

Temporary streams hydroecology monitoring

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What is a temporary stream?

Any stream that sometimes stops flowing (most temporary streams experience partial or complete streambed drying)

Why are they important?

- Dynamic ecosystems
- Transitional habitats (or 'ecotones')
- Supports both terrestrial & aquatic species including specialists adapted to drying

Environment Agency's Temporary Stream Programme

To understand and characterise temporary streams and to assess the impact of groundwater abstraction on ecology of drying reaches of chalk streams.

Dry



Ponded



Lotic



- We have 50 sites across England located in drying reaches of chalk streams.
- There are 4 sites in Colne catchment: Ver, Gade, Chess, Misbourne.
- We are surveying plants and collect macro-invertebrates in wet and dry phase.
- We visit our sites every month and observe flow categories, take photos & collect basic WQ parameters.

Linking aquatic and terrestrial invertebrates



MoRPh metrics which can be linked with beetle richness:

- Habitat complexity
- Vegetation complexity
- Anthropogenic land cover

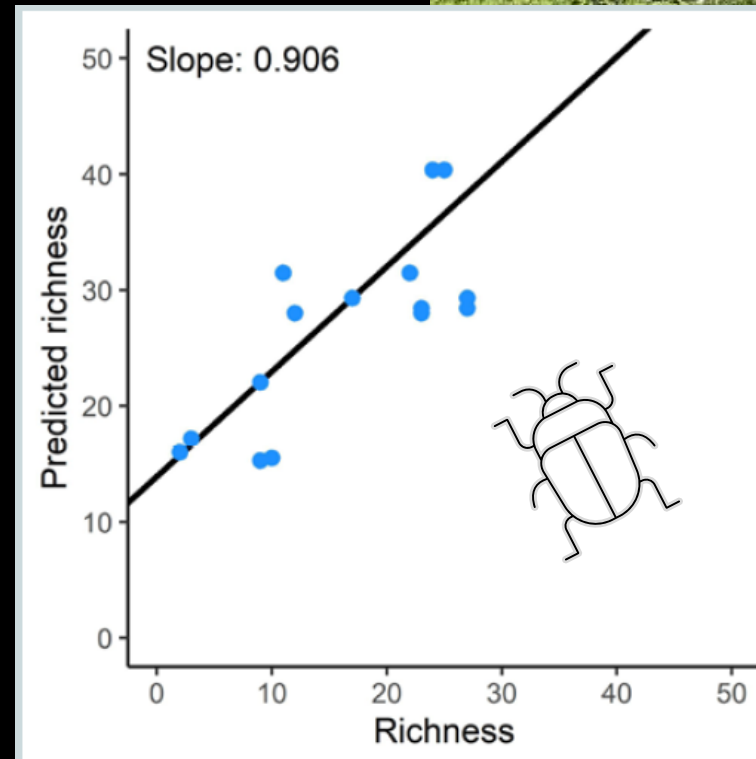
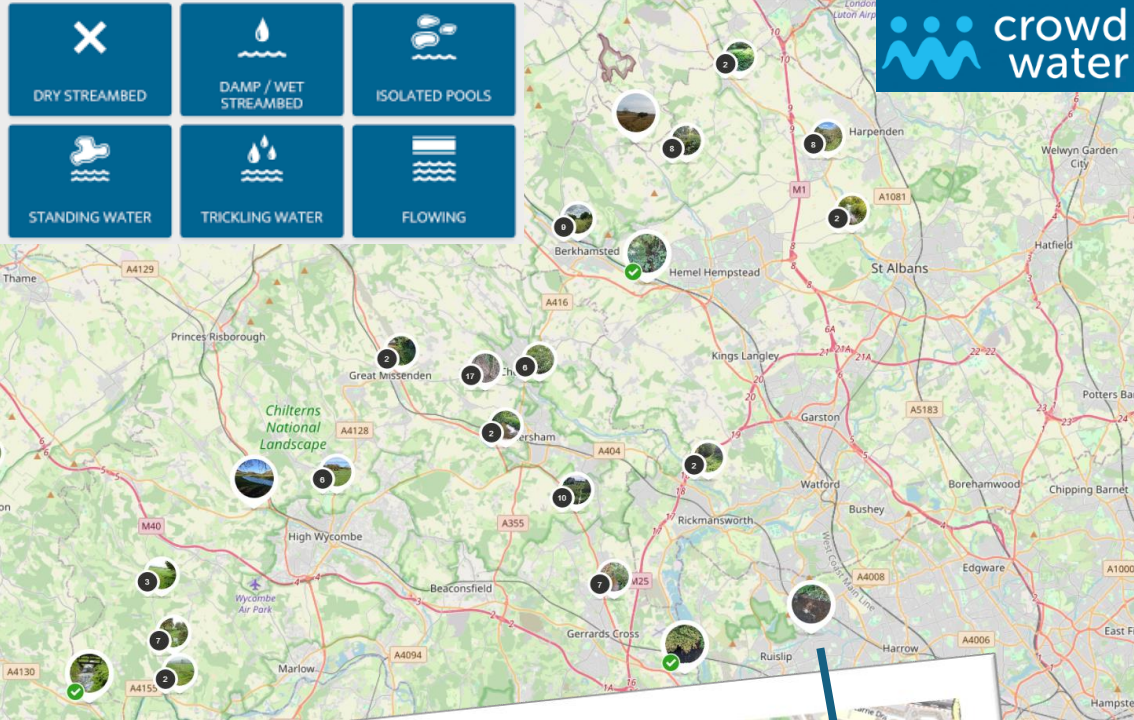


Figure 6: The relationship between observed taxonomic richness of beetle assemblages and richness predicted by MoRPh metrics for a dry temporary stream.



Flow Detectors Project

Citizen Science for Intermittent Streams

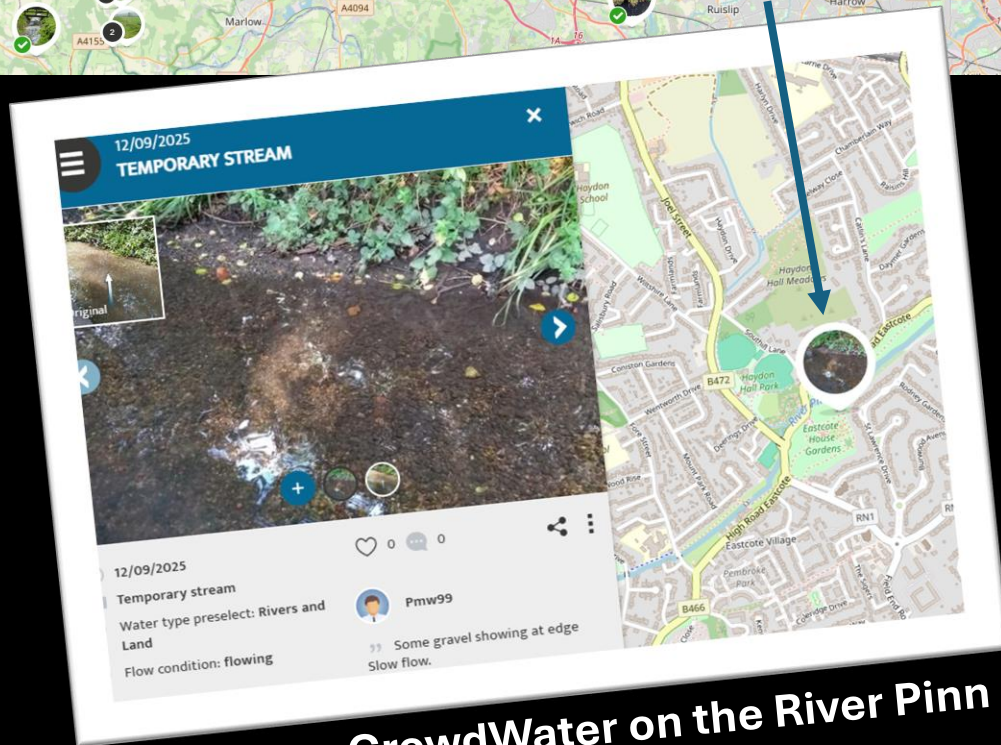
What is it?

- Citizen Science project where volunteers record flow state on local temporary streams & take a photo using a mobile app.
- Quick and easy to collect using CrowdWater or DRYvER apps
- No specialist training needed
- You can collect as much or as little data as you like; repeat visits are particularly useful
- Useful to link to Riverfly & other monitoring



What the data will be used for?

- Open access data available to all
- Improve our understanding of flow intermittence on temporary rivers and how it affects the ecology of the river.
- Contribute to mapping temporary streams & groundtruthing groundwater models



CrowdWater on the River Pinn



Flow Detectors wanted!



Please register your
interest here!

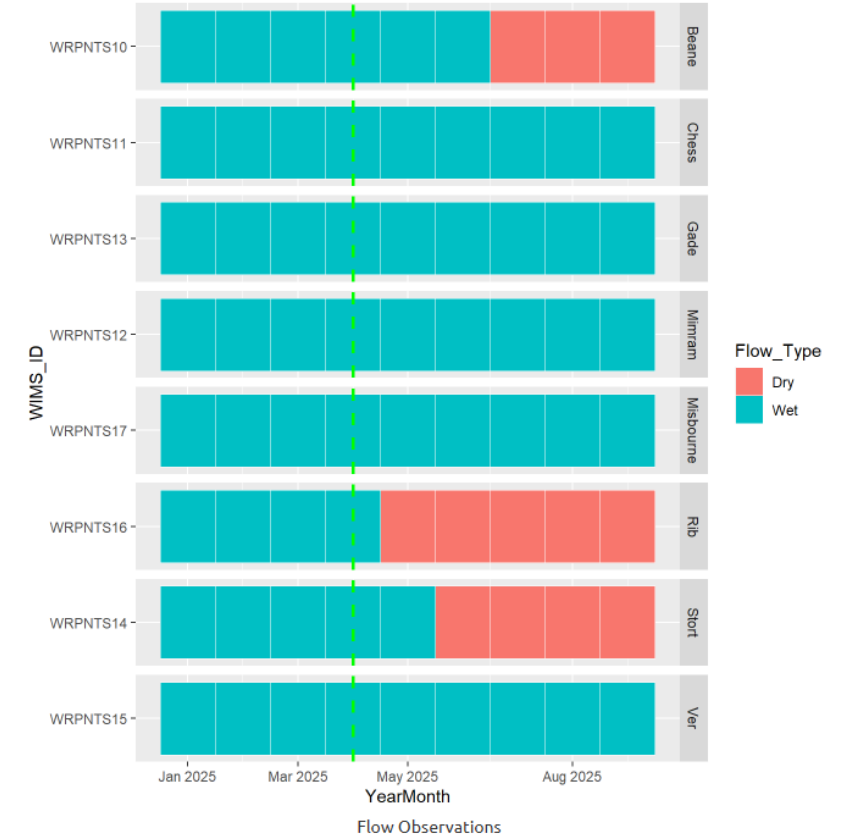
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OR

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Figure X below demonstrates the monthly pattern of wetting and drying, at each monitoring location.



- Reed canary grass
- Fool's watercress
- Thalloid red alga:
Hildenbrandia

- No analysis yet

Temp range: 13.9 – 15.2 °C
Conductivity: 757 - 674
pH: 7.6 – 7.63
DO: 87.4 – 71.6%

A narrow, shallow stream flows through a dense field of tall green grass. The stream is bordered by thick vegetation on both sides, and a line of trees is visible in the background under a blue sky with scattered clouds.

[illegible]



Chess Upstream Tennis Courts - Hertfordshire



Top 3 plants/algae

- Common watercress
- Willow Herb
- Long-beaked Water Feathermoss

Winterbourne specialists:

- *None yet*

Top 3 Aquatic Inverts

- *Nemoura cinerea*
- *Galba truncatula* (697!)
- *Apatania muliebris*



Temp range:11.9 – 18.5 °C
Conductivity: 587 - 756
pH: 7.32 – 7.54
DO: 87.3 - 98.2%

Gammarus pulex/fossarum agg. 284
Crangonyx pseudogracilis/floridianus 82

Jan-25	Feb-25	Mar-25	Apr-25	May-25	Jun-25	Jul-25	Aug-25	Sep-25
Flowing water	Moderate flow	Moderate flow	Moderate flow	Moderate flow	Low flow	Low flow	Ponded/still	Isolated pools



Gade Upstream Pipers Lane- Hertfordshire



Top 3 plants/algae

- Common watercress
- Water crowfoot
- Water mint

Winterbourne specialists:

- Floating Liverwort: *Ricciocarpos natans* -land and aquatic species

Top 3 Aquatic Inverts

- *Nemurella picteti*
- *Gyrinus substriatus*
- *Agrypnia caddis fly*

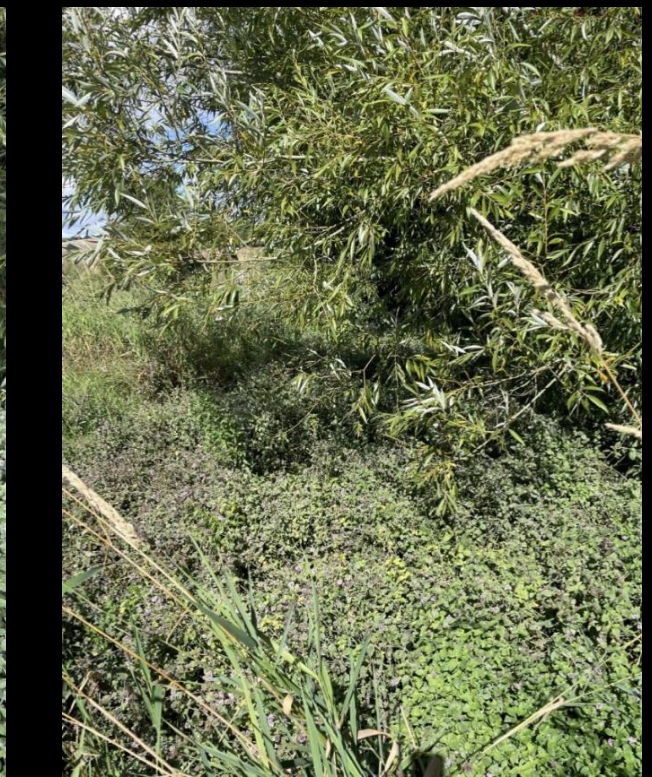


Temp range: 13.3 - 20.7°C
Conductivity: 640 - 661
pH: 7.51 – 7.81
DO: 79.9 – 97.8 %

WRPNTS13 191851

Gammarus pulex/fossarum agg. 235
Crangonyx pseudogracilis/floridianus 144

Jan-25	Feb-25	Mar-25	Apr-25	May-25	Jun-25	Jul-25	Aug-25	Sep-25
Flowing water	Moderate flow	Moderate flow	Moderate flow	Ponded/still	Low flow	Moderate flow	Low flow	Low flow



A photograph of a small, narrow stream flowing through a landscape. The stream is bordered by dense, dry, brown reeds and grasses on both sides. In the background, there are trees, a fence, and a building under a cloudy sky.

Winterbourne specialists:

Top 3 Aquatic Inverts

DO: 88 - 101.2%

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Crangonyx pseudogracilis/floridianus 144

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