



Keeping Rivers Cool – creating riparian shade

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The Wye & Usk Foundation
ACTION FOR FISHERIES



Programme Objective

Promote riparian shade as a climate change adaptation measure to benefit salmon and trout by reducing river temperatures throughout upland England and Wales.

Inspire action through demonstration projects, a strong evidence base, guidance and mapping tools.





Talk Outline

- ➔ The Evidence
- ➔ Keeping Rivers Cool tools
- ➔ Demonstration projects

- ➔ Obstacles & risks
- ➔ Next steps

Gathering the Evidence

Salmon & brown trout and T°C

➔ Critical temperature ranges:

>22.5°C



>19.5°C



➔ 22°C for >7 days lethal for b. trout

UKCP09 Climate Projections

➔ Rise of 2-4°C by 2050

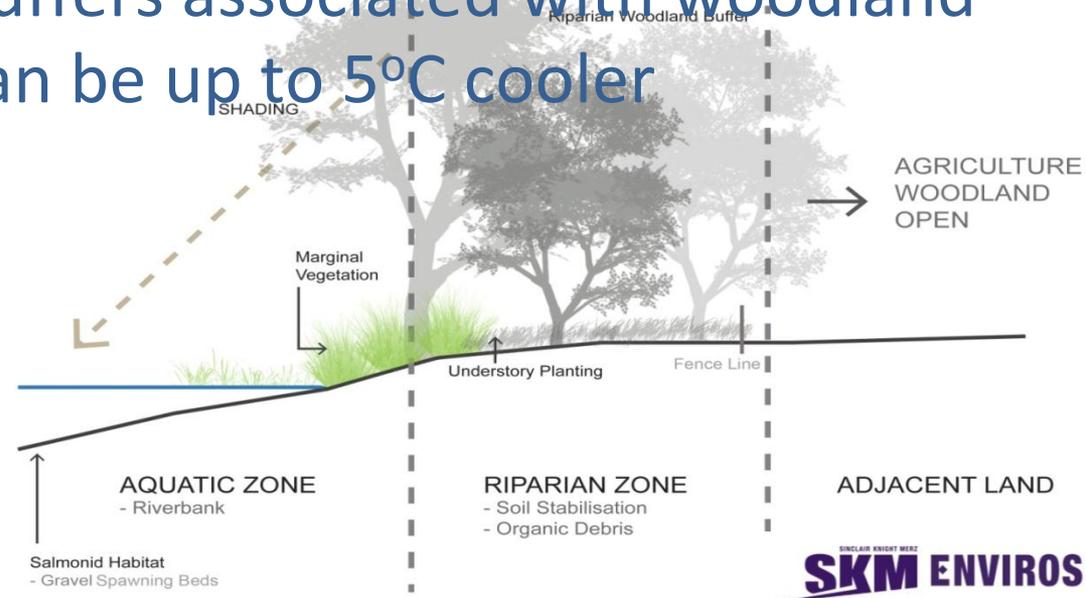
➔ >31°C recorded in S. England

➔ Shaded channels are 1.5°C lower than open reaches



Effects of riparian trees on summer water temperatures:

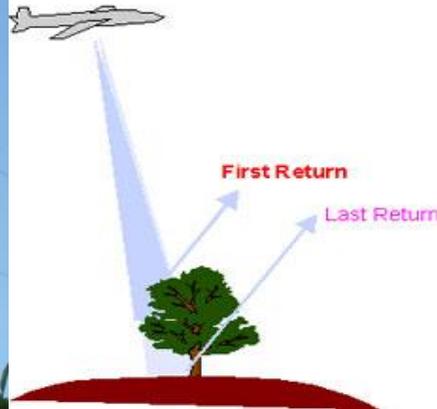
- ➔ Shaded channels are 1.5°C lower on average than open reaches
- ➔ Or 2-3°C in maximum temperatures
- ➔ Buffers associated with woodland can be up to 5°C cooler



ENGLAND RIVERS TRUST
SKM ENVIROS

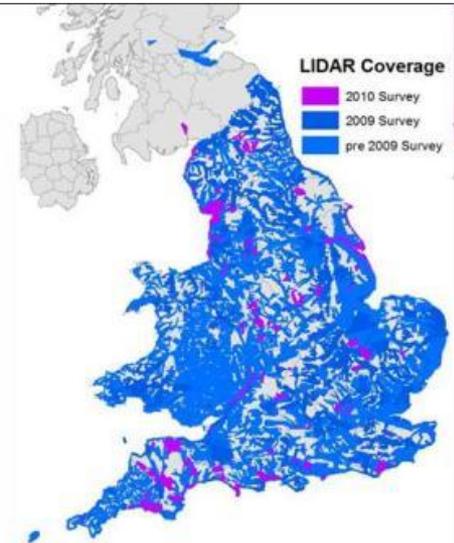
Do we need more riparian vegetation in England and Wales?

- ➔ Commissioned LiDAR data to tell us about extent of riparian vegetation in England & Wales



Geomatics Group LiDAR Coverage ... as of Nov 2010:

- ➔ Original R&D surveys in 1996, operational since 1998
- ➔ More than 65% of England and Wales covered
- ➔ More than 90% of Urban areas covered
- ➔ Elevation accuracy 5 to 15cm



Geomatics
Group

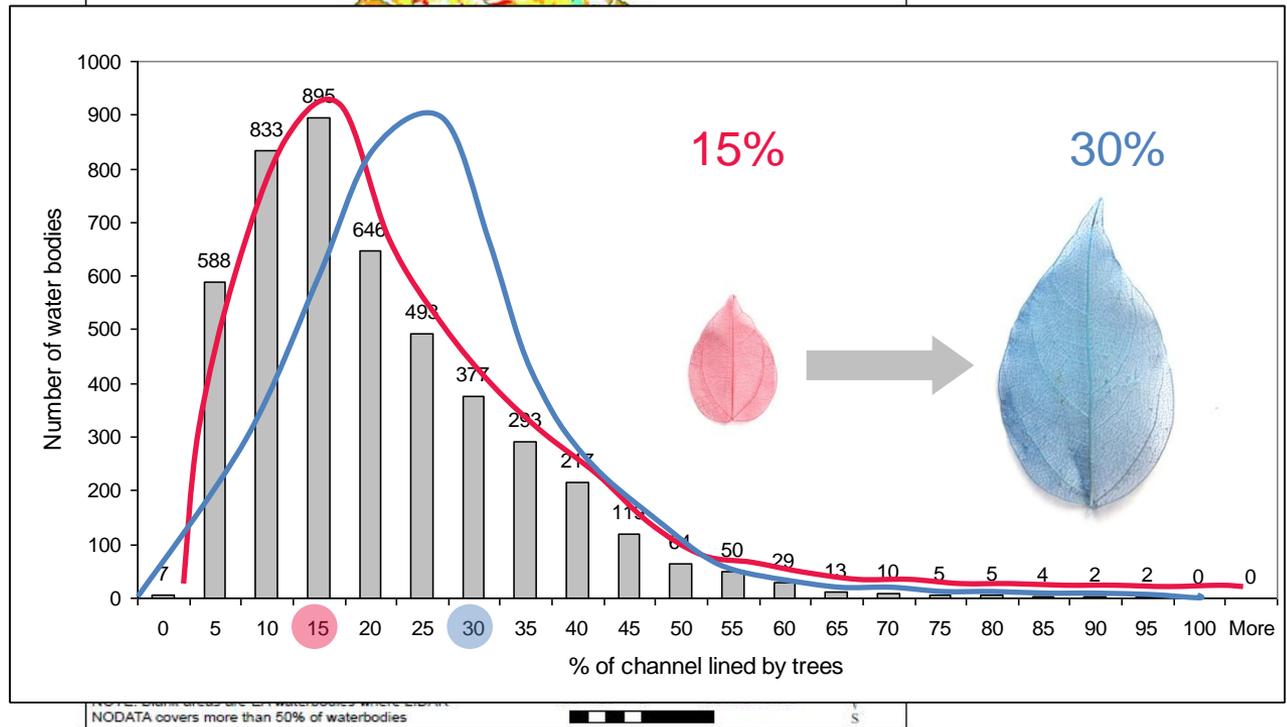
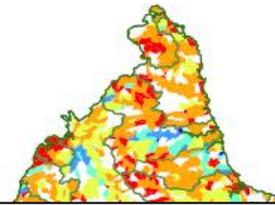
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Evidence – Tools – Pilots – Obstacles/ Risks – Next Steps



Do we need more riparian vegetation in England and Wales?

England and Wales: % of waterways bordered by vegetation > 2.5m

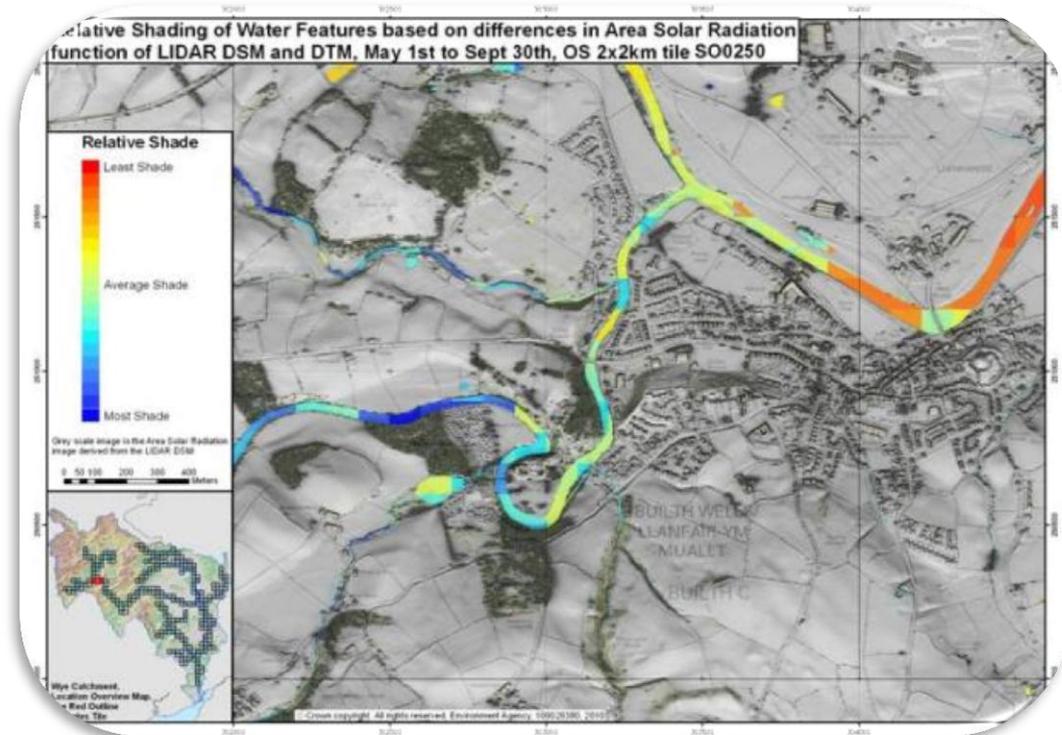


Evidence – Tools – Pilots – Obstacles/ Risks – Next Steps

Creating tools for partners



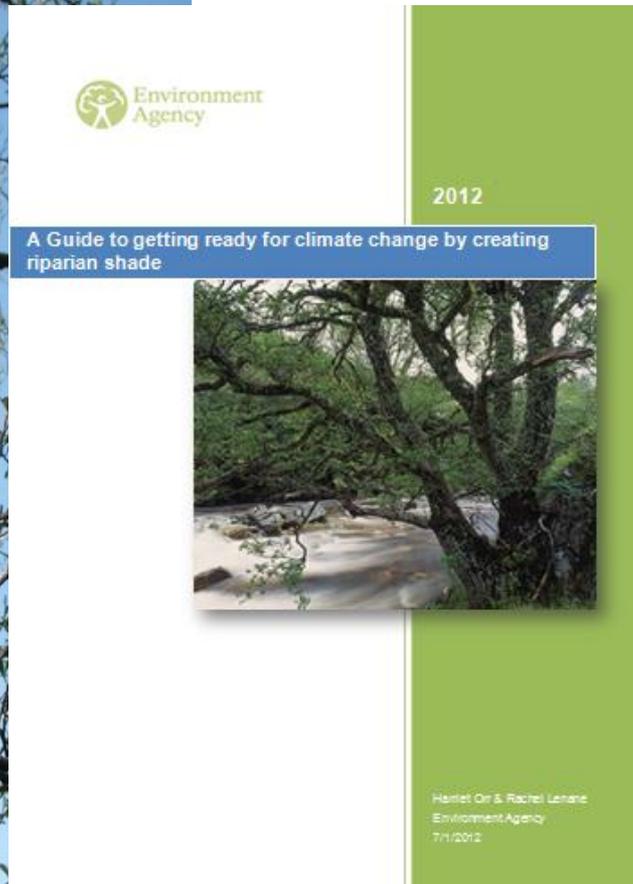
Developing riparian shade maps



- ➔ Riparian shade maps
- ➔ Show relative shade within a WFD Mgt catchment boundary
- ➔ Used alongside ground truthing and other data sets

Evidence – Tools – Pilots – Obstacles/ Risks – Next Steps

Developing a guidance manual



- ➔ Guidance manual includes:
 - ➔ The science behind creating riparian shade
 - ➔ The mapping tools available
 - ➔ Where to target riparian shade
 - ➔ Funding sources available
- ➔ Distributed to landowners and partners (Woodland Trust, CCW, CEH, NE, Rivers Trusts, WLTs, on RESTORE wiki)

Rivers Trust catchment mapping portal

<http://maps.theriverstrust.org/SMP/Map>

Rivers Trust - WFD Stakeholders' Mapping Portal

wylve

Active Layers

All Layers

Double click or check a layer....

- ECOLOGY
 - KRC
 - Keeping Rivers Cool Catchments
 - Adur Ouse Riparian Shade
 - Derwent Humber Riparian Shade
 - Dove Riparian Shade
 - Hants Avon Riparian Shade
 - Ribble Riparian Shade
 - Tyne Riparian Shade
 - Tamar Riparian Shade
 - Wye Riparian Shade
 - Vegetation Objects
- BASEMAPPING
- WFD
- ISSUES

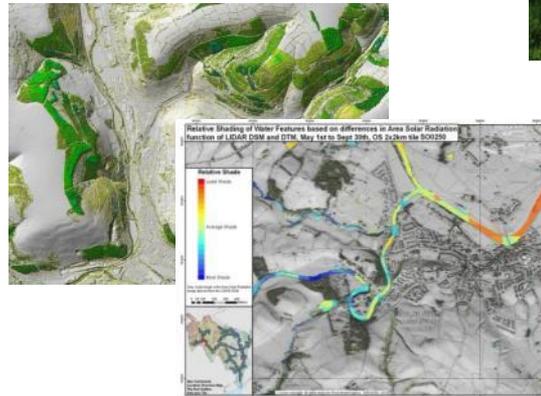
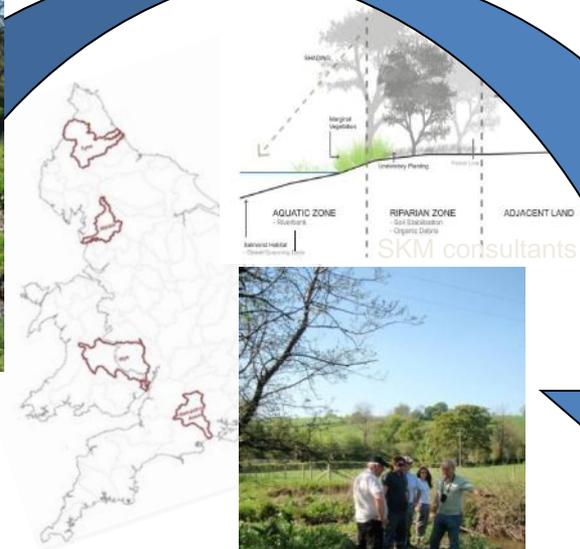
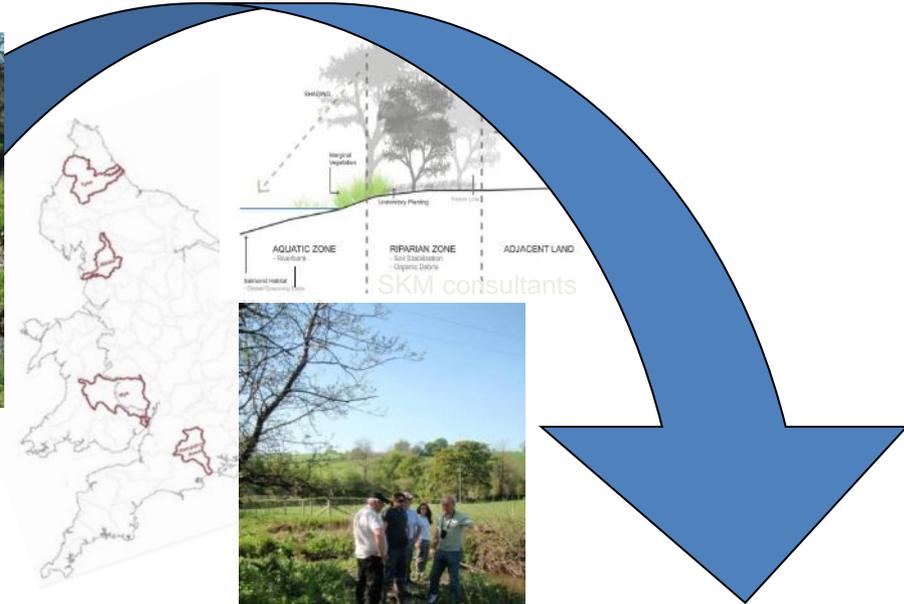
Layer Catalogue

Developing communications

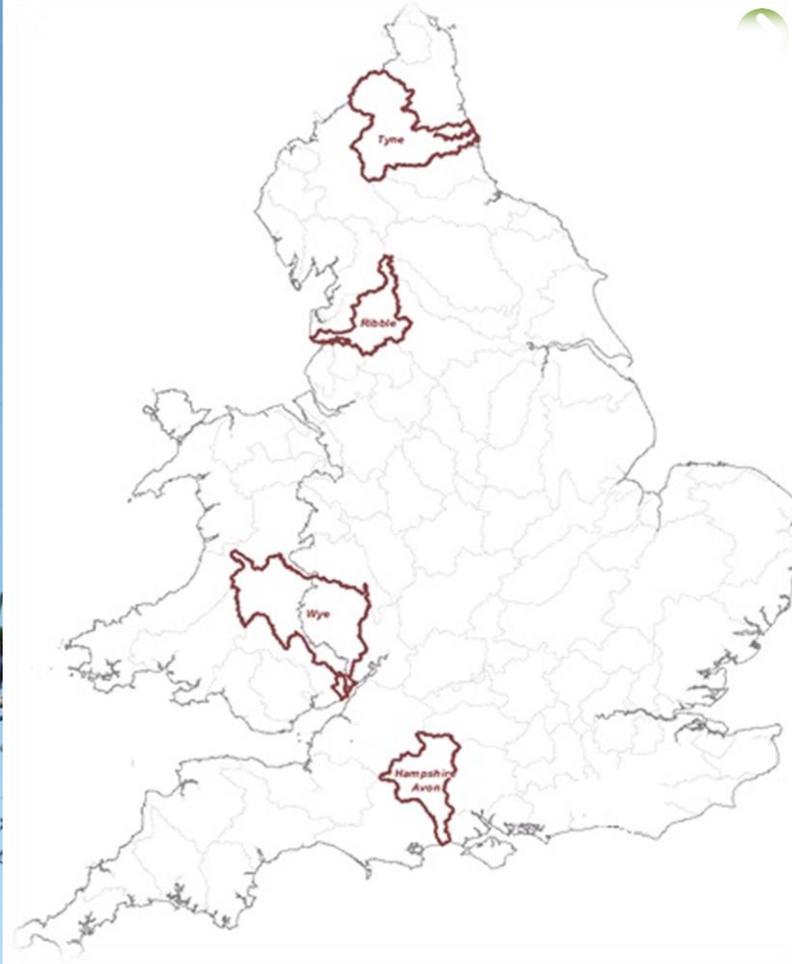
- ➔ Fish magazine, EU RESTORE wiki, River Restoration Centre, Defra biodiversity news
- ➔ River Basin bulletin, quarterly 'keeping rivers cool' newsletters, National cascade
- ➔ Conferences



Moving from maps & manuals to action on the ground



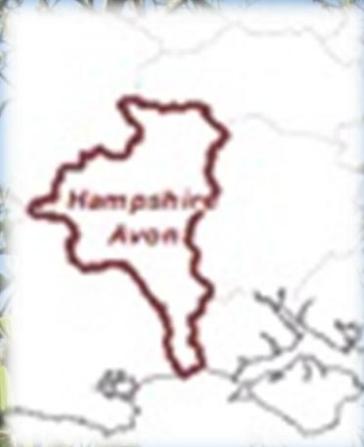
Awarded funding & selected pilot catchments



- Objectives:
- ➔ Create case studies
 - ➔ Increase riparian shade
 - ➔ Demonstrate ways to do it
 - ➔ Monitor results

Progress in Hampshire Avon

- ➔ £4k 2012/13 – 80m fencing, 200 trees
- ➔ £20-40k 2013/14



Progress in Herefordshire

- ➔ Lugg & Arrow (Wye catchment, Herefordshire – eng/ wales border):
 - ➔ Natural regeneration only (SSSIs SACs)
 - ➔ ~£70k for fencing



Progress in the Ribble

- ➔ 2012/2013 £288k (EA spend) +£81k (contributions in kind)
- ➔ 35,000 trees & 15km fencing (target 37,000 trees, fencing target 13km)
- ➔ 2013/14 Aiming for ~22,000 trees and 15km fencing (c. £115k)



Planting Volunteers (courtesy of the Ribble Rivers Trust)
Evidence – Tools – Pilots – Obstacles/ Risks – Next Steps

Obstacles & Risks

- ➔ Resources
- ➔ Ash die back
- ➔ Procurement process
- ➔ State aid



- ➔ Landowner agreements
- ➔ Internal change
- ➔ Weather
- ➔ Beavers??



Next Steps

- ➔ Monitoring plan
- ➔ External funding
- ➔ Distribution of riparian shade maps
- ➔ Further communications
- ➔ Working riparian trees as a measure into CAP reform, HLS, EWGS
- ➔ Integrating the measure into river basin plans

Thank you for listening!

Any questions?



“I have seen the tree planting at Durnford today when I walked up and fished beat 12, the hatchpool. I am very happy with what has been achieved and have no doubt it will benefit the river environment without impacting adversely on our anglers. Many thanks.”

e-mail to Environment Agency from Vice Chair of Salisbury & District Analina Club (18/04/2013)



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