



the River Restoration Centre

Working to restore and enhance our rivers

Delivering River Restoration: Recipes for Success

13TH ANNUAL NETWORK CONFERENCE



Restoring Europe's Rivers



ARUP



Penny Anderson Associates Ltd
CONSULTANT ECOLOGISTS



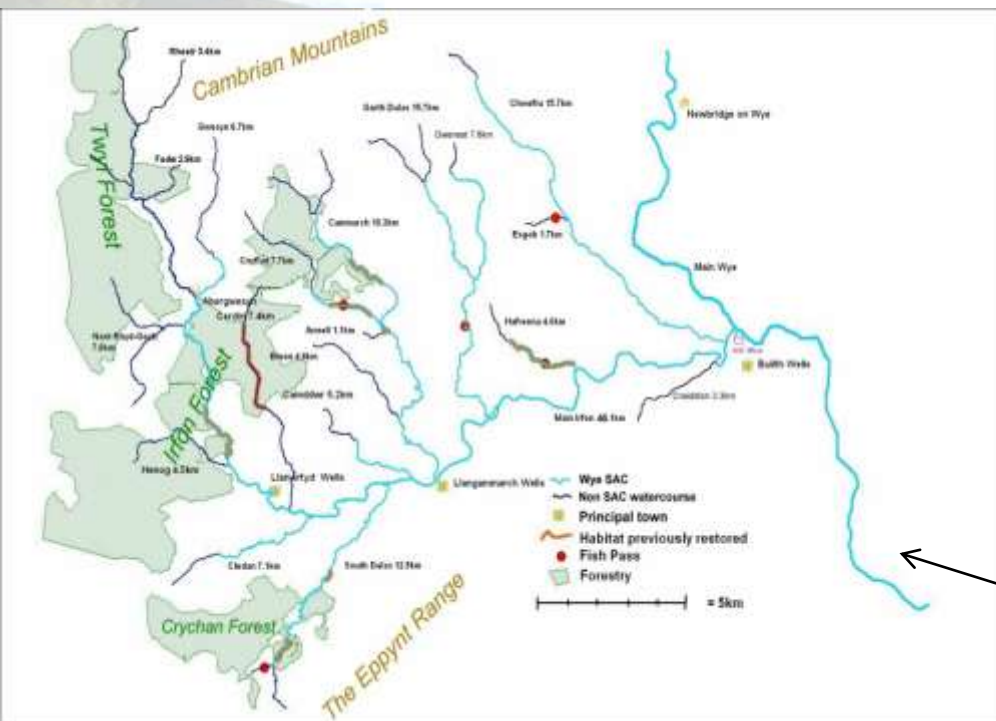
WILLOWBANK
Erosion & Conservation Services



The Irfon Special Area of Conservation project

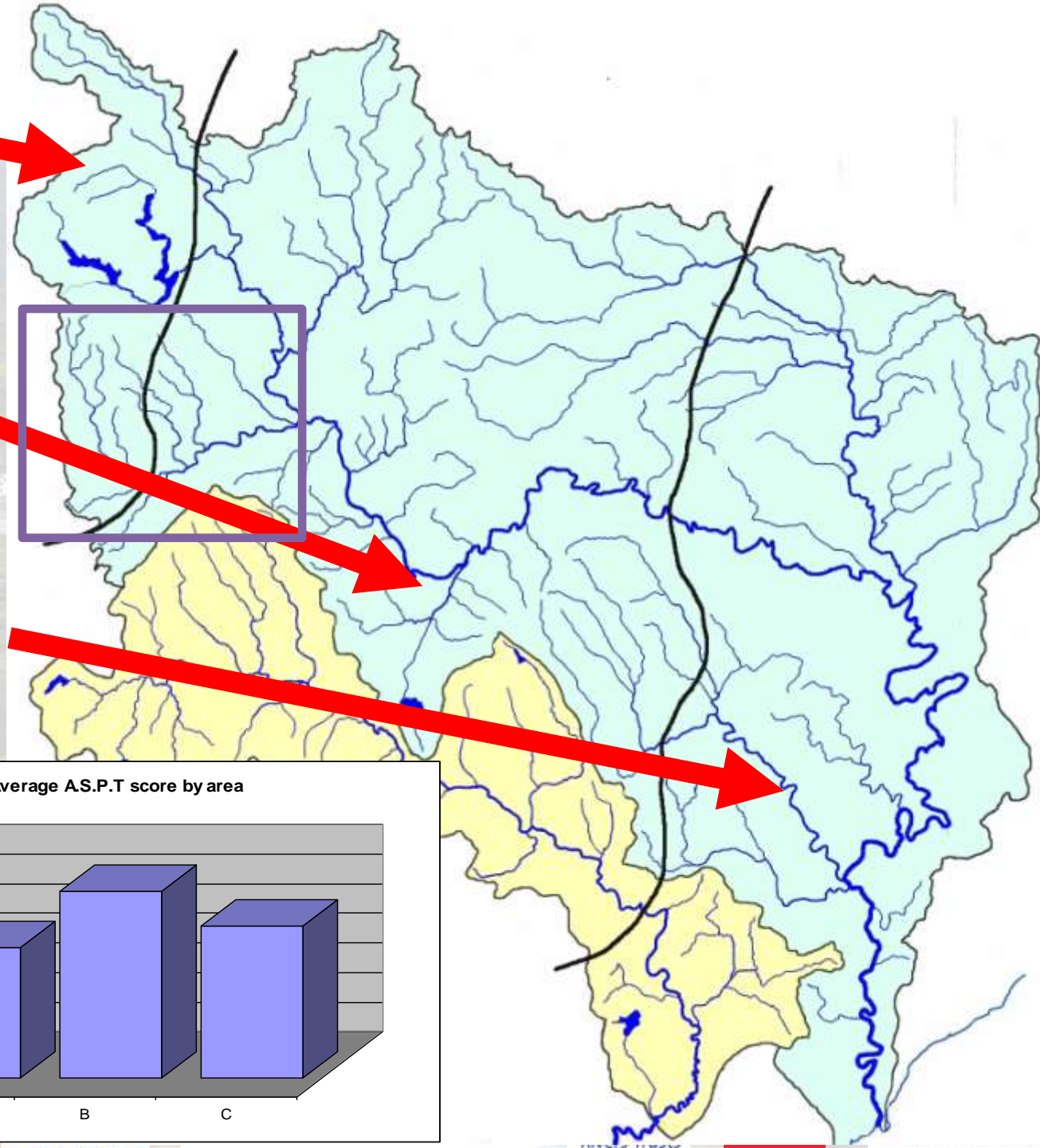
Simon Evans- Project Manager



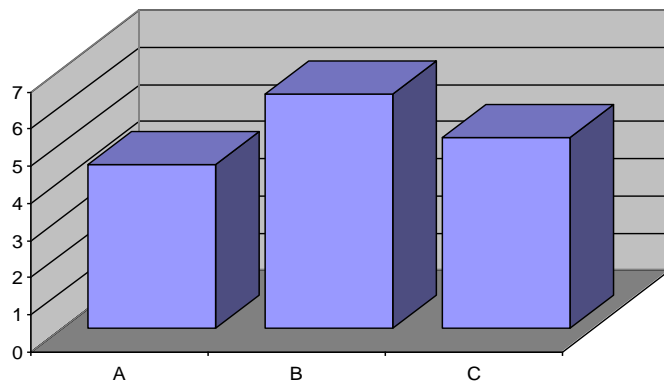


Catchment: 300km²
 Agriculture: 74% (pasture and moorland)
 Forestry: 23% (upland conifer)
 Urban and transport: 3%
 Rainfall: 2500mm – 1100mm
 Geology: Ordovician and Silurian;
 variable from hard quartzs - shales – clays. No limestones

- Minimal agriculture
Excellent habitat,
Water Acid
- Extensive agriculture Good
WQ, poor habitat,
was blocked
- Intensive agriculture, Poor
WQ, Moderate
habitat, blocked



Average A.S.P.T score by area





ASiantaeth YR
AMGYLCHEDD CYMRU
ENVIRONMENT
AGENCY WALES

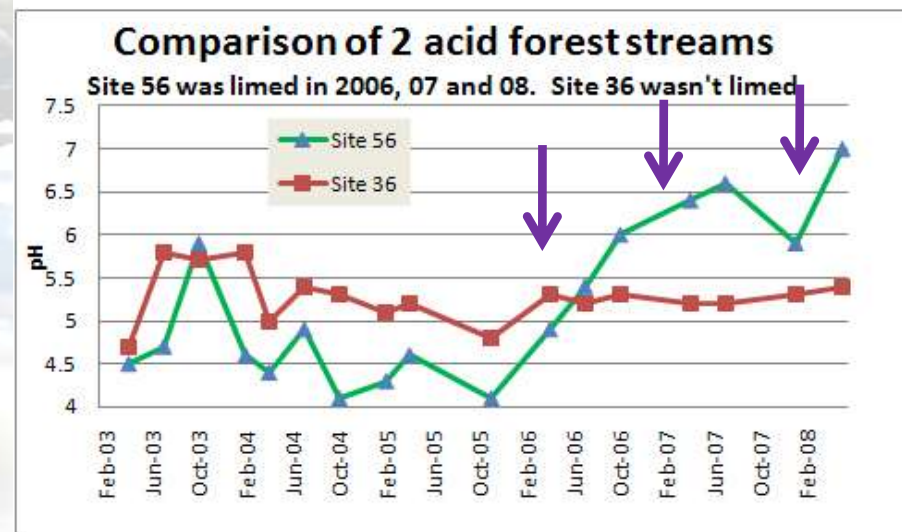


Previous work in catchment

- Pioneer fish pass work completed in 1997. 6 passes opening up 48km of salmon habitat
- 12km of habitat restored within the pHish project (2004-08)
- 6 Passport beats established



- In upper Irfon many of the the sources of streams have been obliterated by forestry
- Winter pH of forest streams 3.9-5.2
- Management solution is to introduce lime direct to channel.
- Now have enough data to prove efficacy
- Requires annual dosing
- Does not address flow and sediment problems



The project

- Restore 10 hydrological sources (HSAs) in the upper Irton catchment, naturalising flows and restoring water quality through liming.
- Restore 30km of SAC designated riparian stream habitats
- To bring all SAC listed species into favourable condition
- To assist in climate proofing the Wye SAC
- Formalising and expanding of records for SAC species within the Irton
- Publicise and disseminate the results

ISAC

Irton Special Area of Conservation Project
Ardal Gadwraeth Arbennig Irton



The ISAC project is restoring and protecting the river Irton and the rare and endangered species that live in it such as Otter, Atlantic salmon, Freshwater pearl mussel, River and Sea lamprey, Whiteclawed crayfish and Twaite shad.

'r ISAC brosiect ydy yn adfer a yn achlesu 'r afon Irton a 'r 'n amheuthun a berygledig rhywogaeth a buchedda ynddi 'n gyfryw fel Ddyfrgi, Iwerydd eog, Freshwater berl mussel, Afon a Aig lamprey, Gwynnwy crafangiedig crayfish a Twaite shad.

Led by:
Arweiniedig at:

The Wye & Usk Foundation



wyouskfoundation.org

In partnership with:
I mewn partnership ag:



Asiantaeth yr Amgylchedd Cymru
Environment Agency Wales

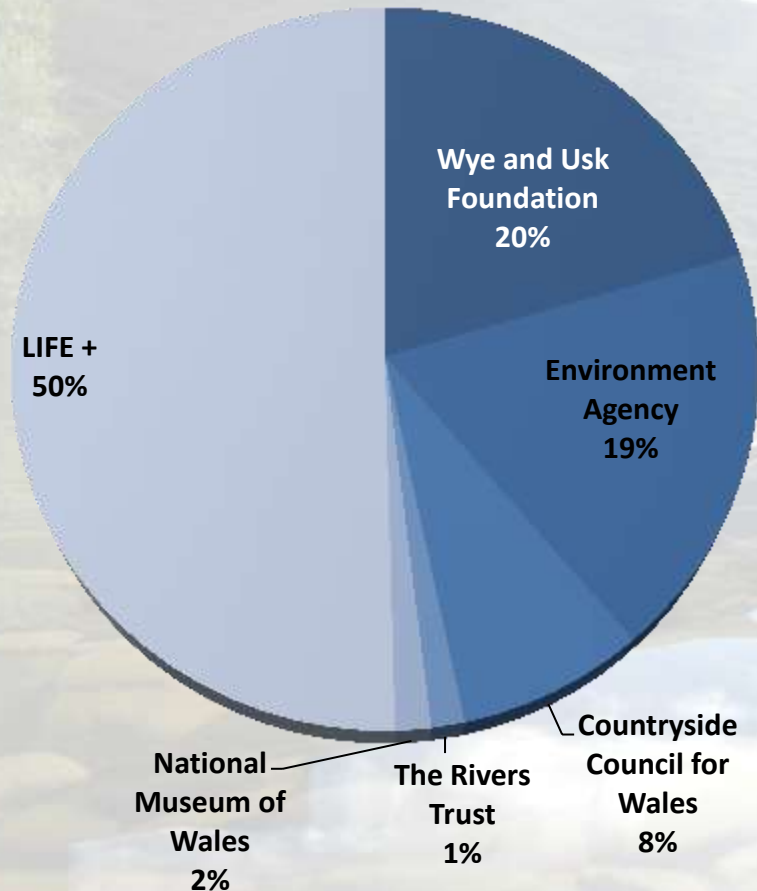


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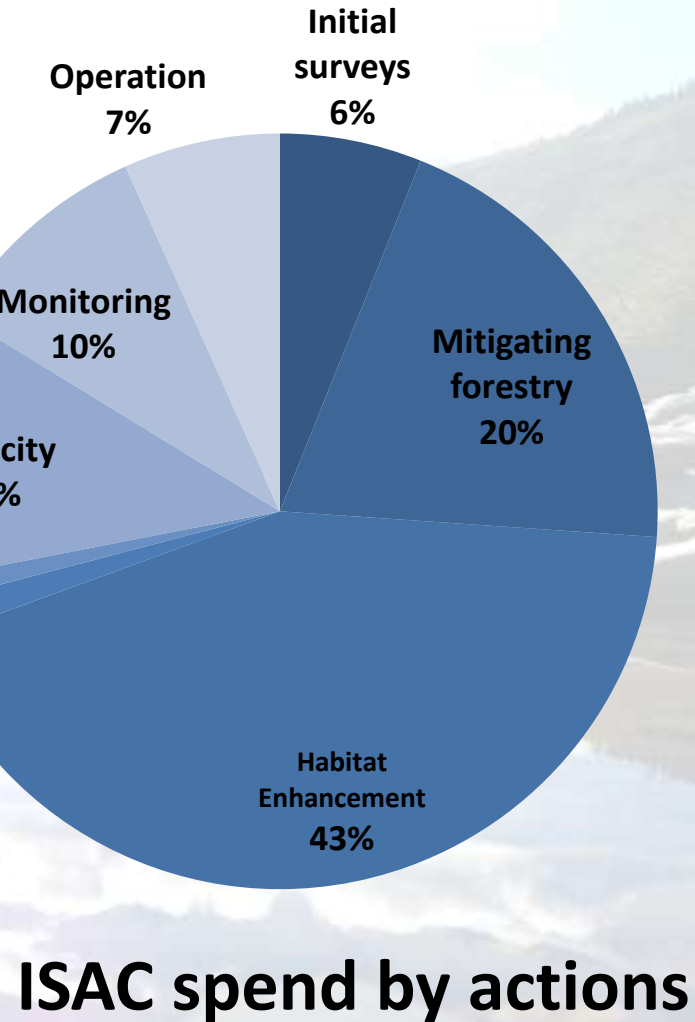


€1.63m

ISAC funding



Crayfish breeding 1%
Pearl mussel breeding 1%



ISAC spend by actions



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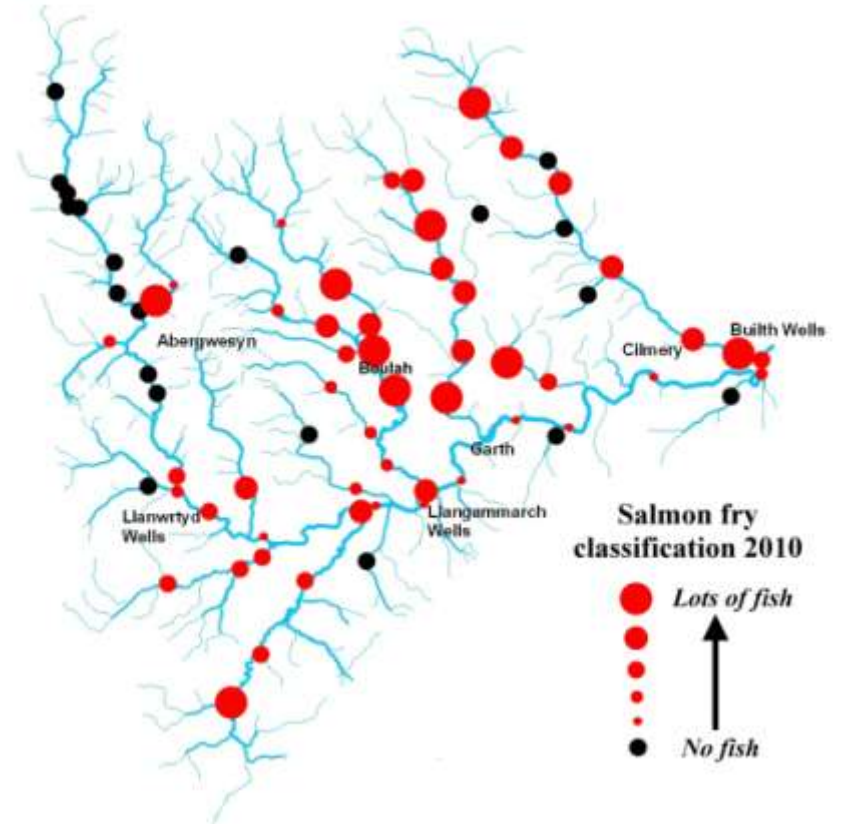


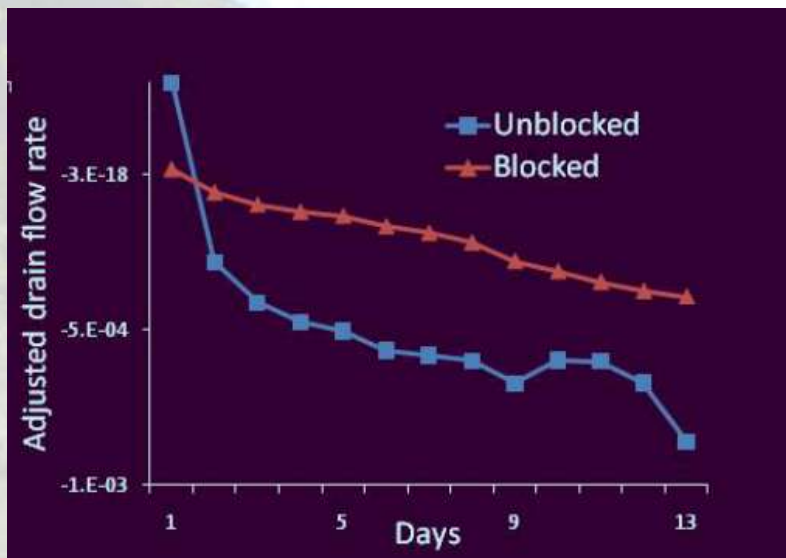
Initial surveys

- To increase our understanding of catchment and establish baseline for SAC species populations

2010: Riparian habitat, Crayfish, Otter and Fish

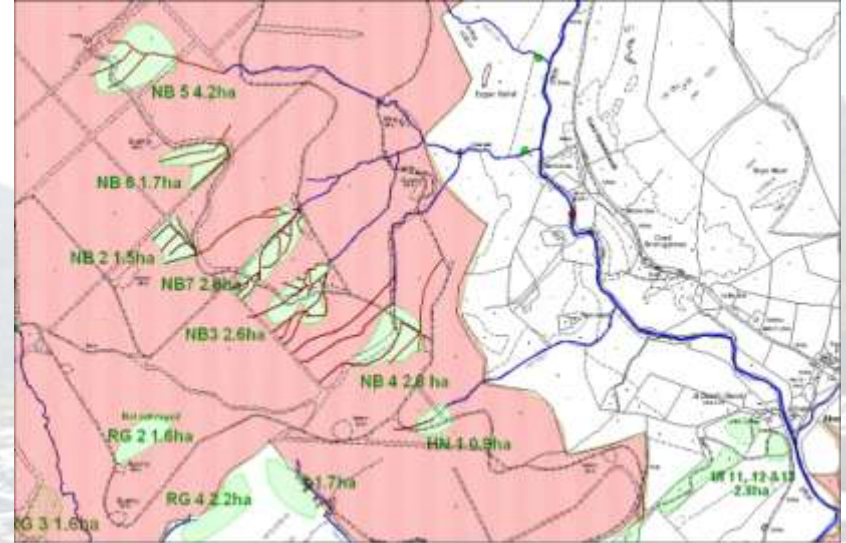
2011: Forest and Water quality





Mitigating Forestry

- Forest HSAs and drainage mapped
- Discrete sources in North
- Blanket bog in South
- Slow but forward progress. WFD main driver pushing forestry.
- Trees removed on 11 HSAs (31ha) so far
- Drain blocking started last autumn





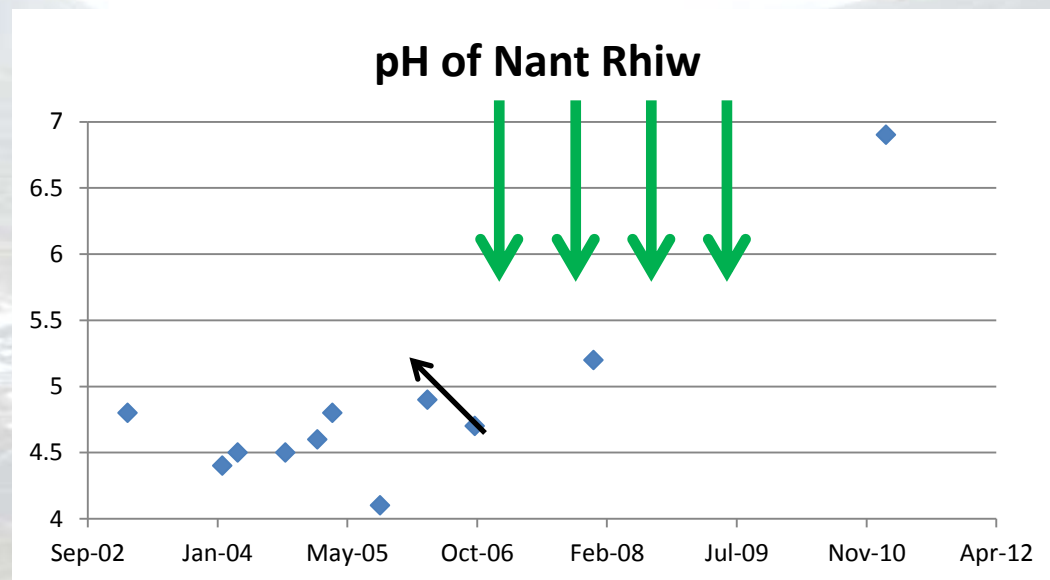
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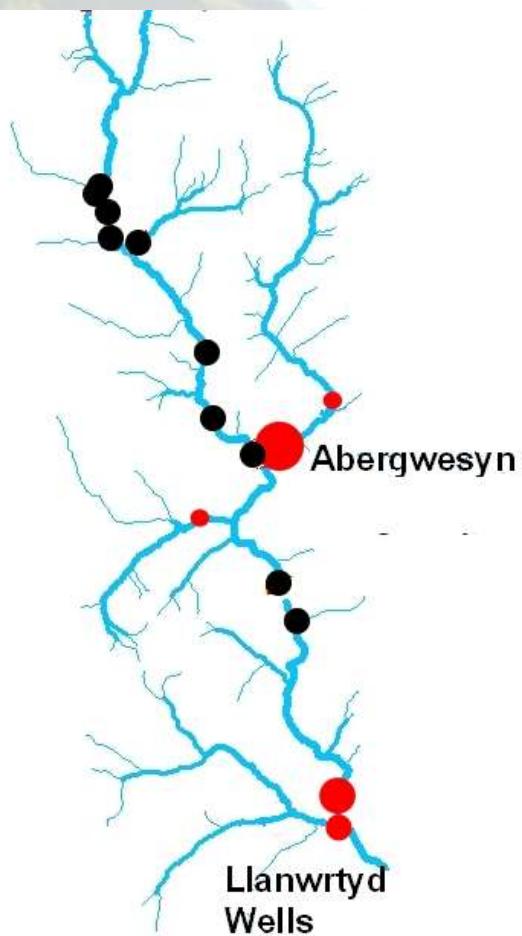




Acid waters monitoring

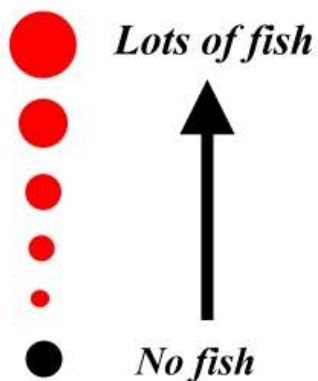
- National museum added in modulation
- First survey since pHish (2008)
 - Still acid problems
 - Clear signature of previous liming work
- Sand lime dose doubled/trebled for 2011



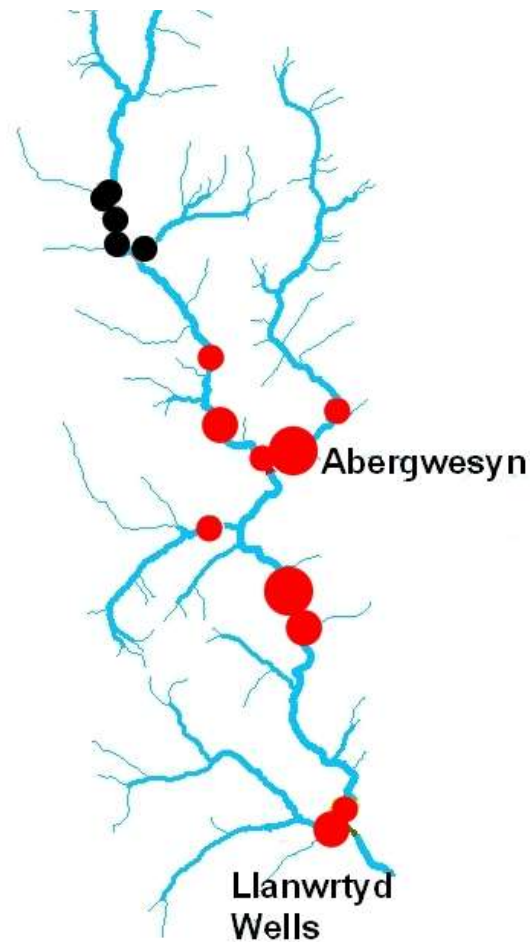


2010

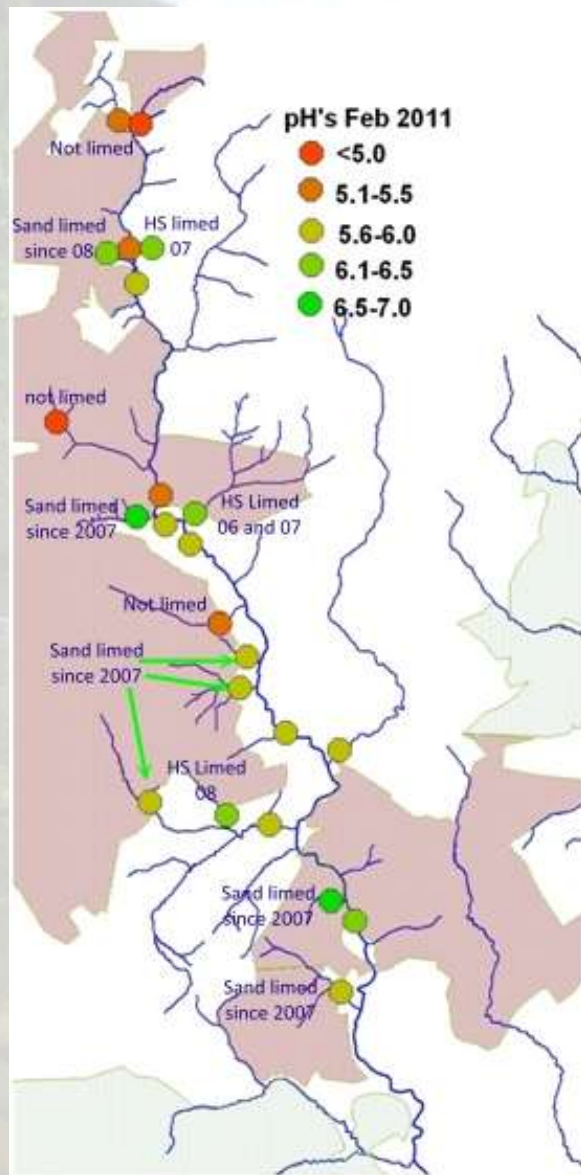
Salmon fry classification



10km

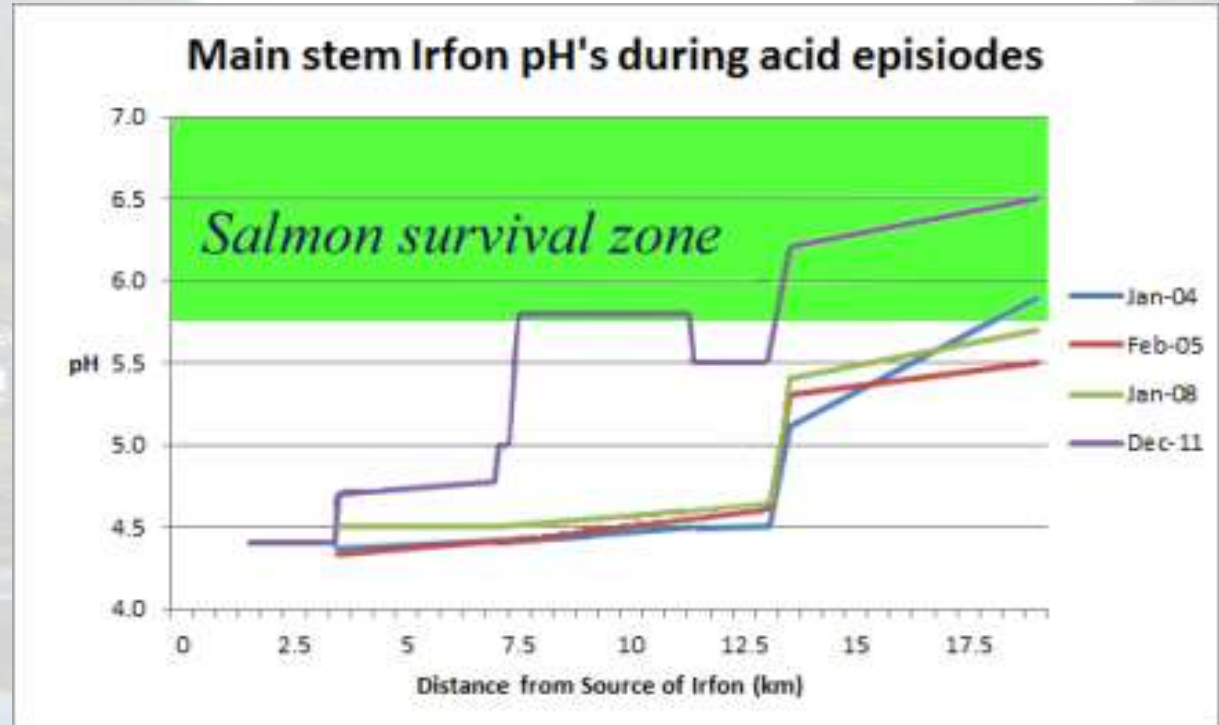


2011



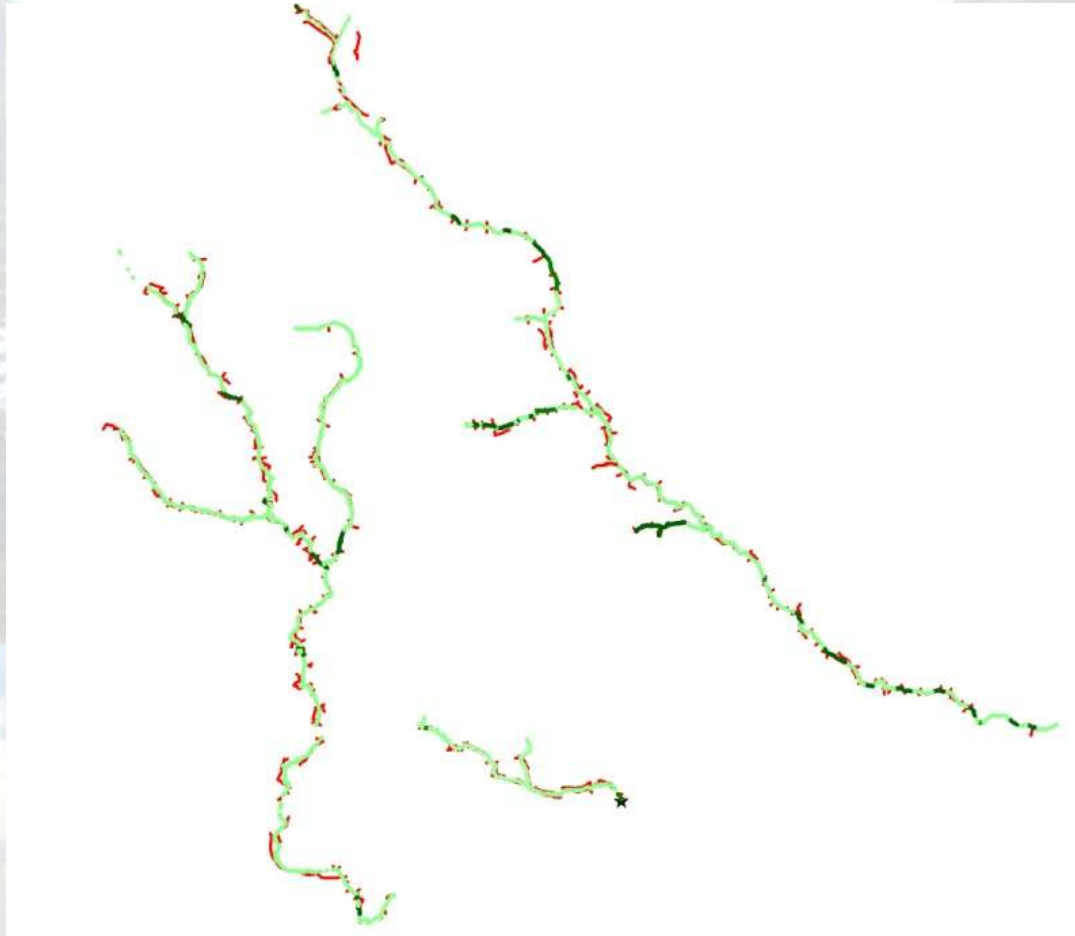
Buffering acid flushes

- A previous acid event in 2008 had wiped out salmon
- December 2011 monitoring showed comparable acid event in 1st and 2nd order streams.
- Clear signature of liming



Habitat Restoration

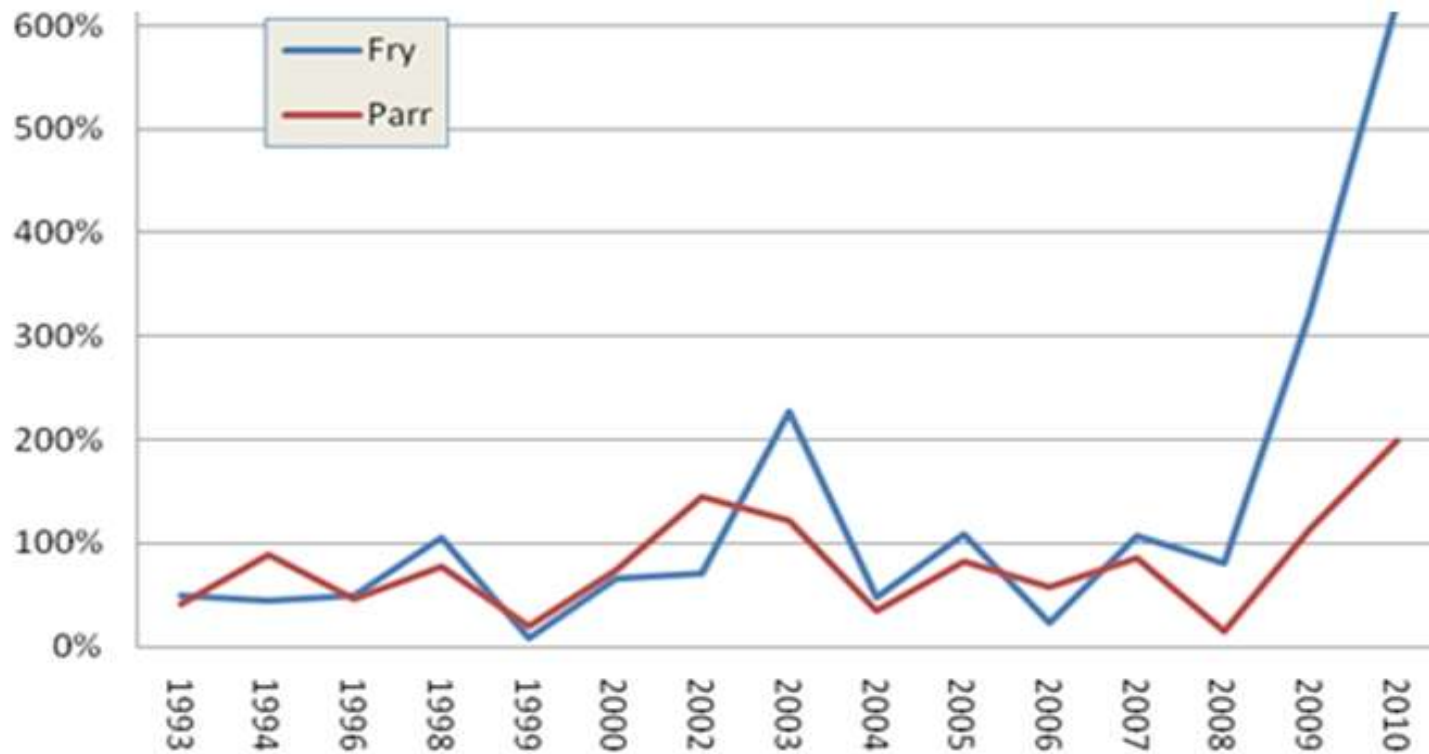
- Survey completed in 2010
- Mapping has allowed for targeted intervention on a sub-catchment scale
 - Managing shading
 - Stock access
 - Cover and structure
- Semi-natural geomorphology



Nant Bran at Pont-y-felin (U006) set against average for neighbouring streams. Habitat improved with new prescription 2007/08

Fry average before 76% after 473%

Parr before 68% after 156%

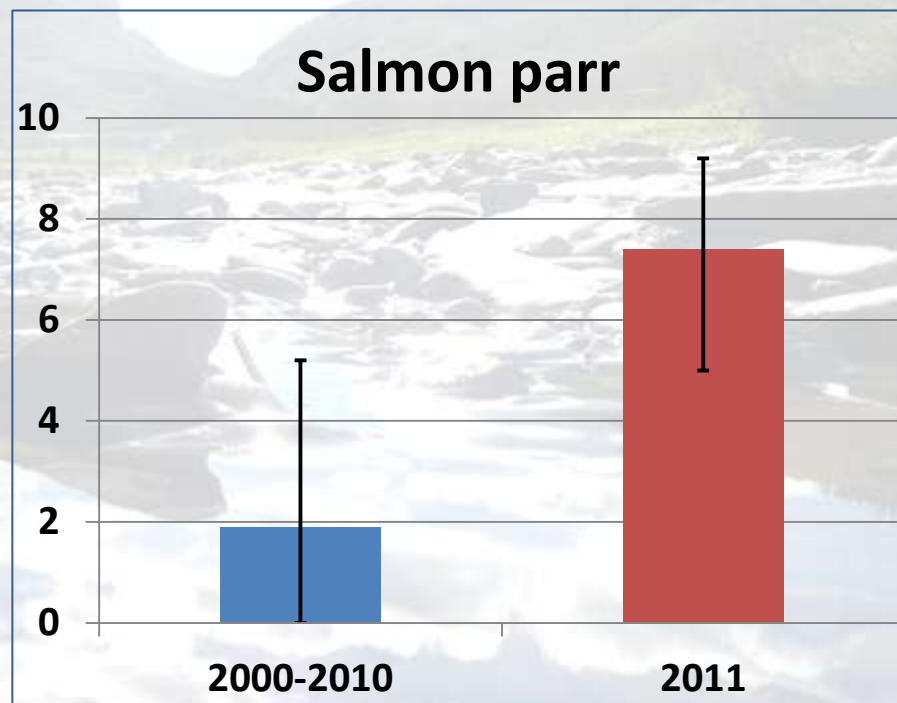
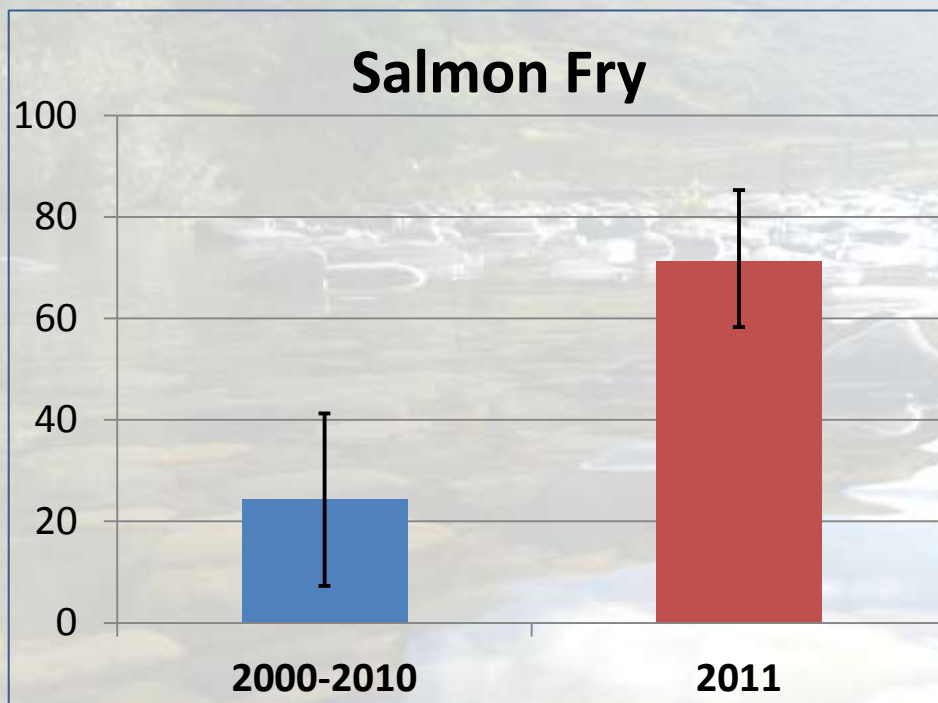






Effect of habitat restoration on salmon densities in South dulas, Garth dulas and Chewfru.

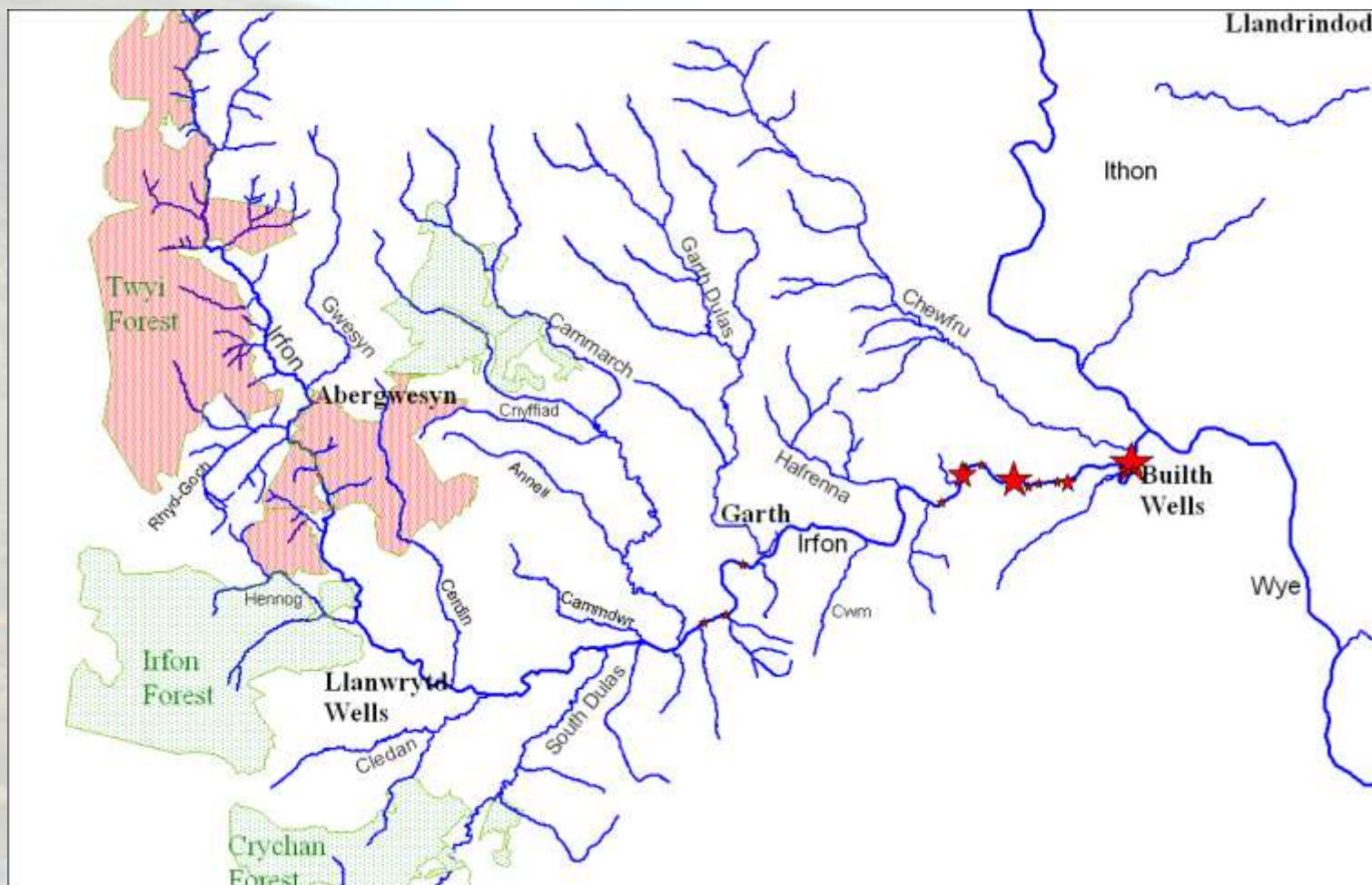
Average and range of 5 sites where work has been completed



Freshwater Pearl Mussel (EAW)

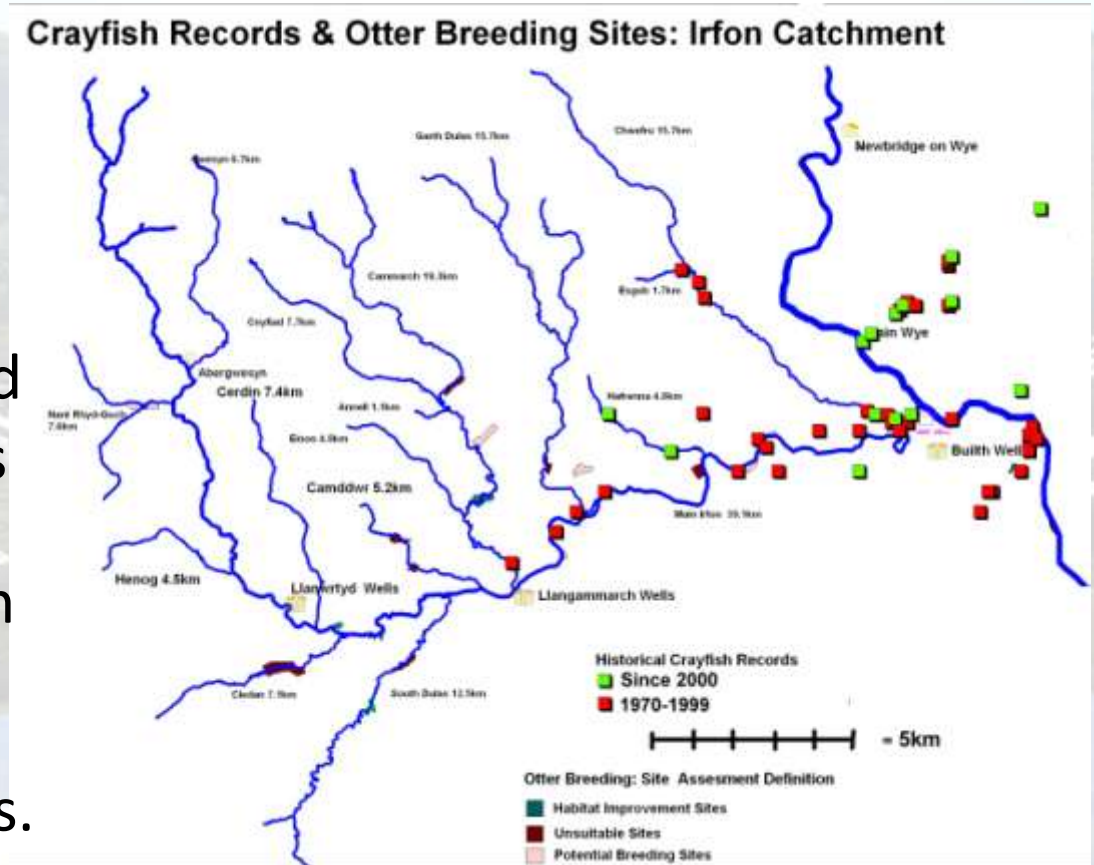
- Presence suspected but not confirmed
- Survey uncovered one of the best populations in Wales
- Recruitment within past 3 decades
- Limiting factors acidity and sediment
- Project actions:
 - Reduce sediment and acid
 - Captive breeding programme at Abercynrig





White Clawed Crayfish (EAW)

- Survey confirmed reduction in range
- Initial translocation approach deemed inappropriate
- Captive breeding adopted
- Sites for new populations identified and scoped
- Brood stock secured from Escley and South Wales
- 900 will shortly be introduced to new homes.

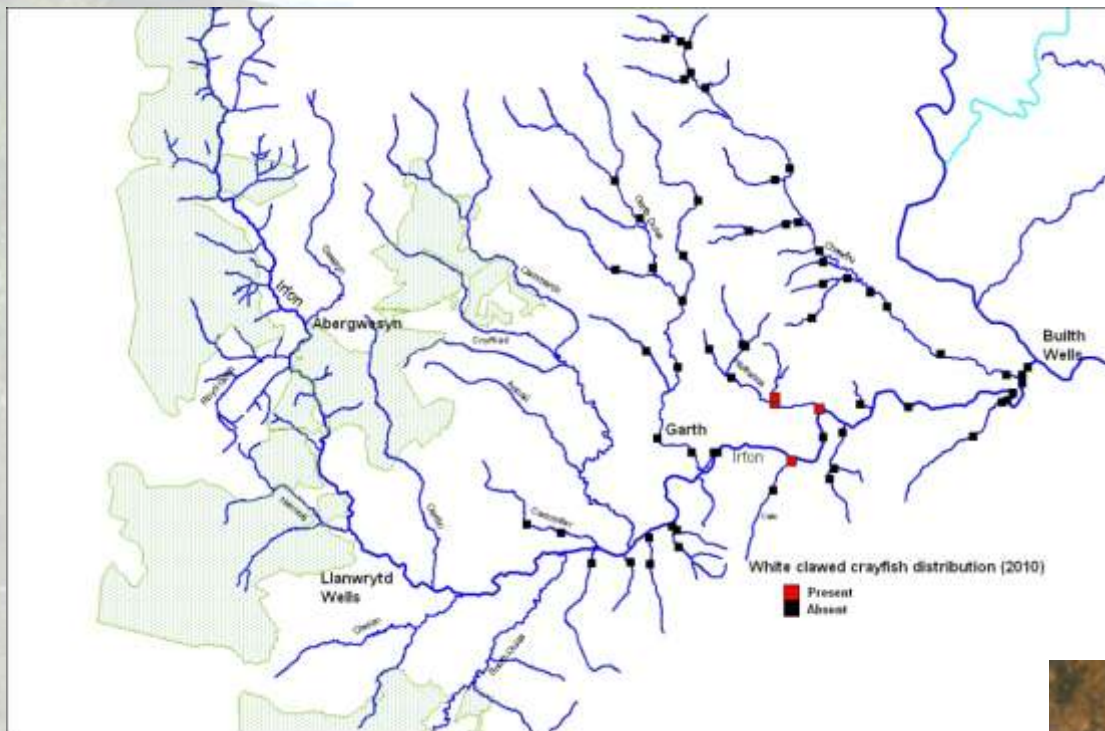


ASiantaeth yr
Amgylchedd Cymru
Environment
Agency Wales



**national
museum
wales
amgueddfa
cymru**





Wye salmon and other SAC species

- Otter are present throughout
 - Brook/River lamprey
 - Sea lamprey
 - Bullhead
 - Twaite and Allis shad
- Habitats
- *Ranunculus* sp.
 - Wet alder woodland



Publicity

- We have to tell people what we are doing
- Website
- Newsletter
- Signage
- Workshop

.....and this!





ISAC

The Irfon Special Area of Conservation Project

Ardal Gadwraeth Arbennig Irfon

The main aim of the Irfon SAC is to conserve a Special Area of Conservation (SAC) for the Irfon catchment as a free flowing and healthy one of European and international importance.

A LIFE+ project to:

- Restore the Irfon's headwaters, natural flows and improve water quality by removing forest cover and blocking forest drains.
- Restore and protect 30km of damaged habitat in the Special Area of Conservation (SAC) designated tributaries.
- Establish new populations of Freshwater pearl mussel and White clawed crayfish.
- Monitor populations of the SAC species, expanding the records to allow for better protection and targeting of restoration works.
- Help create proof the Irfon and Wye SAC's and deliver the aims of Habitats and Water Framework Directives.

The project will protect the Irfon ecosystem and benefit species such as:

Atlantic salmon <i>Salmo salar</i>	Twain & Allt shad <i>Allosa fallax</i> & <i>Allosa alpinus</i>	Other <i>Lutra lutra</i>	Lampreys <i>Petromyzon</i> spp.	White clawed crayfish <i>Austropotamobux pallasi</i>	Freshwater pearl mussel <i>Margaritifera margaritifera</i>
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LIFE+ project at:

- At the headwaters of the Irfon, natural flow is a good example of the Irfon's natural flow.
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Bydd y prosiect yn amddiffyn ecosystem Irfon ag yn dod a budd i rywogaethau megis:



News from the Rivers 2011

Giving Up The Weed
Invasives: WUF fights back

2009/10 Electrofishing
The Results

Habitat or Hatchery?
The case for and against

ISAC – Our first Life + Nature project



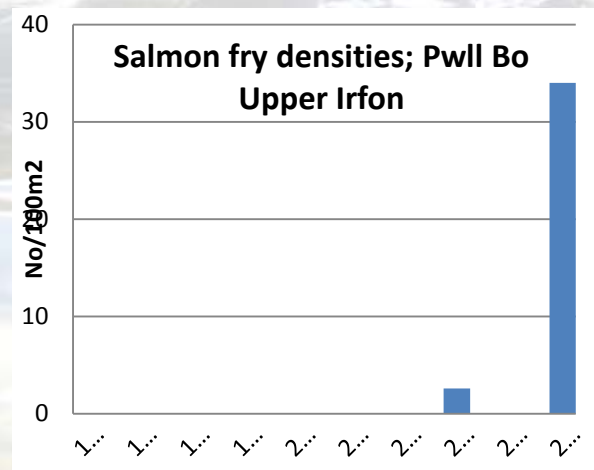
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In conclusion

- An exciting and ambitious project to maximise potential of an important sub-catchment
- Builds on WUF's knowledge and experience to date
- Strong monitoring programme in place to quantify results

Salmon Fry + 194%
Salmon Parr + 271%
Trout Fry + 199%
Trout Parr + 161%
Lamprey++
Crayfish++







**Thank you for
listening,
any questions?**