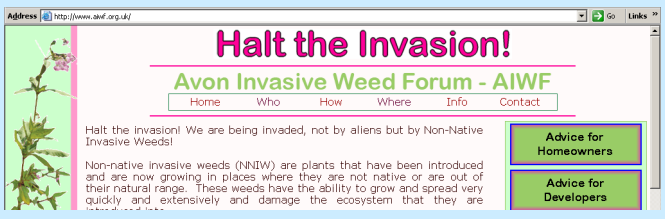
In the Avon catchment we are fortunate that at this early stage we are still able to 'prevent' most new invasive plants from becoming uncontrollable, rather than trying to 'cure' existing problems of large infestations. For many other river catchments in Europe and even in the UK, the problem of invasive plants is much greater almost to the point of being perceived as an impossible task.

The Proximity of the Problem...

Himalayan Balsam on the Bristol Avon...

As a neighbouring river catchment with the same headwaters, the non native invasive plant issue on the Bristol Avon is of grave concern to us here on the Hampshire Avon. The problem on the Bristol Avon is considerably greater and poses a threat of spread to the Hampshire Avon due to its close proximity. The current mapped records from the Bristol Environmental Record Centre show that Himalayan Balsam is prevalent in the headwaters and tributaries.

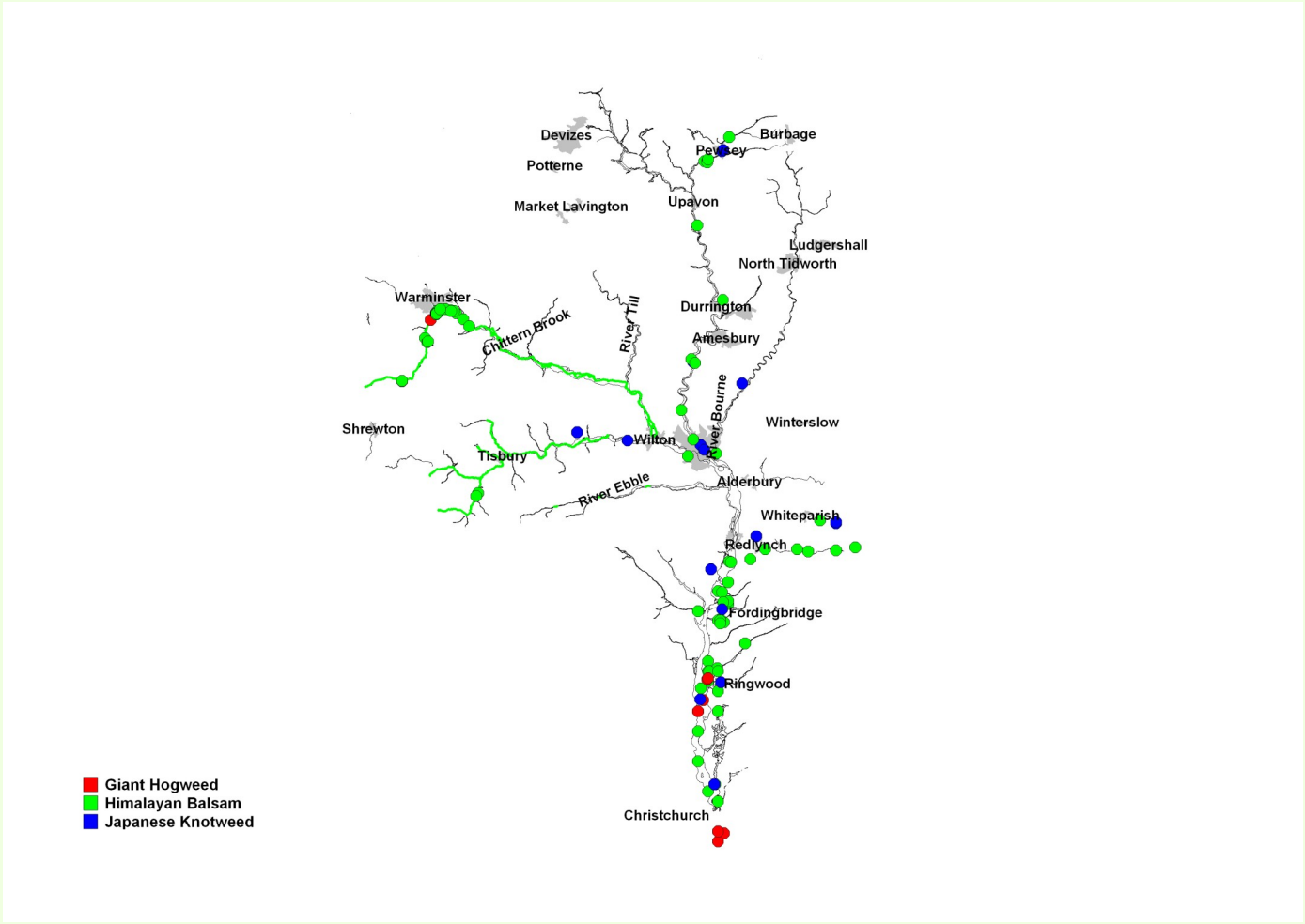
As with the Hampshire Avon Forum, the Bristol Avon Invasive Weed Forum is an established group working to help people tackle the problem (www.aiwf.org.uk).



5.2 Control and Eradication

Control and eradication of plants is required to bring populations to a manageable state. This is necessary to deal with existing infestations but should not replace preventative, rapid, targeted action as described previously.

The map below shows the distribution of records of Himalayan Balsam, Japanese Knotweed and Giant Hogweed held by the Wiltshire Biological Record Centre in 2009. To report new records of invasive plants, please contact the BRC at Wiltshire Wildlife Trust on 01380 725670.



Map of the distribution of invasive plants recorded by the Wiltshire Biological Record Centre in 2009

"The removal of invasive plants was traditionally regarded as a necessary but regrettable drain on much needed Highway maintenance resources. However after beginning to learn more, in 2000 I decided to "champion" the cause as I considered this approach to be entirely compatible with the role of a Highway Authority, in a rural shire county.

We are hoping to continue to manage Japanese Knotweed so that each year it costs less to treat and that by 2010 our cost of treatment will have fallen significantly.

We will then use released funds to engage more vigorously with Himalayan Balsam. (This is a lesser species on our network.)"

Graham Hay, Service Manager for Wiltshire Highways Partnership, Wiltshire Council, managing routine maintenance of the roads, footways and verges of Wiltshire's 4,000 km network, including the removal of noxious weeds.

In creating a strategic plan for non native invasive plant removal, it is important to first understand the ecology of each species. Because many disperse seeds along riparian corridors, one accepted strategy is to begin efforts at the source of the problem and work downstream.

The landowner is ultimately responsible for the removal of invasive plants. This may be shared with the land manager such as an angling club leasing the fishing rights. Either way, once the presence of a non native plant has been identified, the next stage is to decide on the most effective way of eradicating it. For some species there is a legal obligation (see Chapter 3.3 Legislation). Appendix B explains the following eradication methods for each species:

- removal by hand, for example Himalayan Balsam;
- removal through chemical treatment (spraying or injecting), for example Japanese Knotweed;
- grazing by livestock, suitable for Himalayan Balsam but not Japanese Knotweed or Giant Hogweed;
- biological control, which is not an option for individual landowners at the present time but research into Aphalara itadori control of Japanese Knotweed is occurring nationally;
- mechanical removal through mowing or cutting, suitable for Himalayan Balsam but not Japanese Knotweed or Giant Hogweed.

Below are some recommendations for the two main methods likely to be used: hand pulling and chemical spraying.

Hand pulling of Himalayan Balsam

Himalayan Balsam pulling is the removal of individual plants by pulling the whole plant including the shallow root system up from the soil. Due to its annual nature, this prevents it from growing again in the future. Pulling should be carried out before the seeds are mature (August to September). It must be noted that seeds will lie dormant in the soil, therefore repeat pulling at a site twice/thrice throughout the season and for approximately 4 years afterwards is needed to ensure complete removal.

This is highly labour intensive work. Presently the main labour sources for this task are private landowners using friends and family or paid labour, or volunteers organised or coordinated by groups such as the Wildlife Trusts or other conservation organisations. For assistance from the Wildlife Trusts, please contact:

Wiltshire Wildlife Trust: 01380 725670

Hampshire and Isle of Wight Wildlife Trust: 01489 774400

Chemical treatment of Japanese Knotweed or Giant Hogweed

Chemical spraying uses herbicide sprayed directly onto the leaves of the plant. The leaves absorb the chemical which kills the whole plant. Another similar method involves injecting the plant stem directly with the chemical.

Because of the proximity of the plants to water, permission is required from the Environment Agency (Form WQM1). In addition, specialist chemicals and equipment are needed, therefore this task must be undertaken by qualified contractors.

Parrot's Feather (Myriophyllum aquaticum)

Creeping water primrose (Ludwigia peploides)

The Economic Impact of the Problem...

Japanese Knotweed in Wales...

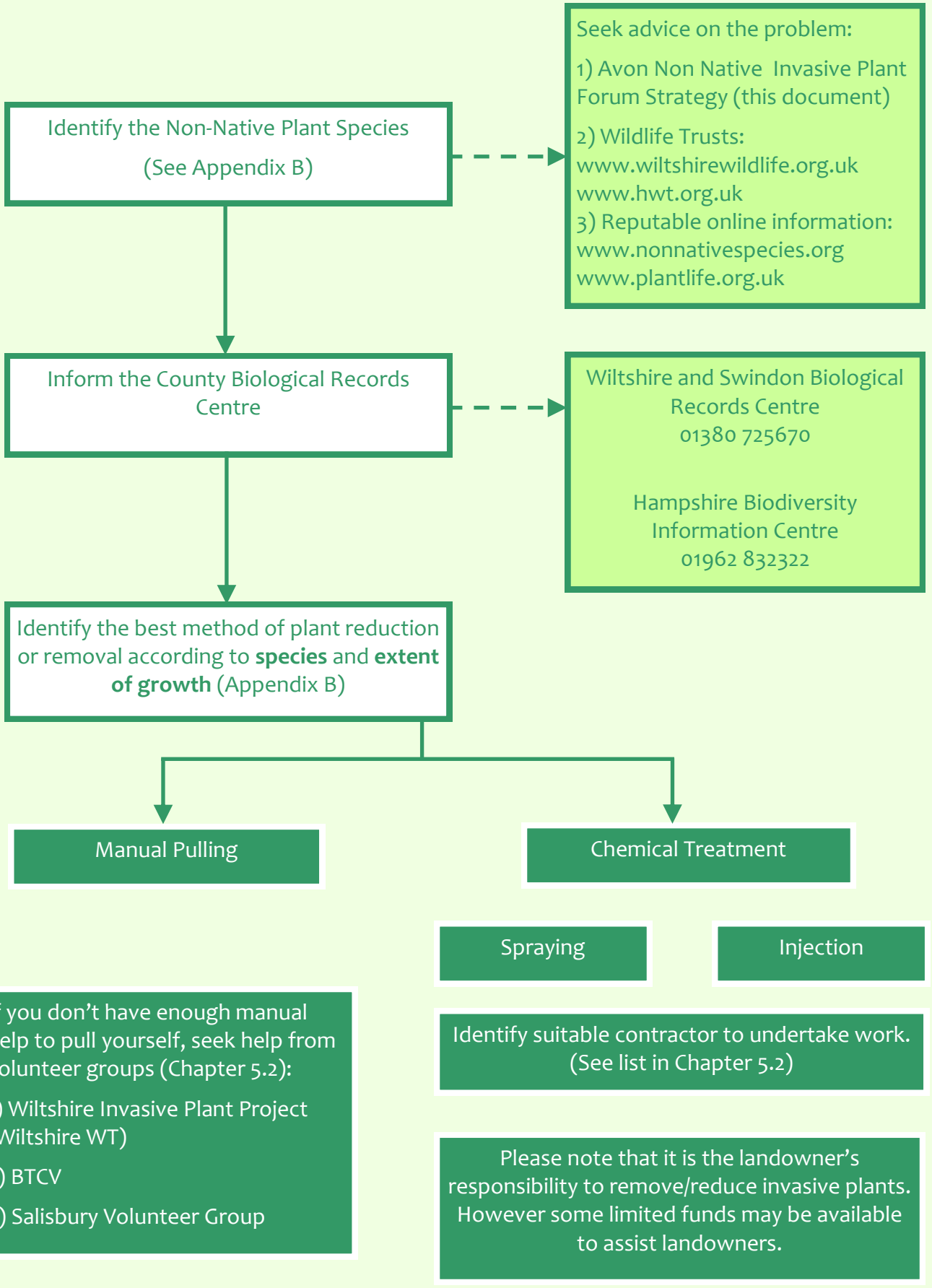
In demonstrating the need for rapid response to invasive plant problems, research has estimated that in Wales alone, it would have cost £53.3 million for a three year eradication programme had it started in 2001, but the cost would have been £76 million for such a programme starting in 2007. This 40% increase in cost in 6 years illustrates the need to act quickly in order to be most cost effective, even if the initial cost is still high.

6. Communication

Much of the present awareness of non native invasive plants is as a result of the ongoing communication of the problem to landowners and land users. Demonstration days and landowner engagement seminars run by the Wessex Chalk Streams Project on the Avon catchment have contributed to a broader understanding of the problem. It is important to keep this momentum going with continued press coverage, talks and demonstrations. We must now build on this and begin to find ways of communicating practical solutions to the problem.

A communications plan of how to achieve the long term objectives to reduce the problem of non native invasive plants has been produced by the Forum.

Below is a flow chart of what to do if invasive plants are discovered:



Process of events when discovering non native invasive plants