



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



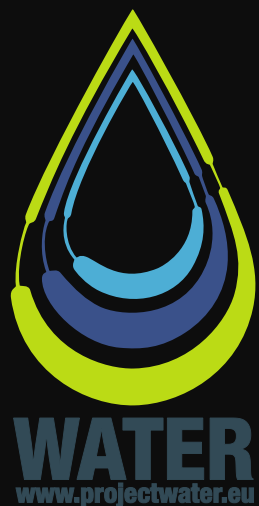
WILLOWBANK
Erosion & Conservation Services





Funding Catchment Restoration through Payments for Ecosystem Services

Dr Laurence Couldrick
Westcountry Rivers Trust



The Westcountry Rivers Trust

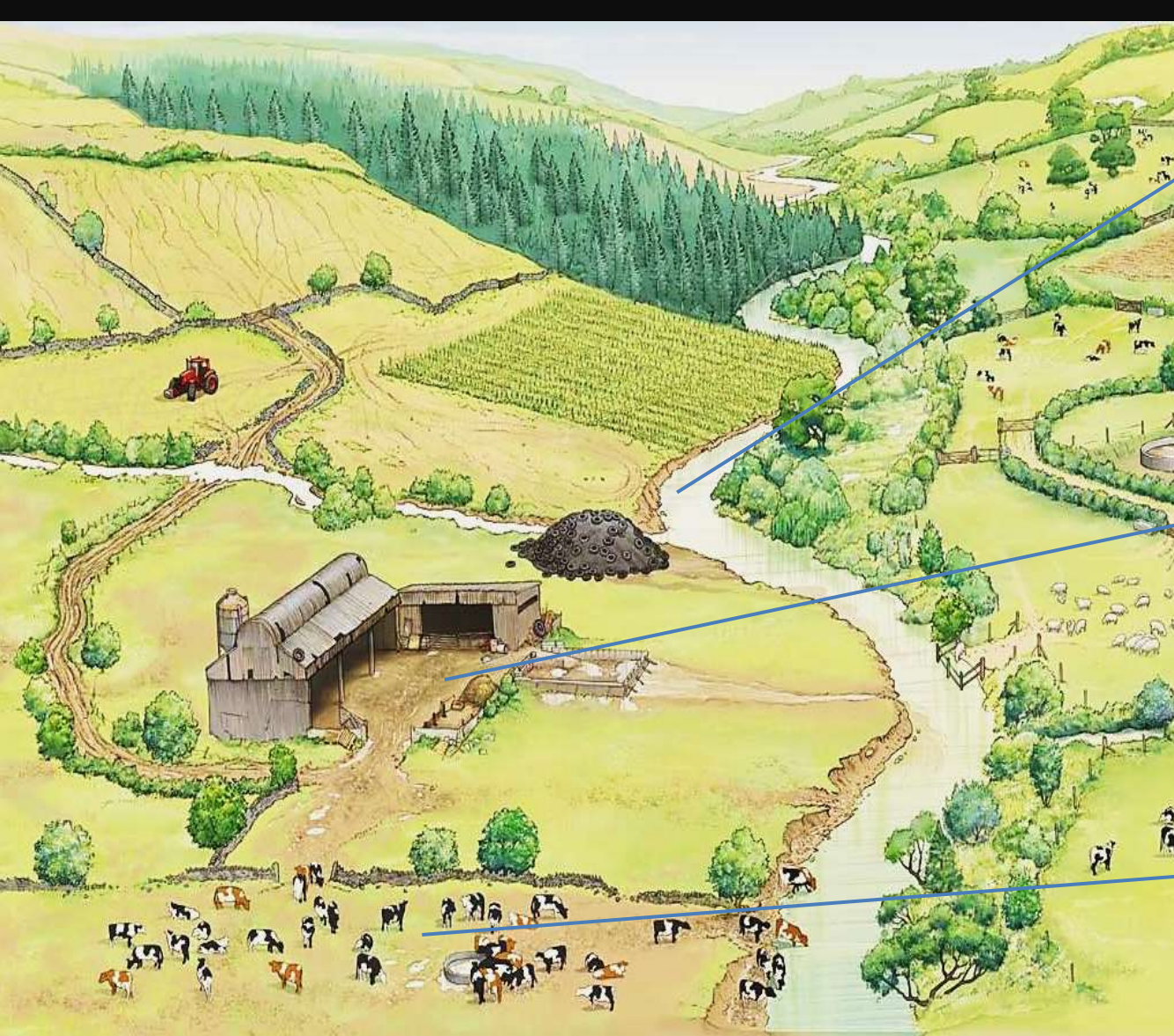


The objectives of the Trust are:

- To secure the preservation, protection, development and improvement of watercourses in the Westcountry.
- To advance the education of the public in water management.



Problems across a catchment





A history of catchment scale conservation

- **Regulation** - you commandeer land or the right to do certain things on land (SSSI, SAC, NVZ & WPZ) - *requires costly purchase and/or enforcement*
- **Win-win** - you find win-wins for land owners that save them money and improve the environment, and foster land management change



Case Study: Riverbank fencing



Savings: Fencing preventing lameness, straying and infection saving £2 per animal per year. On a 200 head dairy unit the fencing more than paid for itself in the first year = £400/yr

Cost: Fencing = £250



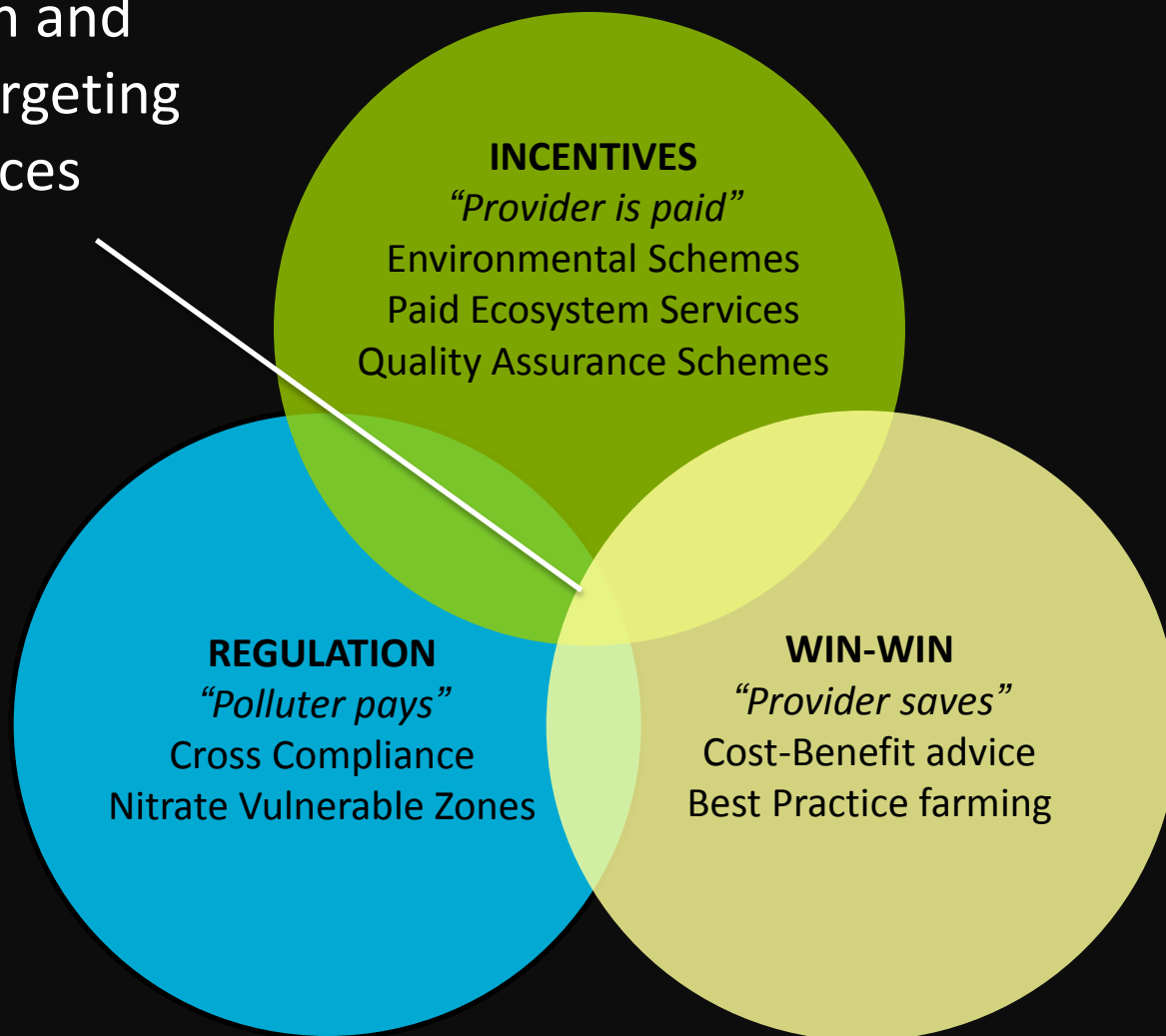
A history of catchment scale conservation

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- **Win-win** - you find win-wins for land owners that save them money and improve the environment, and foster land management change - *delivers economic benefits but land protection is voluntary and subject to global prices.*
- **Incentives - Paid Ecosystem Services (PES)** - beneficiaries pay providers for ecosystem services - *needs assessment of potential services and understanding of buyer*

Tools for better catchment management



Education and
spatial targeting
of resources





What is an ecosystem service?

Provisioning services

- food
- energy (hydropower, biomass fuels)
- drinking water



Paid for by
the markets

Regulating services

- carbon sequestration and climate regulation
- flood and drought regulation

Supporting services

- purification of water and air
- pest and disease control

Cultural services

- cultural, intellectual and spiritual inspiration
- recreational experiences (including ecotourism)

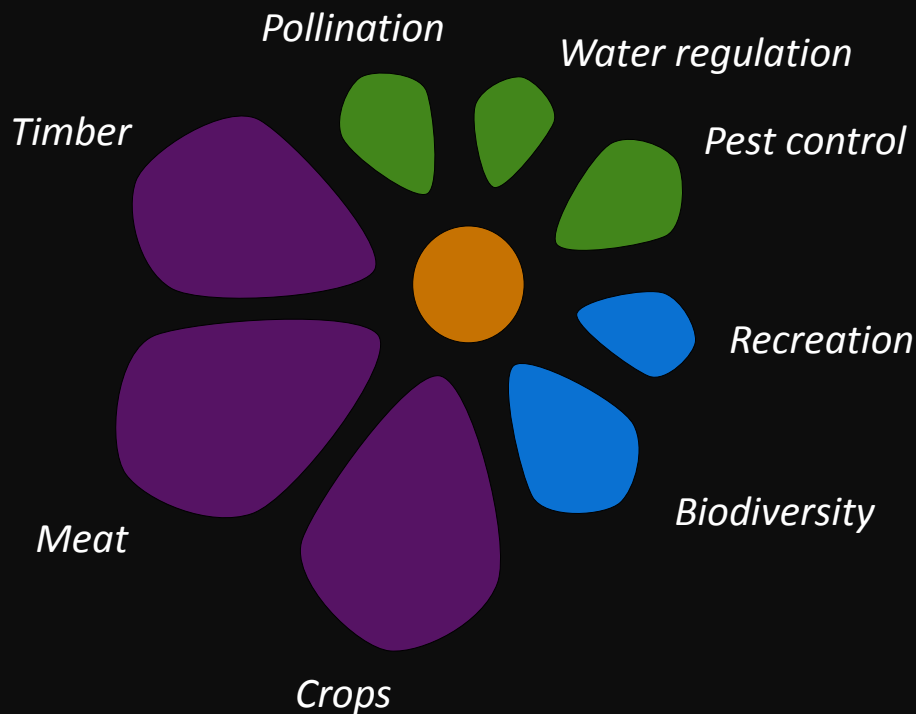


Provided or
limited for
free by the
farmer

How much ecosystem services do we get?



Agricultural Ecosystem



'Natural' Ecosystem



Provisioning services



Regulating services



Cultural services

Payments for Ecosystem Services – A definition..



- A PES is:
 - a *voluntary* transaction where
 - a *well-defined* ES (or a land-use likely to secure that service)
 - is being ‘bought’ by an (minimum one) ES *buyer*
 - from a (minimum one) ES *provider*
 - if and only if the ES provider secures ES provision (*conditionality*)

Wunder S. (2005). *Payments for environmental services: Some nuts and bolts*. CIFOR Occasional Paper No. 42, Centre for International Forestry Research, Bogor, Indonesia

PES 10 Steps



Identifying prospects & actors



1. Identify PES opportunity

Martin Ross - SWW

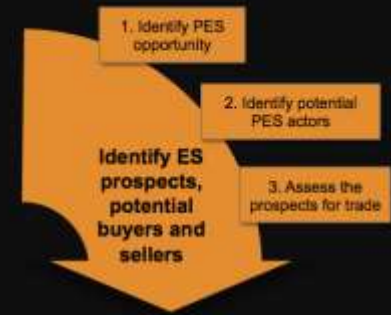


Realised working with farmers to prevent water quality deterioration was cheaper than treating the symptom

- Estimated cost/benefit ratio of up to 65:1 = reduced risk (Water Quality, Water Quantity, Carbon)
- Granular Activated Carbon plant = £7-8m + £200k/yr
- Reservoir = £90m and takes 20 years to build
- Sold to OFWAT 65p from every bill payer = £9m

Identifying prospects & actors

2. Identify PES actors

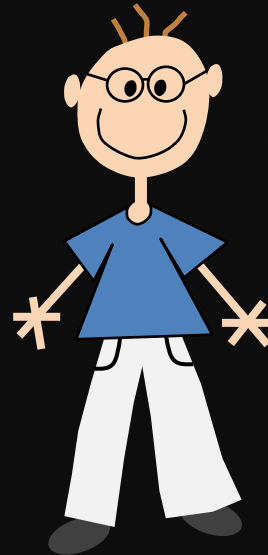


Martin Ross - SWW



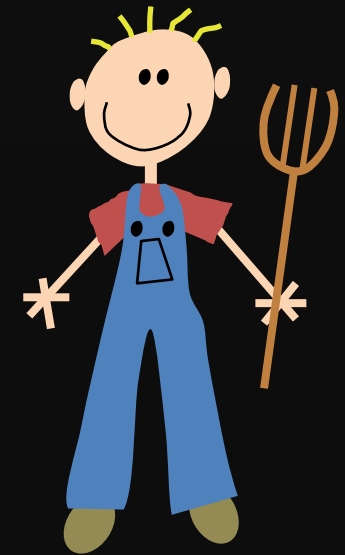
Knows he wants to buy ecosystem service but does not have a relationship with farmer

Dylan Bright - WRT



Has a relationship with both farmers and SWW

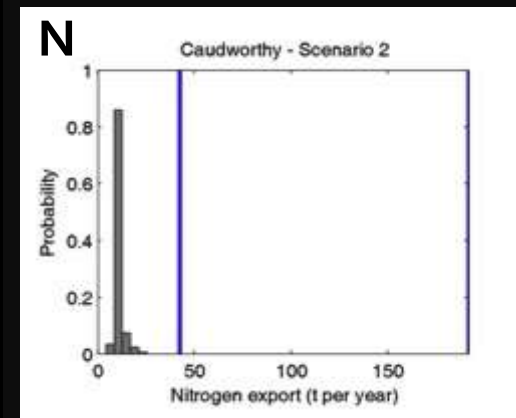
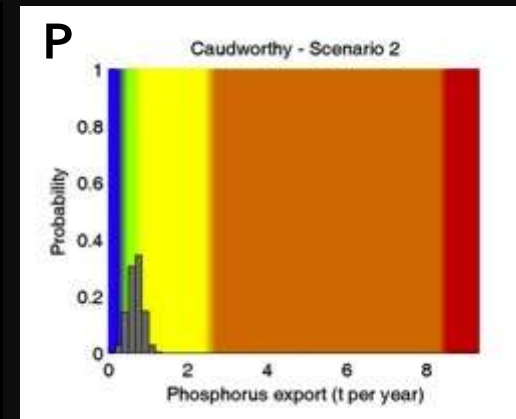
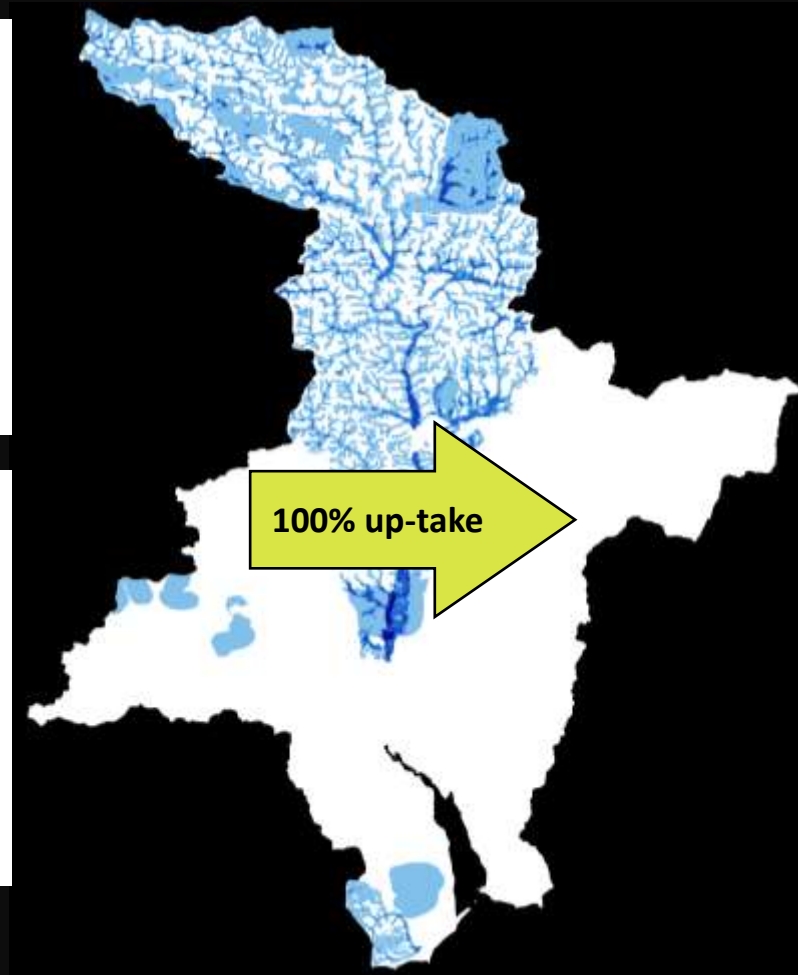
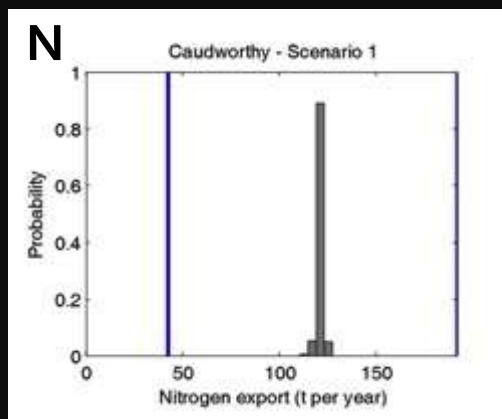
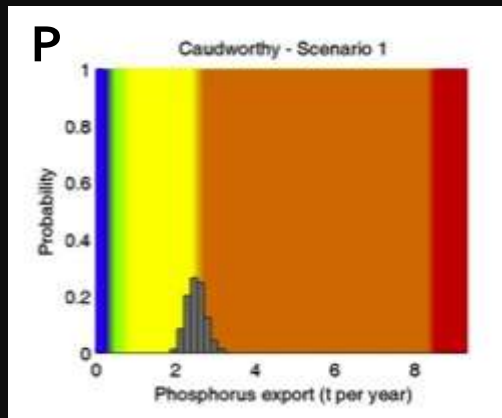
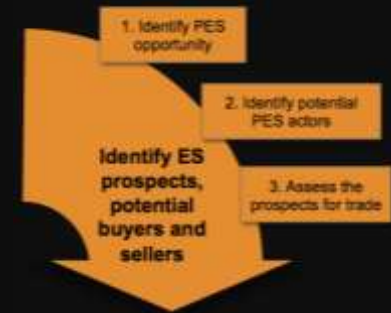
Mr Jones - Farmer



Is happy to sell ecosystem service but does not have a relationship with SWW

Identifying prospects & actors

3. Assess the prospects for trade



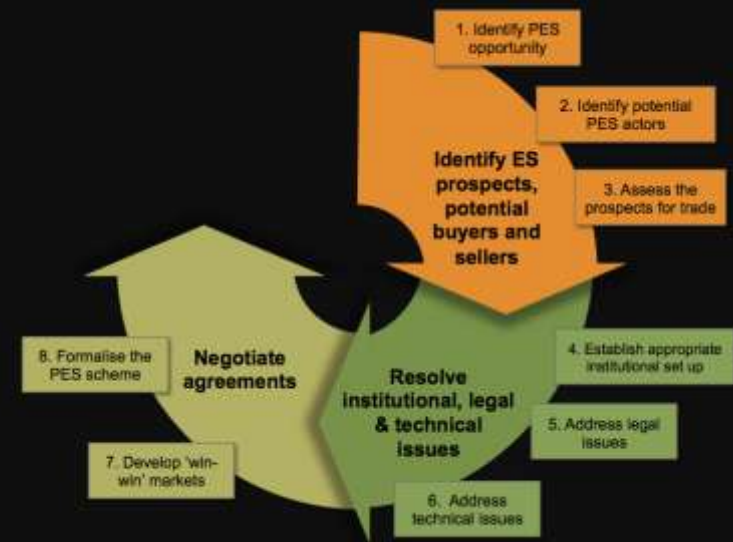
Resolve issues

4. Establish appropriate institutional setup (grant body)
5. Address legal issues (contracts and covenants)
6. Address technical issues (SAFFO regs. & Defra 44)



Negotiate agreements

- 7. Develop and sell win-win (50% grant)
- 8. Formalise payments and test (£1m grant against 77 projects valued +£2m)

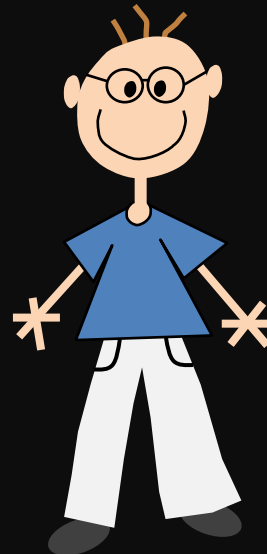


Martin Ross - SWW



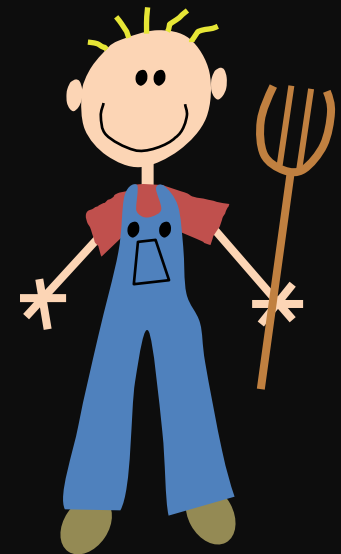
Sign contracts and pay grants towards farm projects

Dylan Bright - WRT



Broker farm projects that improve water quality

Mr Jones - Farmer



Pay for work up front and sign up to covenant

Monitor and review

9. Monitoring

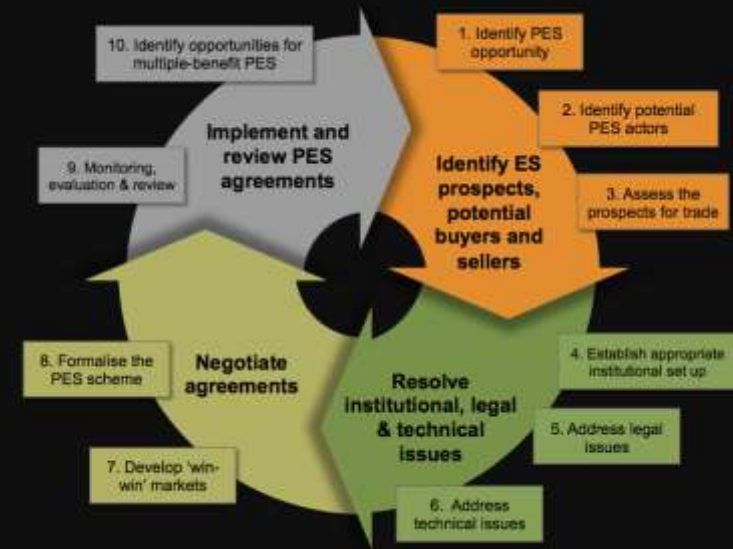
Caudworthy Water – DEFRA DTC in the Tamar

- TN, nitrate, nitrite
- SRP, TP
- Turbidity, SSC
- DO, temp, pH
- Ammonium
- Chlorophyll
- Effective particle size
- Stage, Q

~1040 grab samples /year

~1600 flow-proportional samples /year

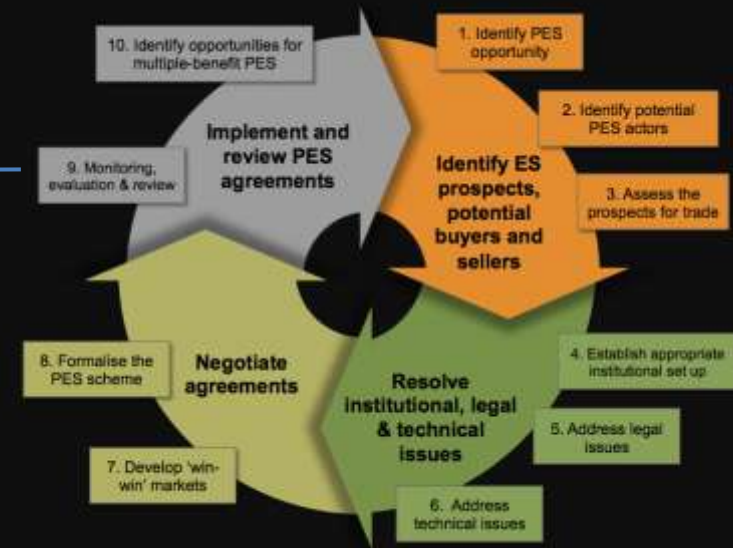
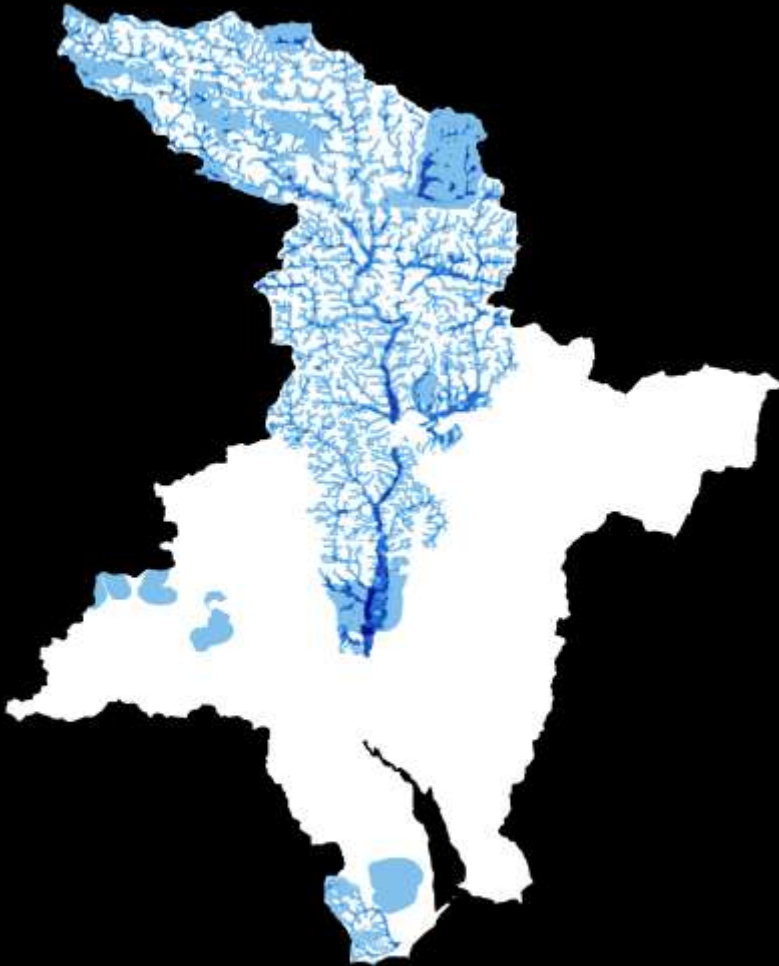
~1680 base flow samples /year



Monitor and review

10. Identify opportunities for multi-PES

Broad service 1 - Water Quality



Martin Ross - SWW



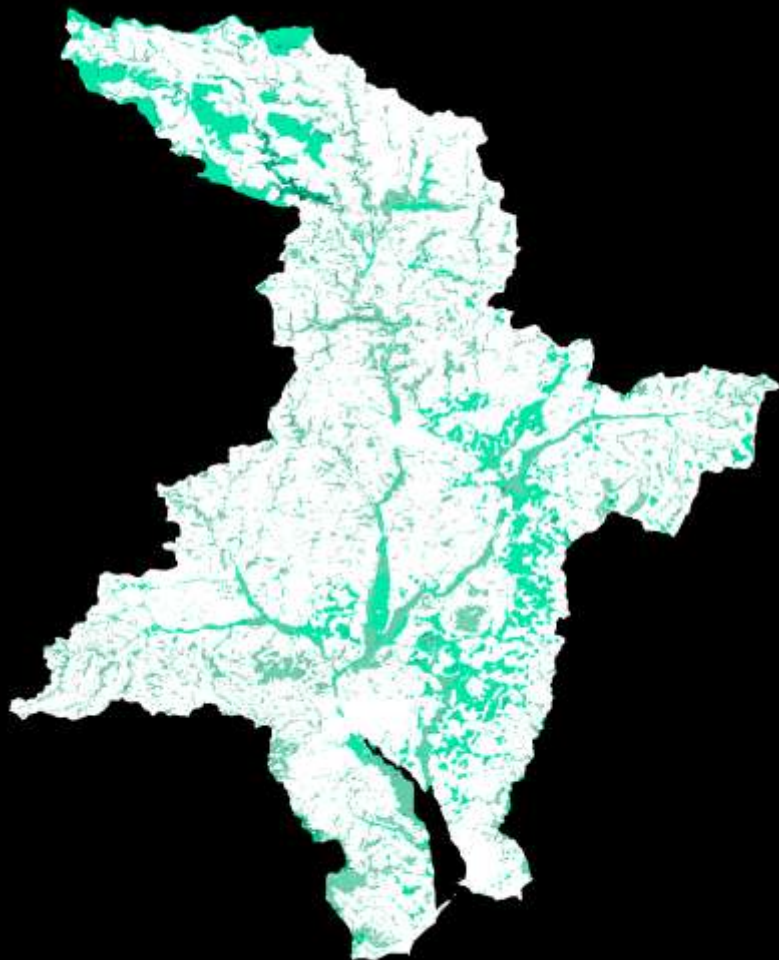
Sign contracts and pay grants
towards farm projects



Monitor and review

10. Identify opportunities for multi-PES

Broad service 2 - Carbon storage



Forestry Commission



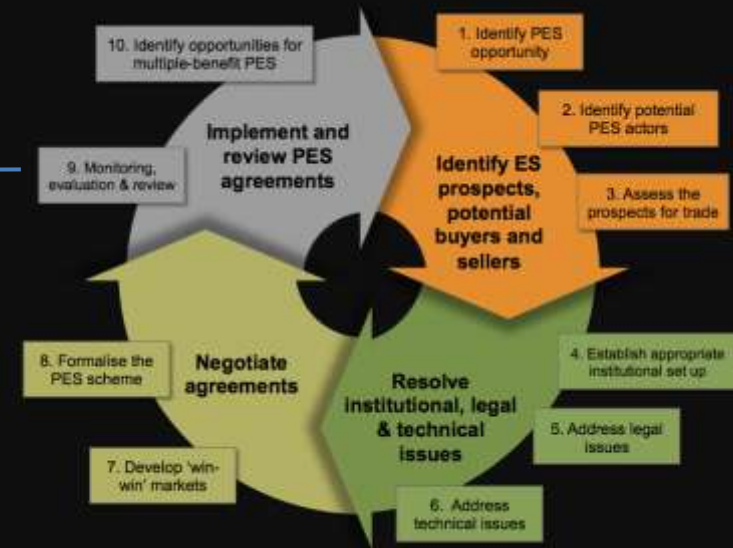
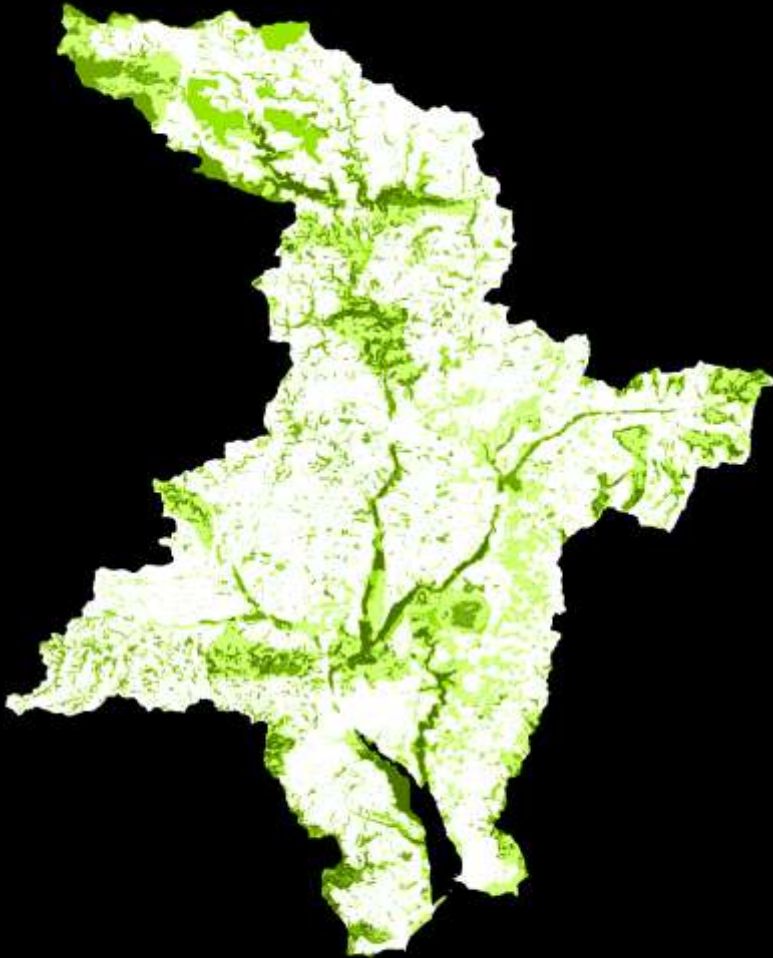
Want woodland for
carbon sequestration



Monitor and review

10. Identify opportunities for multi-PES

Broad service 3 - Habitats



Landfill Tax Credits



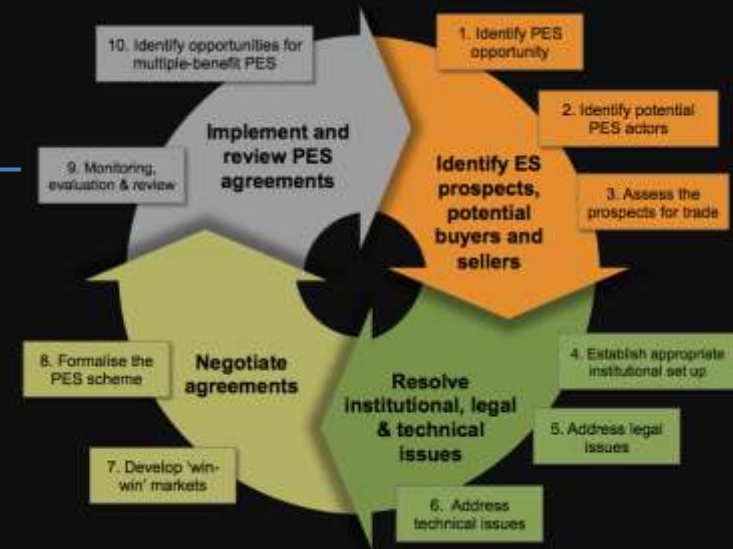
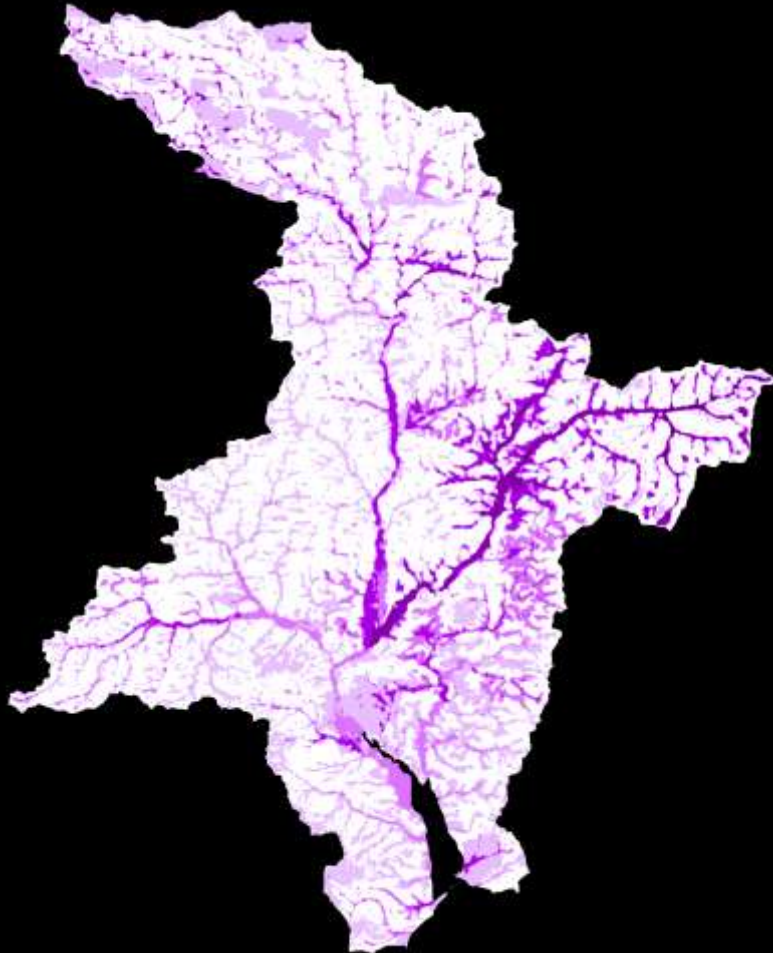
Want mitigation areas
for habitat restoration



Monitor and review

10. Identify opportunities for multi-PES

Broad service 4 - Water Quality



Flood Risk Management



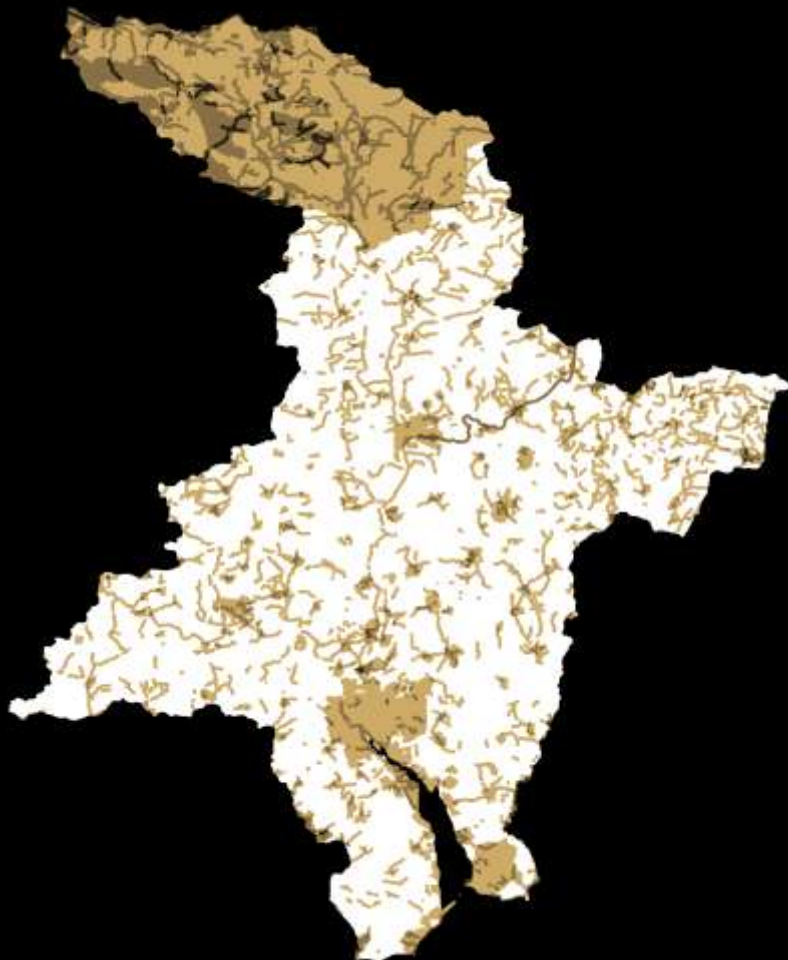
Want land for reducing
flood risk



Monitor and review

10. Identify opportunities for multi-PES

Broad service 5 - Recreation



Angling Passport



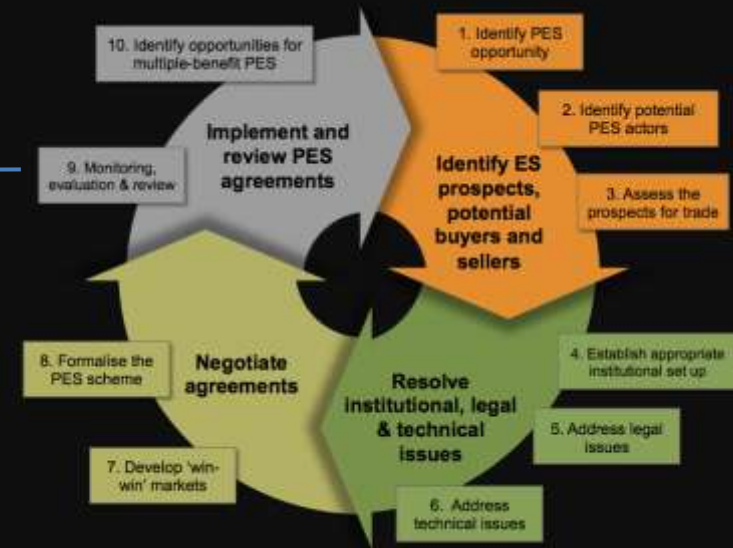
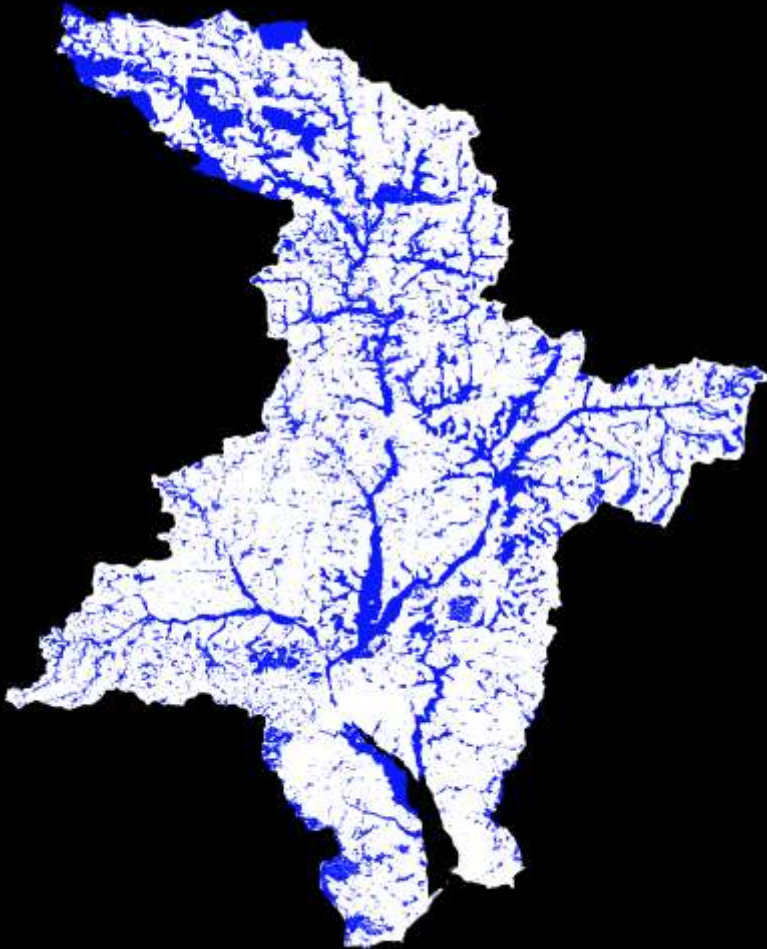
Want river fishing across
the catchment



Monitor and review

10. Identify opportunities for multi-PES

- Complementary services



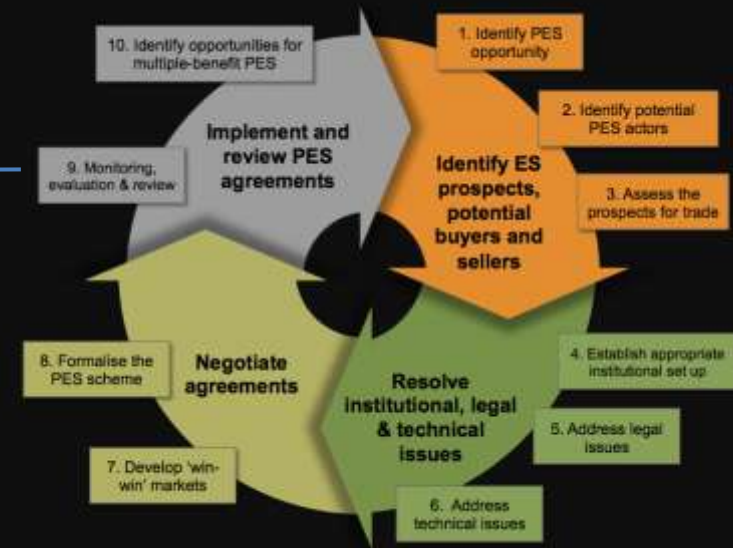
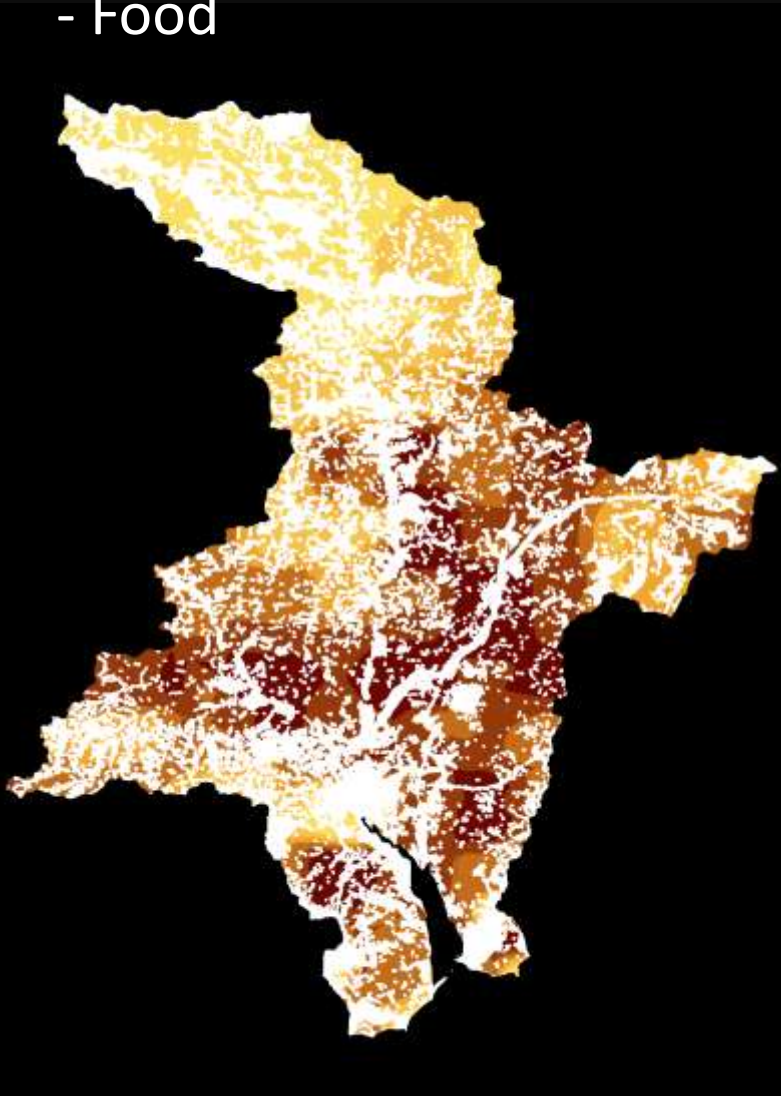
- Overlap maps to identify areas of multiple benefits
- You can increase or decrease the size of the areas depending on funding



Monitor and review

10. Identify opportunities for multi-PES

- Food



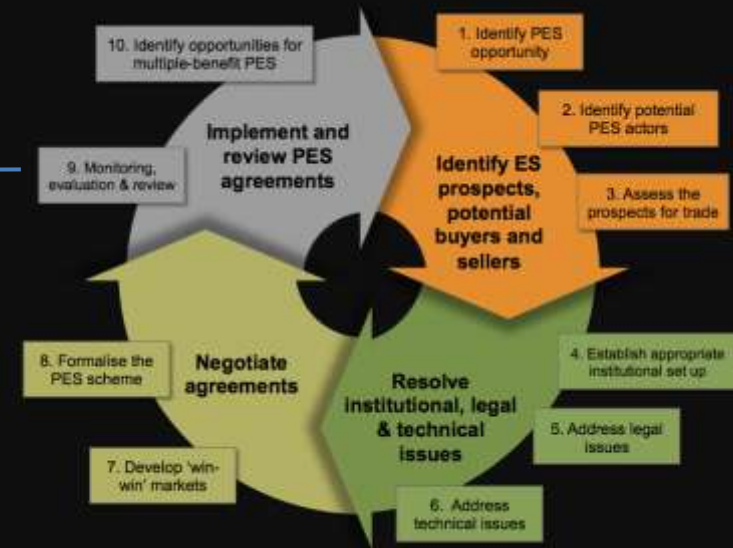
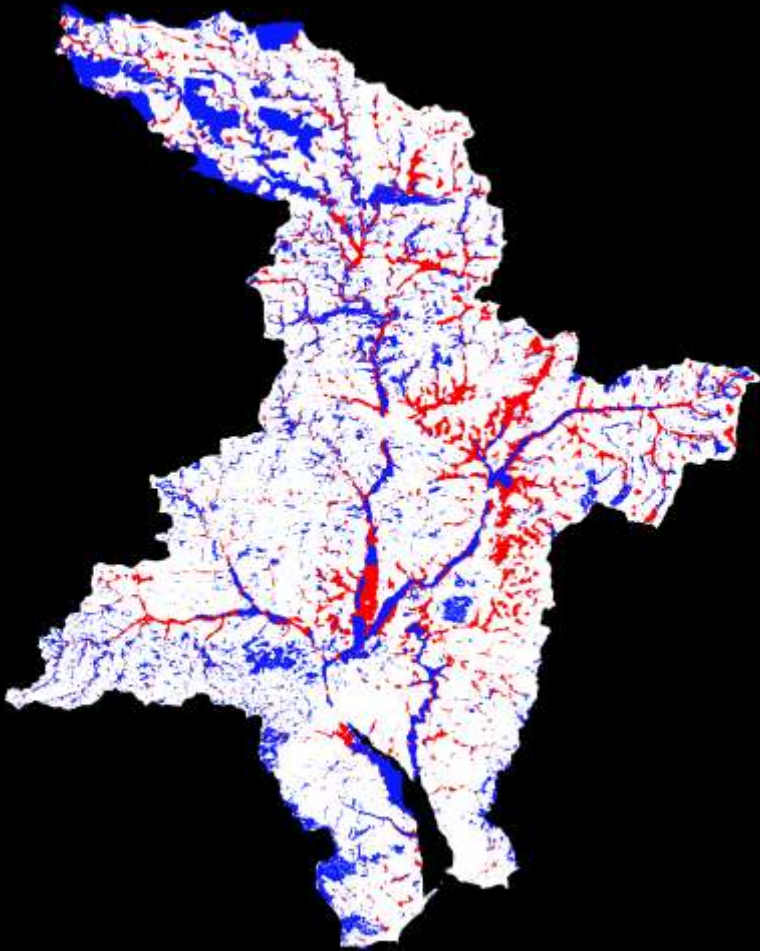
- Identify current food provision through agricultural census data



Monitor and review

10. Identify opportunities for multi-PES

- Possible Competing Interests

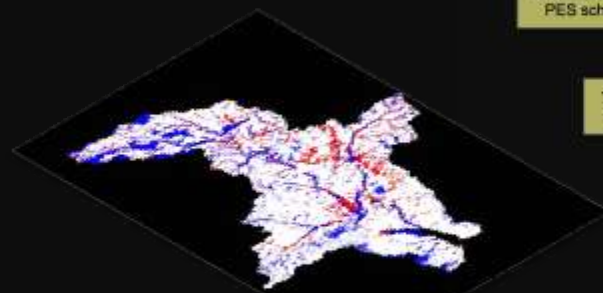
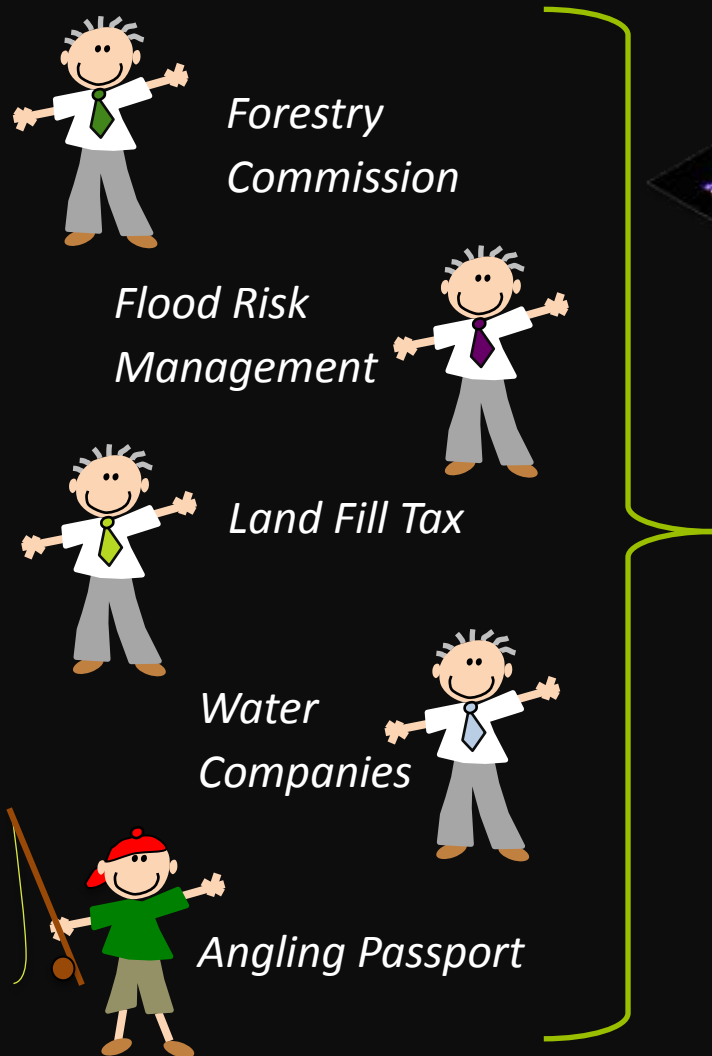


- compare complementary services with food we can assess possible competing interests
- identify potential change through a shared vision
- develop mechanisms to incentivise and compensate any voluntary change

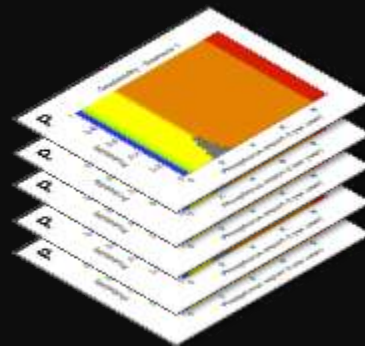
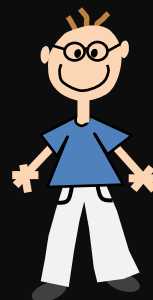


Monitor and review

10. Identify opportunities for multi-PES



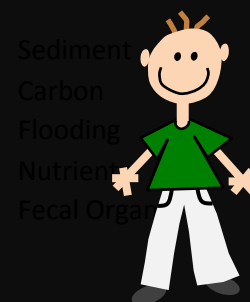
Ethical Broker



Farmer

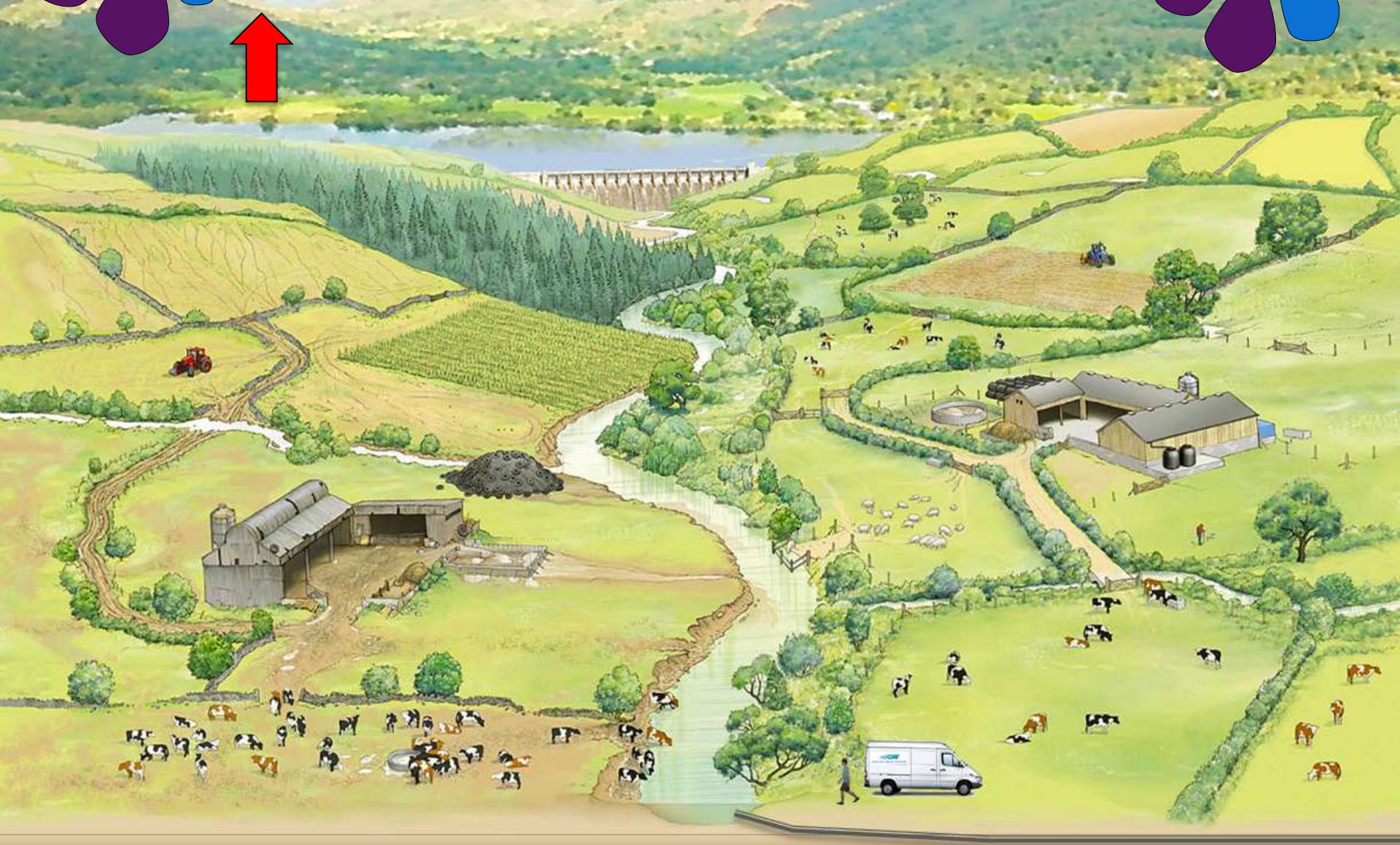
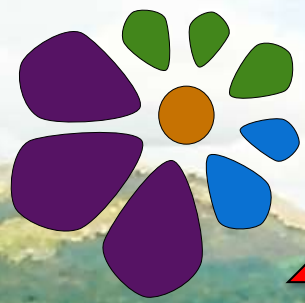


Enforcement



Sediment
Carbon
Flooding
Nutrient
Fecal Organism

Environmental Sustainability Meter



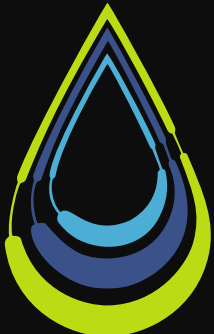


Thank you for Listening

EU 'WATER' Conference

Wednesday, 27th June 2012 - Exeter

**'Payments for Ecosystem Services
and Catchment Restoration'**



WATER
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