



Association of Rivers Trusts Autumn Seminar
November 18th 2008
Agricultural Business Centre, Bakewell.

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Director

Westcountry Rivers Trust

Registered Charity
Established 1995

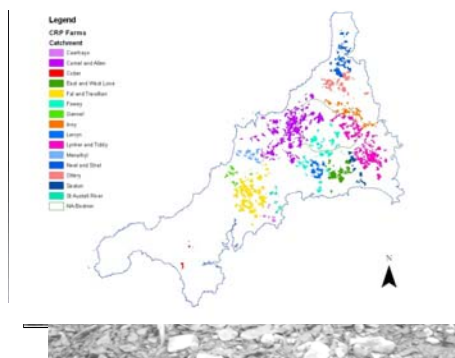


Objectives of the Trust

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



To achieve its objectives



Research & development
Practical advice
Environmental education
Demonstration sites
Physical works
Catchment-scale
community conservation
projects



Case study: of minimum tillage recommendation

Environmental benefits

- Reduced run-off
- Reduced crop damage from gullies and rills
- Reduced top soil loss / damage
- Reduced nutrient losses
- Reduced flooding
- Reduced machinery runningtime
- Reduced compaction



The financial benefits

- 2% crop saved = £ 9 / ha.
- Labour saved road cleaning = £350.
- Labour saved ditch clearing = £30.
- Conventional cultivation Vs Minimum tillage = £33/ha (farmers time saved)

Total financial saving per year on 10 ha = £800

This is £80 per hectare



Case Study: Advice on soil testing and optimisation

- Applying a targeted best fit fertiliser application via soil testing
- Integrating organic muck into your fertiliser regime and composting



Shown to save on average **£693 /year/farm** in the Tamar catchment.

This is extra money in the pocket rather than excess nutrients in the river, in the estuary and on the coastal shelf



Case Study: *Rotational ditch clearance reduces pollution risk, enhances base flow maintenance and creates linear wetlands which denitrify and filter water flowing off land.*



There is no additional cost for this practice but there are significant savings. There are significant reductions in machinery & labour costs and on this farm saved an estimated **£45 /farm/year**



Case Study: *Late winter-sown crops provide little ground cover leading to soil erosion and crop damage. The lack of crop cover also damages bird and invertebrates population*



Undersowing or bicropping in sensitive areas can significantly reduce erosion and soil damage and can be cost effective by providing a spring or an early silage cut.



Case Study: Improved savings associated with collecting & using roof water in the farm yard

A farm with annual rainfall of 1200mm/yr on a roof of 600m² produces 720m³ water...

Cost: guttering, down pipes, storage tank, labour

Saving: **£675/yr** when used to replace mains water (SWW rates 2005: 93.6p/m³)

Further savings are realised if you consider the cost of storing and spreading clean water that falls on dirty yard areas, reduced soil compaction & pollution risk reduction



Case Study: Stream crossing before and after improvement works



This work was grant aided at 50%



More physical works.....



Case Study: *Riverbank fencing & designated drinking points provide significant environmental benefits for the river and riparian areas.*



Cost : £250. The farmer saves £2 per animal per year on average by preventing lameness, straying and infection.

Payback : On a 200 head dairy unit the fencing more than paid for itself in the first year



More physical works (over 250km)

Before



After



Farm Advisory Project Outputs To Date:

- 1800+ farmers & landowners given advice
- 1380+ Integrated Land & River Management Plans
- Over 95,000 ha of land targeted with management advice (55,000 targeted within CRPI + II)
- 250 km+ riverbank restored
- 16 wetlands restored/improved
- 85+ km ditches prioritised for re-vegetation
- 350+ sites of accelerated erosion controlled
- 35 demonstration sites developed and operational
- 270+ sites of habitat improvement
- 50+ buffer zones created



Economic, Environmental & Social Benefits

- DIRECT BENEFITS predominantly to farmers - **average £2,300** per farm, for example through optimising farm inputs, water separation and leak reduction, improved stock health, diversification.
- INDIRECT BENEFITS to community, tourist & anglers - difficult to value, examples include improved water quality, flow regime, improved wildlife habitats and fisheries.



WRT's application of the Ecosystem Approach has global recognition.

UNESCO, IUCN, RAMSAR, WWF and the Secretariat of the CBD compiled a list of 26 case-studies of the implementation of Ecosystem Approach. WRT projects are the UK example (CBD, COP-5; 2000)



Conservation, a potted history

- Fortress conservation (fence and forget)
- Community conservation (find win-wins for owners)
- Paid Ecosystem Services (PES)



What is an Ecosystem Service?

Provisioning services

- food
- energy (hydropower, biomass fuels)

Regulating services

- carbon sequestration and climate regulation
- waste decomposition and detoxification
- nutrient dispersal and cycling

Supporting services

- purification of water and air
- pest and disease control

Cultural services

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

Preserving services

- genetic and species diversity for future use

The majority of these services are currently provided, for the benefit of all, by farmers who represent a tiny proportion of this dependant population.

They can only make money from very few of these services, predominantly food.

The rest are expected for free.



What is a PES

- In New York City, where the quality of drinking water had fallen below standards required by the U.S. Environmental Protection Agency (EPA), authorities opted to restore the Catskill Watershed.
- Once the input of agricultural wastes and pesticides to the watershed area was reduced, natural abiotic and biotic processes were reestablished, water quality improved to levels that met government standards.
- The cost of this investment in natural capital was estimated between \$1-1.5 billion, which contrasted dramatically with the estimated \$6-8 billion cost of constructing a water filtration plant plus the \$300 million annual running costs. This is an example of paying for the ecosystem service of water purification (many ancillary services are also improved)



Another PES example

- In the 1980s, mineral water company Vittel faced a critical problem. Nitrates and pesticides were entering the company's springs in northeastern France. Local farmers had intensified agricultural practices and cleared native vegetation that previously had filtered water before it seeped into the aquifer used by Vittel.
- This contamination threatened the company's right to use the "natural mineral water" label under French law
- In response to this business risk, Vittel developed an incentive package for farmers to improve their agricultural practices and consequently reduce water pollution that had affected Vittel's product. For example, Vittel provided subsidies and free technical assistance to farmers in exchange for farmers' agreement to enhance pasture management, reforest catchments, and reduce the use of agrochemicals.





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