



# CARMARTHENSHIRE FISHERMEN'S FEDERATION

**Removal of Himalayan Balsam from the Towy Valley.**

**End of Year One Project Report – October 2017.**



# **Removal of Himalayan Balsam from the Towy Valley – Phase One 2017**

## **Preamble**

In 2016 the revamped CFF considered the appropriate strategy for its future activities in light of the array of problems facing Carmarthenshire's rivers. In deriving an effective strategy, it was necessary to recognise the limitations of the operational capacity of the new CFF and what it could realistically achieve. Basically the CFF is dependent on five individuals, three of whom are in full time occupation.

Occasionally it is able to call on back-up support from its members but in reality the lion's share of the work programme is carried out by the Chairman, the Vice Chairman, the Treasurer, the Secretary and an Adviser.

Given the limited resources available it was decided that the new strategy should have two axes – a lobbying function and an operational function.

The "Lobbying" function would address the major issues facing the river e.g. agricultural pollution, illegal netting, sea mortality, access etc., through a process of enlightened engagement with the stakeholders involved i.e. mustering CFF members and others to represent angling interests and put pressure on relevant decision-makers, NRW and WAG. This has proceeded apace, with CFF management now being members of advisory and pressure groups, organising letters of support from anglers, submitting letters of objection to perceived threats to our waterways and preparing answers for anglers to submit as part of Welsh Government's consultations on relevant policy and rules.

The "Operational" function addresses river-related problems which the CFF believes it can influence through direct practical action i.e. problems that can be addressed directly and effectively even given the resource limitations of the CFF team. This approach is executed through a programme of problem identification, project design, fund raising, rallying of support from stakeholders, acquisition of legal permissions and team building. Two such projects completed during 2017 were the Licensed Cull of Fish-eating Birds and the Himalayan Balsam removal project. This Report provides details of the CFF's efforts to remove invasive Himalayan Balsam from the banks of the Towy and its tributaries.

## **The Project – Removal of Himalayan Balsam**

This project is the first year of a longer term eradication plan for the removal of Himalayan balsam in Carmarthenshire's river valleys. In Year one the CFF carried out a detailed mapping of the incidence of the plant in the Towy valley from Rhandirmwyn down to Nantgaredig.

This has involved a programme of pulling, cutting and strimming of the plant and the creation of a close liaison and working alliance with NRW, farmers, angling clubs, riparian owners and individual anglers

This will be done in future years for the County's other waterways, from the tops of the rivers to a point below which there is no evidence of the plant.

By working together, mapping carefully and starting at the tops of the river catchments it is our intention to control and eventually eradicate this serious threat to Carmarthenshire's rivers and agricultural land.

## **The Background**

Over the last ten years the rivers and water courses of Carmarthenshire have become increasingly colonised by a non-native and invasive plant – the Himalayan Balsam. It blocks access to rivers, covers and renders unusable tracts of valuable farming land, overwhelms the native plants of the county, damages fisheries and affects the ecology of the water.

In the height of their season they are a relatively impenetrable barrier to access water courses and are utterly alien to the habitat that is natural to the watersheds of the county.

The species is expanding its range rapidly (its seeds are carried down the water courses by the rivers) and it is now increasingly visible in all parts of the river valleys. When mature and dry the fruits of the plant split open explosively if touched, flinging the seeds a considerable distance from the parent plant. Each plant produces about 2500 seeds which fall to the ground and with several parent plants close together, seeds can occur at a density of between 5000 – 6,000 seeds per square metre.

The seeds float and germinate on the water, making watercourses the prime route for dispersal of the species.

All this is happening in Carmarthenshire and the species is spreading rapidly.

## **The Need**

The need is to protect the river valleys of Carmarthenshire from invasion and colonisation by a foreign invasive plant – Himalayan Balsam. It is a pervasive and powerful invader, spreading quickly and covering valuable agricultural land with impenetrable walls of vegetation.

Identification of the threat from this plant came in a number of ways. Primarily it was clearly observable that the plant was spreading rapidly down the County's valleys and was overwhelming agricultural land in proximity to our rivers.

Discussions with other angling bodies and background research clearly indicated that the problem existed in other river basins and that actual programmes were in



place for its eradication. We realised that it was a serious problem in Carmarthenshire and that it was essential that some action was taken to deal with it.

The following photograph will give an indication of the pervasiveness of the plant and its highly successful colonisation of our river banks. The river is just beyond the plant.



Concern at the above type of situation by the CFF was further emphasised by early-stage stakeholder engagement in NRW's "Taclo'r Tywi" initiative which identified some of the pressures currently being faced by the County's landowners, land managers and land users. Those listed identified non-native invasive species as the second highest rated problem in their list - after Economics (i.e. the state of the market for produce). Specifically it was Himalayan balsam that was identified as the most extensive invasive species in Carmarthenshire and the one for which stakeholders required the most urgent corrective action.

### **Fund Raising to finance the project.**

To meet the needs identified above, the CFF proceeded to launch a fund raising campaign with relevant stakeholders:

In addition to the £3,000 (plus free management inputs) contributed by the CFF itself and in response to presentation by CFF of the draft project modus operandi to

relevant parties, the following organisations generously pledged grants for the project:

Carmarthenshire Rivers Trust - £3,000

Afonydd Cymru - £4,000

Angling Clubs (Llandeilo Angling, Crosshands and District Angling Association, and Carmarthen Amateur Angling Association (£400 each) - £1,200

Nineveh Charity - £10,200

Natural Resources Wales - £1,000

### **TOTAL - £22,400 - project costs in Year One**

The final agreed contributions from two grantors amounting to £3,000 are expected to be received in the Federations accounts in the near future.

## **Project Costs**

The scope of the Project was naturally circumscribed by the amount of grants that we had been able to raise relative to the quotes from contractors of their daily costs<sup>1</sup>.

### ***Procurement***

The contractors were chosen on the basis of their known previous experience of balsam work along the banks of the Towy. They are local contractors and have established a good relationship with the farmers who own the riparian rights on the waters covered. One contractor worked in the Rhandirmwyn/Llandovery area and the other from Llangadog downstream.

The hourly rates quoted by both contractors were the same and related to machine hours and man hours. The majority of the work was carried out by a single man with a brush cutter or strimmer. The project was tightly managed and total actual expenditure at project end came to £20,110 – all of which went directly to cover contractor cost. All CFF project management was provided free of charge. No expenditure other than contractor cost was incurred. Relevant invoices and receipts from contractors are available for viewing.

When all monies pledged are received, the underspending of £2,000 will be ring-fenced for the continuation of the project in 2018.

## **Modus operandi:**

It was decided from the beginning that the first essential step was to identify the geographical locations of the plant. To this end the CFF collaborated with the NRW,

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<sup>1</sup> All supporting documents such as contractor quotes, letters of introduction, letters of appreciation, cost breakdowns and a large library of before and after photographs are available for viewing by request to the CFF.

landowners, clubs and individuals to design and execute an optimal system of mapping the presence of the plant in the Towy valley and selected tributaries.

### **Mapping:**

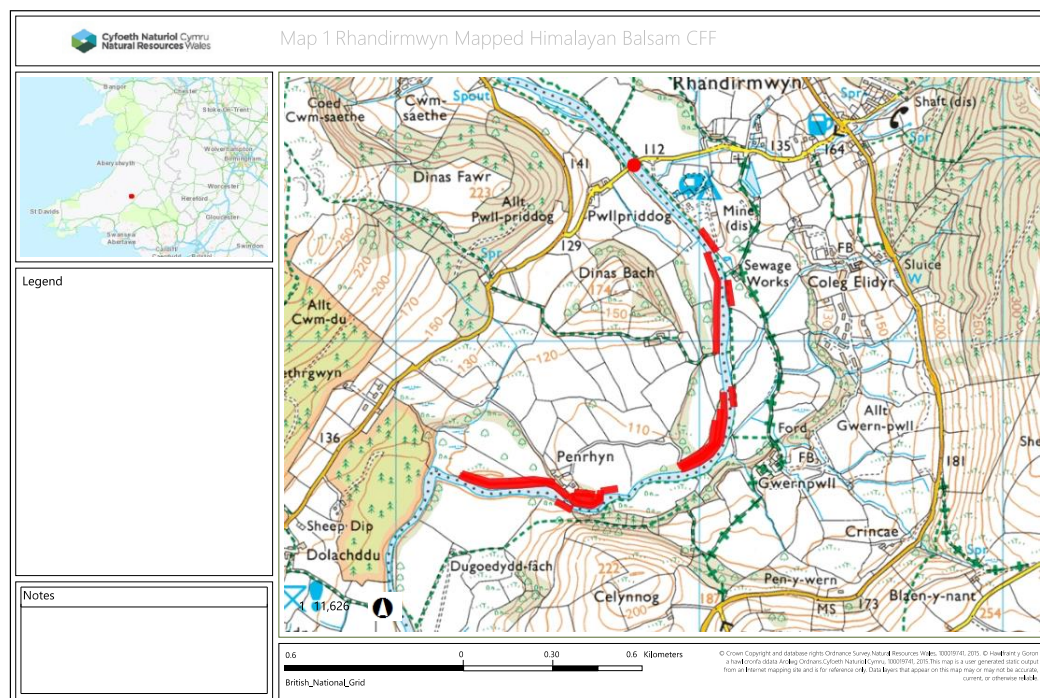
This commenced with a survey of the valley and the identification of the incidence of the plant. Ten broad areas were identified by the CFF between Rhandirmwyn (the top of the river in terms of balsam incidence), Llandovery, Llandeilo and Nantgaredig. The CFF received considerable support and technical input from NRW in this regard.

It was then necessary to seek and get permission to walk and map the sites - from local angling clubs, farmers and private fisheries. All these groups participated in the project.

O.S. maps and the Plant Tracker Application were used in this activity.

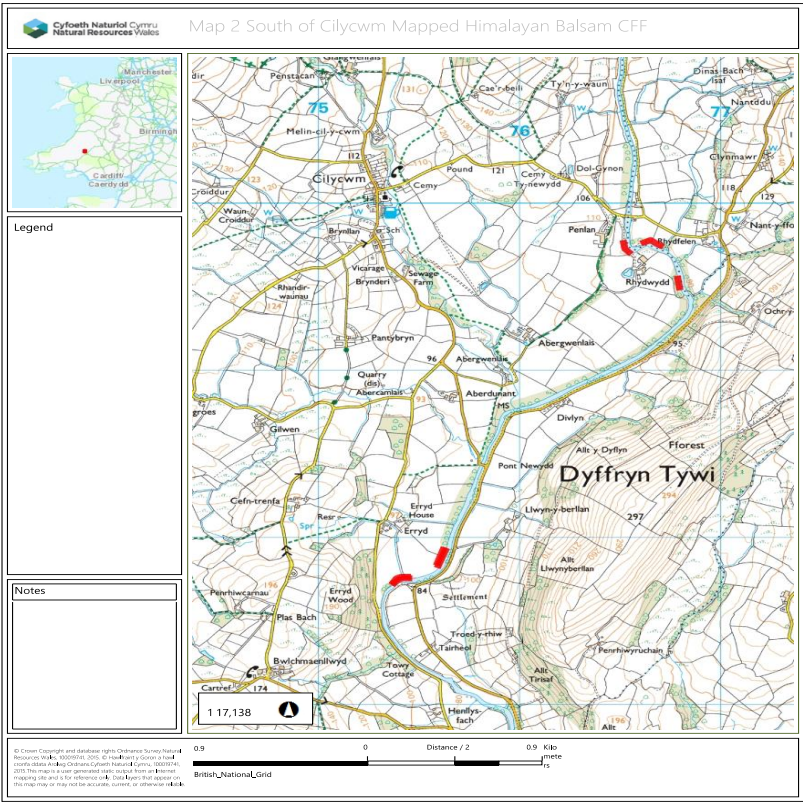
Details and maps of areas surveyed are provided below. The areas outlined in red are where the plant was observed.

### **Rhandirmwyn:**

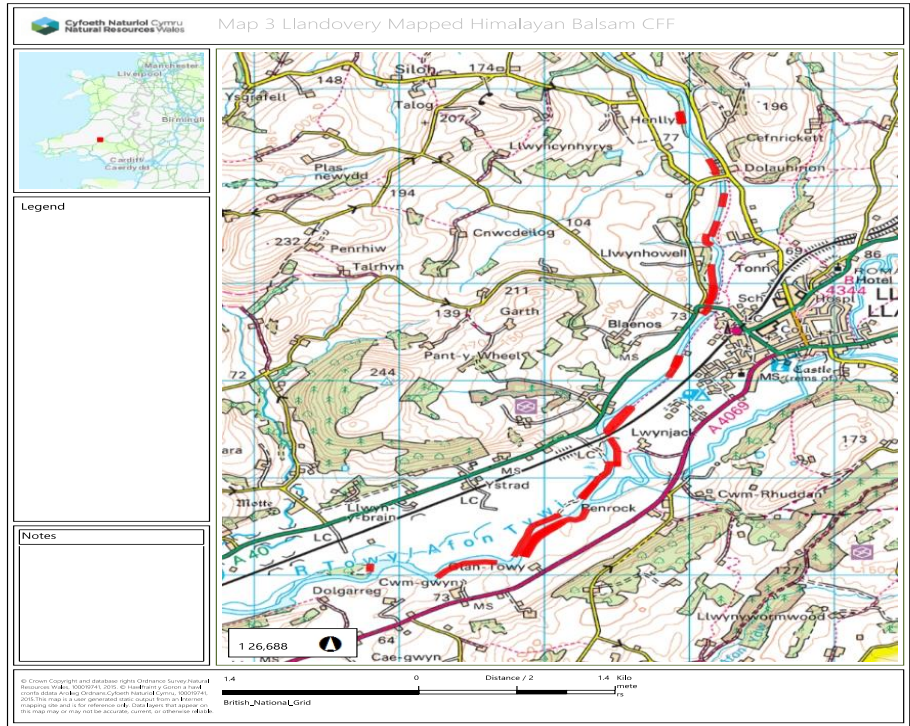




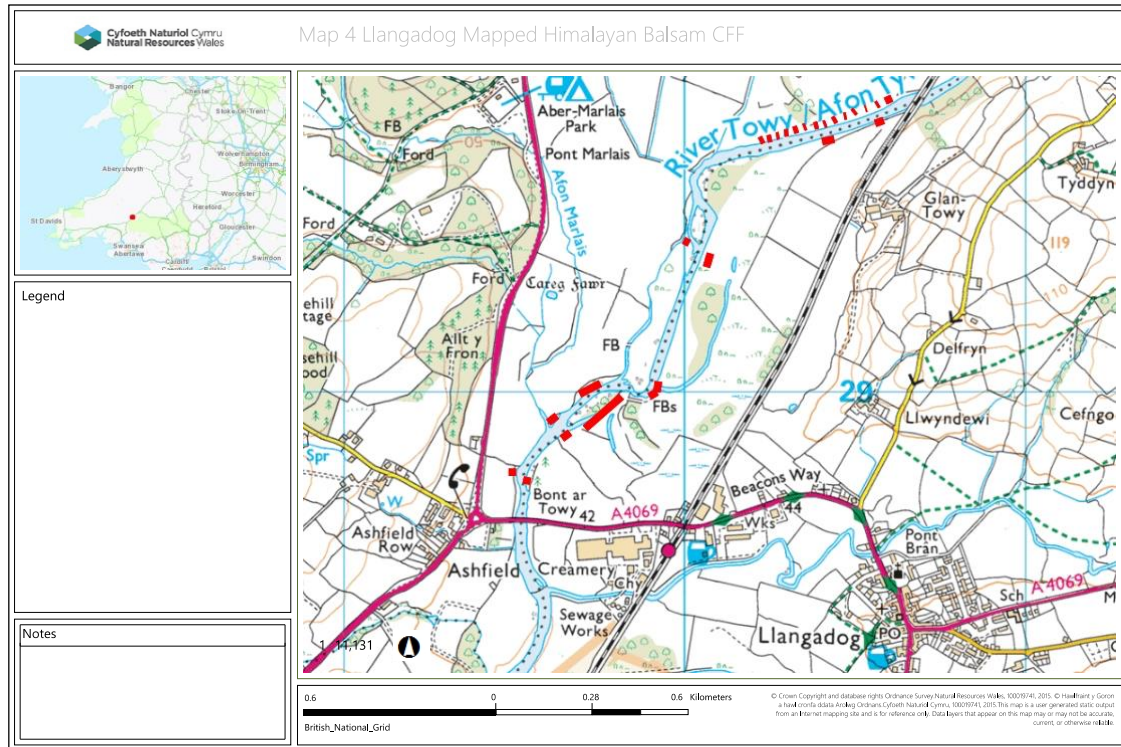
Cilycwm:



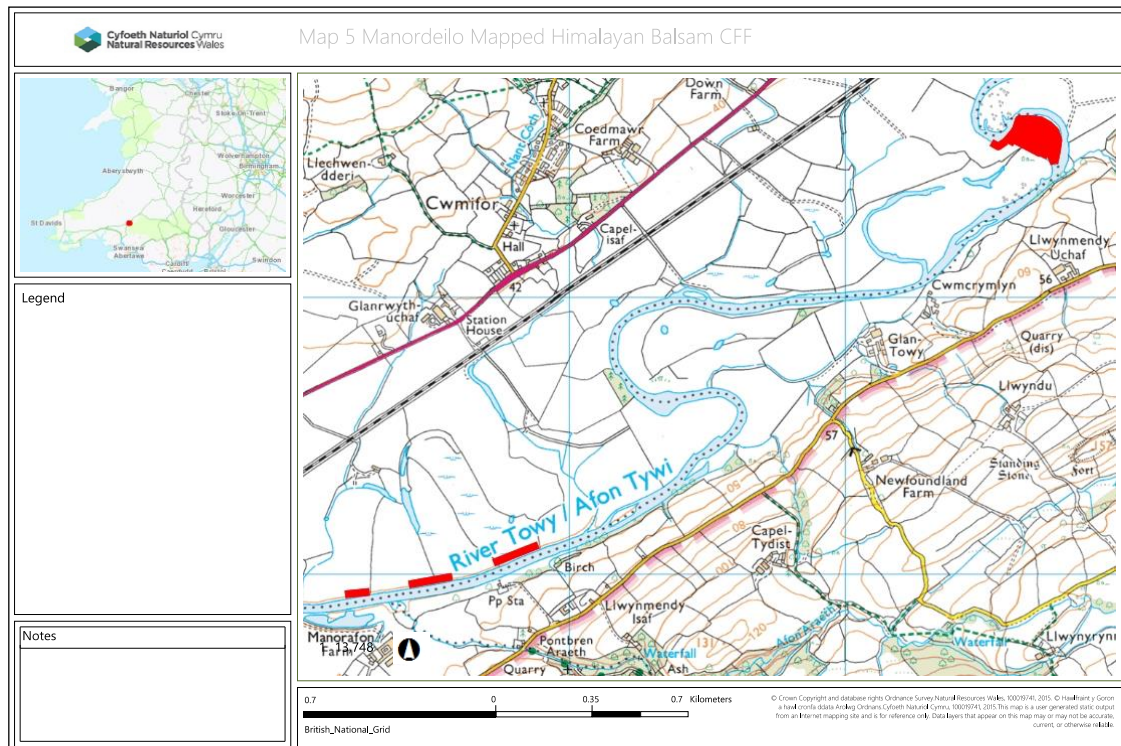
Llandovery:



## Llangadog:

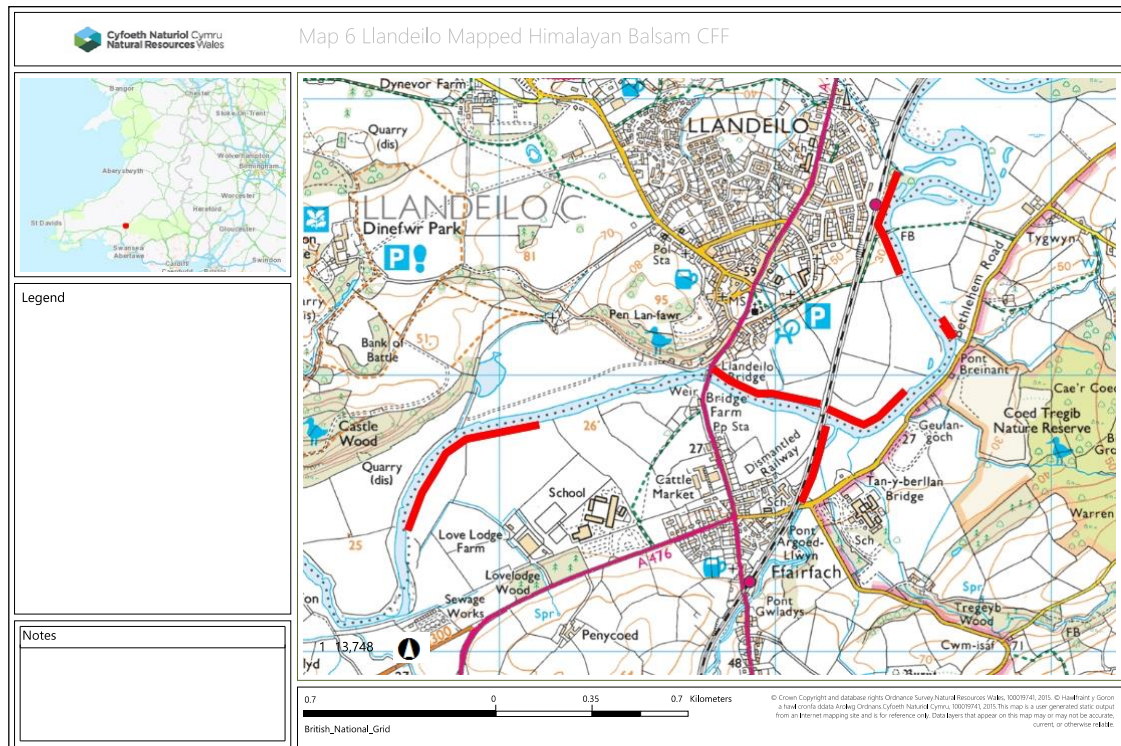


## Manordeilo:

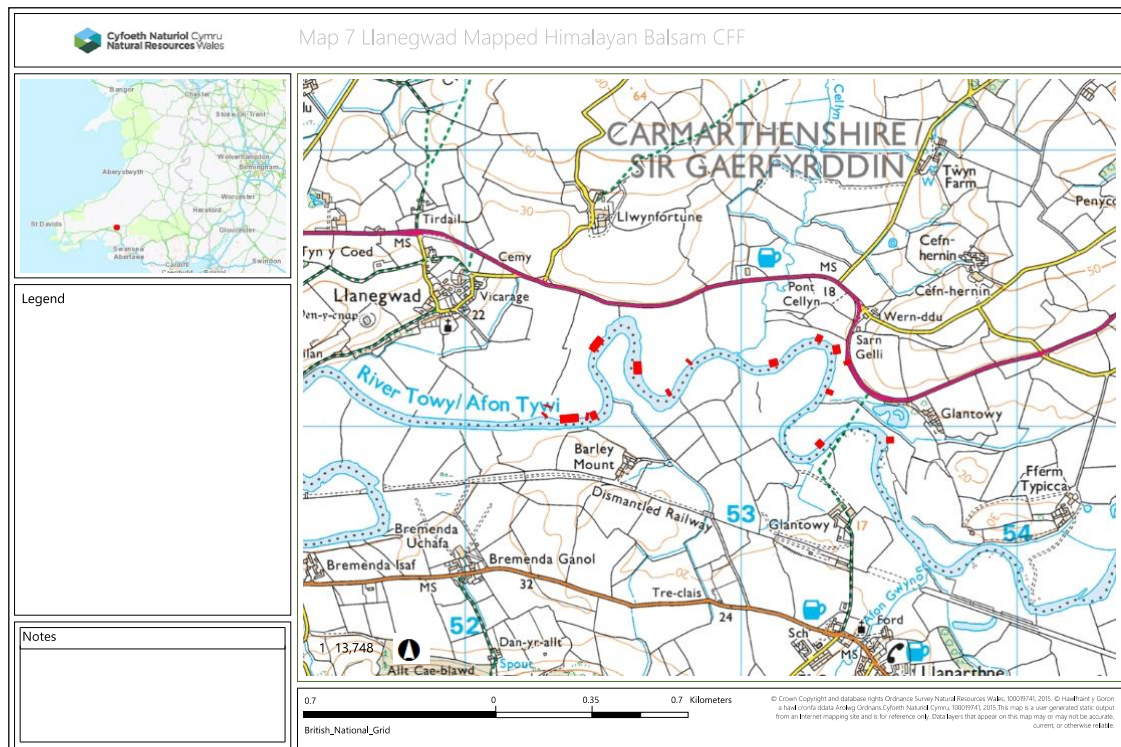




## Llandeilo:



## Llanegwad:



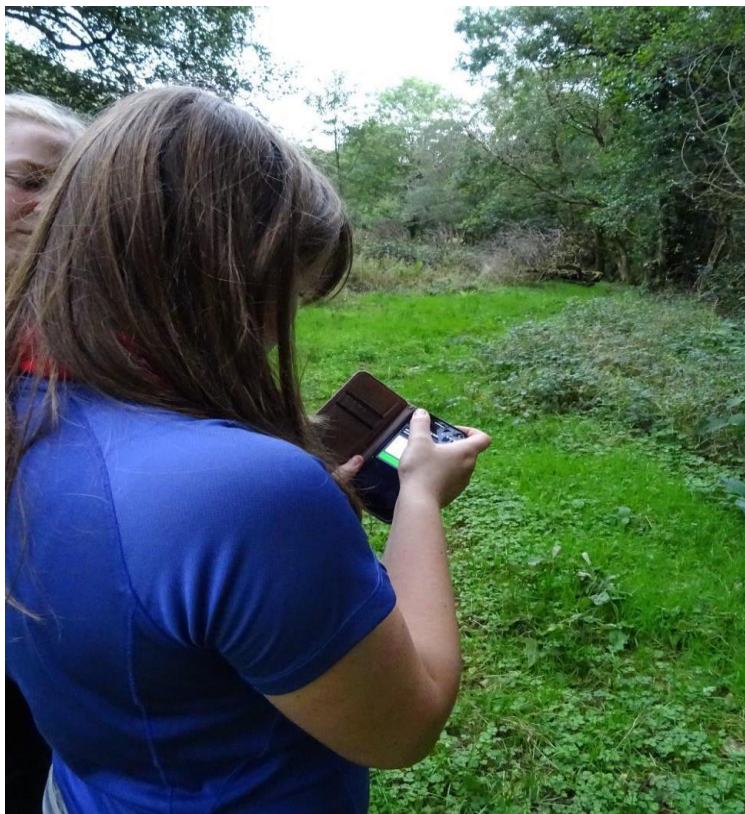
Individual areas in the north of the valley were identified and plotted in April and May by Mr Vince Rees a CFF Committee member who walked many of the northern sites personally in order to schedule the work appropriately and effectively. Infested areas further down the valley were mapped by Jamie Harries (CFF Treasurer). Some areas were also mapped by club members including: Hywel Evans – Crosshands waters; Arwel Evans and Aled Davies on Llandeilo waters; NRW Officers Alison Baird and Anne Thomas – the Bran.

Four tributaries were also included – the Manordeilo Dulais, the Bran, the Sawdde and the Cennen. Surveys of the Bran tributary were carried out by NRW staff and of the Sawdde tributary by volunteers (in readiness for next year), including the Merlin Scout Explorers.

Siriol Butterworth Merlin Explorer Scouts Team Leader said “We learnt of the plans to eradicate the plant through a programme of mapping, pulling, cutting and strimming from the rivers of Carmarthenshire from the top of the river catchments down. The Merlin Explorer Scouts were planning their forthcoming programme of activities and the objectives of the project were “a good fit“, involving navigation, mapping skills and an appreciation of environmental matters”.

Siriol said “We undertook the mapping over two days and were pleased to report that our explorers received a warm welcome from the landowners whose permission was sought prior to undertaking the project”.

Merlin Scout Explorer using the plant tracker.





*A team of Merlin's Explorer Scouts from Carmarthen – “Young people helping protect the environment for future generations on World Rivers Day 2017”.*



Once the mapping was completed the work started at the date coherent with the seed development of the plant. This involved cutting, strimming and pulling.

The mapping which began in April and May enabled us to develop a work plan, allocate work schedules to our contractors and coordinate activities with clubs and riparian owners from Llandovery down to Llanegwad. The management of these activities was carried out by Jamie Harries Treasurer and Mike Hill Secretary, CFF.

## **Cooperation**

The cooperation from so many stakeholders on the mapping shows that we are developing a county-wide platform and strategy for dealing with Himalayan balsam, working closely with NRW, farmers, angling clubs, riparian owners and individual anglers.

The CFF has obtained cooperation from the Carmarthenshire Rivers Trust, Angling Clubs, volunteers and Farmers, working in a coordinated way in terms of sharing costs, management, coordination, cooperation and volunteer input.

Individual anglers have got involved by utilizing a free mobile phone application called “Plant Tracker” specifically designed to record invasive plant species.

We have appealed to anglers to “pick 50 plants” every time they fish.

Building on this cooperation through a 2- 4 year programme of mapping, pulling, cutting and strimming, CFF aims to eventually eradicate the plant from our rivers from the top of the river catchments down to its lowest incidence.



We have encouraged anglers to help by recording the presence of the balsam when they are out fishing. There is a free mobile phone application called “Plant Tracker” specifically designed to record invasive plant species - <http://www.planttracker.org.uk/>. This is a free application that can be downloaded onto smart phones and used to record invasive species – sightings of which are automatically sent to the overarching National Biodiversity Network (<https://data.nbn.org.uk/>). These readings are then used to populate the relevant tracker maps which in turn can be guides for the plant removal activity.

Club and landowners carrying out their own control measures have also forwarded these details to CFF so that we and NRW can build up a picture of what is being done. Again this will inform future management plans.

## **NRW.**

We are indebted to NRW who have supported the project from the outset.

Assistance provided included:

- Officers confirmed that as part of the Tackling Tywi project, farmers had identified the control of Himalayan Balsam as a major area of concern.
- Officers provided advice on access, technical expertise and current mapping facilities which could support the project.
- Officers encouraged CFF to map the upper catchment where they currently did not have records.
- The information gathered through collective mapping efforts from volunteers and NRW have helped to shape our management plans/projects in our efforts to deal with the problem.
- Officers produced technical information for those interested in knowing more on how to carry out direct control measures. The information received was published on the CFF website and the Sea Trout Forum and distributed to individual affiliated members.
- NRW has directed CFF to the location of Himalayan Balsam extent maps/data (i.e. National Biodiversity Network Atlas and Plant Tracker Maps).
- NRW generously promised a contribution of £1000 towards the project.
- NRW obtained distribution data in order to highlight specific areas in the upper catchment where they currently do not have records. The information will shape CFF management plans/projects in future efforts to deal with the problem.

- Officers provided links to information on plant identification

### **Himalayan Balsam Plant Identification**

<https://www.rhs.org.uk/advice/profile?pid=480>

### **Giant Hog Weed Plant Identification**

<https://www.rhs.org.uk/advice/profile?pid=458>

- There is a possibility that CFF will be allowed to see and use NRW satellite imagery to build on the mapping data so that in future we can target bits that were missed this year because of difficulty of terrain.

### **Area covered:**

The contractors were asked to cut a 20m strip from the river bank inland. However, there were many wooded areas away from the river which were also tackled.

The total area of the river covered from the identified start point of the balsam to the finish is approximately 16km in the upper valley and 29km in the lower valley – a total of 45km of river valley cleared of balsam where it was possible to do so.

Given the actual total expenditure of £20,110, this works out as a contractor cost of £446 per kilometre. It must be stressed however that a significant amount of “horizontal” plant removal was carried out i.e. not along the bank but in heavily infested tributaries, woodlands etc. This would not show up in the data for linear north-south distance cleared. i.e. the cost per linear Km is not an accurate indicator of real costs of the area cleared – it is an exaggeration.

All the areas marked in red in the maps above were covered by the project.

**“Before and After”**

**Llandeilo:**



**Glanrhyd – Llangadog AA**





**The Cennen tributary: Before-**



**After -**



## **Lessons learnt from Project Year One:**

The logistics involved in executing this project were very complex. In spite of this, the CFF project team achieved a very high level of engagement with the species and eventually cleared balsam from some 45 Km of river – starting at the top. This is commendable given the difficult conditions.

Because of the involvement of so many stakeholders in all the areas covered, a major campaign for seeking permissions and access had to be organised. This involved efforts to contact and involve angling clubs, farmers, riparian owners, County Council, British Rail, NRW and various volunteer groups. The weather also had to be taken into account plus the seasonal activities of farmers on their lands – some of which precluded the Balsam team from carrying out their work.

In some areas landowners expressed a resistance to allowing vehicles to cross their land to gain riverbank access. The early silage cutting due to good weather was a key factor in this as landowners did not wish the crop to be damaged. This meant that the project operative had to walk considerable distances each day to reach the cutting areas and return in the evening. This increased time and cost and was fatiguing. Also because of cost it was only possible to have one operative on each patch of balsam at any one time and, although cost-effective, this did mean that jobs took longer than planned.

It was also seen that machine cutting is quite limited in scope and in a number of instances it was not possible to get a machine to the river bank or to work effectively when there because of difficult terrain. Strimming, pulling and, spraying might provide a more effective and cost efficient approach next year – the latter method being important as the scope of the project was quite limited by the budget available for Year 1.

As a result of the multi-faceted nature of the project and the complexity of its organisation, it proved impossible, in the time available (a few months), to maximise efficiency in the execution of the project. As a consequence there were some problems with accuracy of information, timing of activities and the most effective utilisation of funds. In essence not enough time or manpower was available during the Spring months to properly manage the accurate mapping of the incidence of the plant and to optimise the location of the cutting work in order to minimise and avoid disturbance.

In particular access to the important mid-Towy Llandeilo AA waters was poor. At times the contractors were not allowed to work on the land and in some cases there was an absence of balsam where mapping feedback had indicated it was present.

One problem that remained unresolved was the significant infestation of the species along the main railway track through the valley and on CCC managed verges. It did

not prove possible to manage the provision of permission to work in those areas and those colonies of plants remain in situ.

Costs were as predicted but it seems necessary to note that an average of £446 per kilometre is relatively high. As mentioned above, a good portion of the work was carried out at a good distance from the river and in such cases perhaps, next year, consideration should be given to the use of a chemical such as Round Up which apparently costs circa £75 a litre and with which one knapsack could cover 500 metres (diluted from 2 litres to 18 litres).

There was also an insufficient level of communication with farm owners and as such delays were experienced with access to key areas. Indeed the process of identification of all relevant landowners in the mapped areas was complicated and difficult. Letters were sent out (with help from NRW) but there was no proper follow-up to this and as a result some of the farmers did not seem to experience any form of ownership of the work being done albeit that removal of balsam is of considerable benefit to them.

## **Project needs for Next Year**

Lessons have been learned from this first year of project experience. Planning for next year will deal with and avoid some of the problems that have been experienced this year. Crucially, more time will be made available to plan and ensure effective mapping and communication.

There is only a fixed period of time to optimally remove the plant and thus all necessary preparations regarding, mapping, contractors, methods, access and permissions must be in place to maximise the effectiveness of the work during that set time period. This suggests that the entire project will be best controlled under one Project Manager.

Next year's project will also be shaped by the results of this year's work i.e. it will be necessary to revisit sites covered this year and assess the level of re-colonisation if any. It is only after that post-project evaluation that the precise parameters of the second year work can be drawn up.

In general however, next year's project will contain:

**Better coordinated mapping** – considerable time was spent this year in re-visiting and re-mapping key areas as reality did not always match the original mapping. In future the whole mapping exercise will be managed by one person in order to ensure complementarity and consistency. We aim to build on the foundation mapping and control work undertaken in Year 1 and to learn from our experience. We want to make use of the satellite images suggested by NRW if this is possible. This will be particularly useful for the Sawdde and Bran and could enable us to build on the mapping data so that we can, next year, target the bits that we missed this year.



**Better arrangements regarding access** i.e. to work efficiently and cost-effectively we will want to review all existing access arrangements with riparian/landowners directly. This can be assisted by NRW in their regular liaison meetings with landowners and the issuance of timely explanatory letters with regard to the new project. Given the experience of Year One, it is clear that facilitating access well in advance will help efficiency and reduce cost.

**Direct contacts with Carmarthenshire County Council and British Rail** in order to obtain permission to clear the plant from the railway track and Council verges.

**Spraying** – evaluation of effectiveness, cost efficiency and hazards of using this approach

**Cooperation** - The CFF project team next year would want to maintain its engagement with this year's supporters and also engage with further volunteer groups and the community at large through NRW's "Taclor Tywi" initiative.

We will also be encouraging increased support from individual anglers through the "Pick 50" method.

**Larger budget** - to maximise impact and area covered, although it should not be necessary to spend as much on this year's sites next year. As mentioned above, an estimate of the size of next year's project will require a post-project evaluation in 2018 at a time when the plant first appears in order to assess the effectiveness of this year's efforts to remove the plant. This could mean the extension of the project downstream as far as Carmarthen.

**Funding** - the extent of the activities in "Year 2" will largely be dependent on further funding to supplement the continuation of a £3,000 contribution already earmarked by the CFF. We hope that "Year 1" contributors will find it possible to continue to fund the project although other funding sources will also be explored. We are aiming for an increase in the base line of the £22,400 pledged in 2017 as this will greatly enhance efficiency and effectiveness.

**Support from the agricultural sector** - we will request NRW and Club members, on our behalf, to assess and encourage the prospects of greater coordination and support from the agricultural sector –bearing in mind that this is in their "top two" issues of concern, second only to economic pressures.

**Operational** - we aim to use existing contractors during Year 2 as the quality of their work has been good. These contractors are familiar with particular beats and the riparian owners and this will help to build a closer working relationship with riparian owners. We do however aim to employ a wider pool of contractors in Year Two to cover a wider area and also to cover the possible need for a "second cut" in some areas.

Overall the Project in Year one has been a relative success. Large quantities of Himalayan Balsam have been removed from river banks and adjacent areas, all the way down from Rhandirmwyn to Llanegwad. It has been quite a steep learning curve but as Project Managers we have learnt from it and taken note of the main pre-requisites for an efficient and effective Year Two project in 2018.

It is our hope that the main stakeholders will continue to assist us in our efforts.

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