



# **Upland Streams**

Types; Assessment; Conservation; Montane mayflies; Crayfish Arks



## Importance of Small Streams

➤ Headwater & Tributary streams represent >80% of all watercourses

➤ Crucial for water quality, supply of nutrients & sediments for our main rivers

➤ Hotspots for Biodiversity



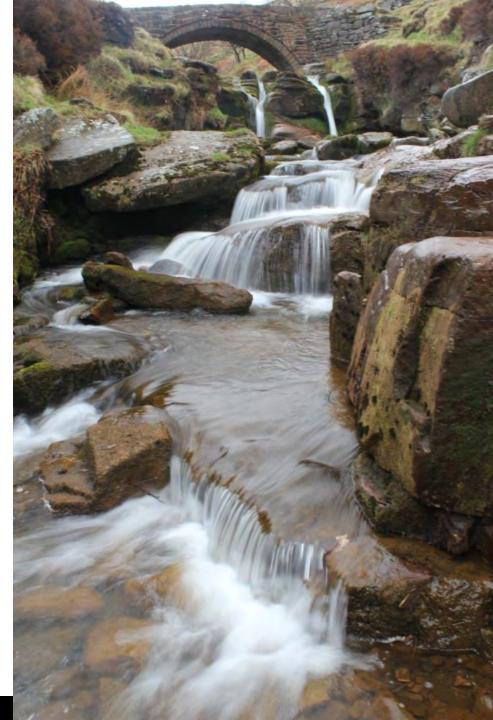
# Limestone & Tufa Streams





## Moorland Hill Streams





















Working for a **Living Landscape** 



# Macro-invertebrate Surveys









# Combes' Fingerprinting



Combes Brook sub- catchment streams	Site 1 Combes Brook Lower Lady Meadows Farm	Site 2 Combes Brook Apesford Farm	Site 3  Dirty Gutter  Brook  Lower Lady  Meadows Farm	Site 4 Holly Dale Brook Brook Farm	Site 5 Holly Dale Brook Lane End Farm
<b>BMWP</b> score	135	116	112	153	119
ASPT	6.75	<b>7.2</b> 5	6.20	6.38	6.61
R	28	24	24	35	25
EPT(S)	18	<b>17</b>	13	19	13
Rel. abundance no./3min	797	502	511	803	750
LIFE(S) flow velocity	9.04	8.62	8.18	<b>7.</b> 95	8.22
PSI(S) silt	94.83	88.64	73.33	79.03	82.61
Saprobic index organic	1.67	1.68	1.37	1.53	1.56
TRPI TRP	42.11	43.75	50.00	31.82	47.06
CCI	9.55	14.88	4.85	14.00	4.40

#### Key to mapped data circle chronology: →



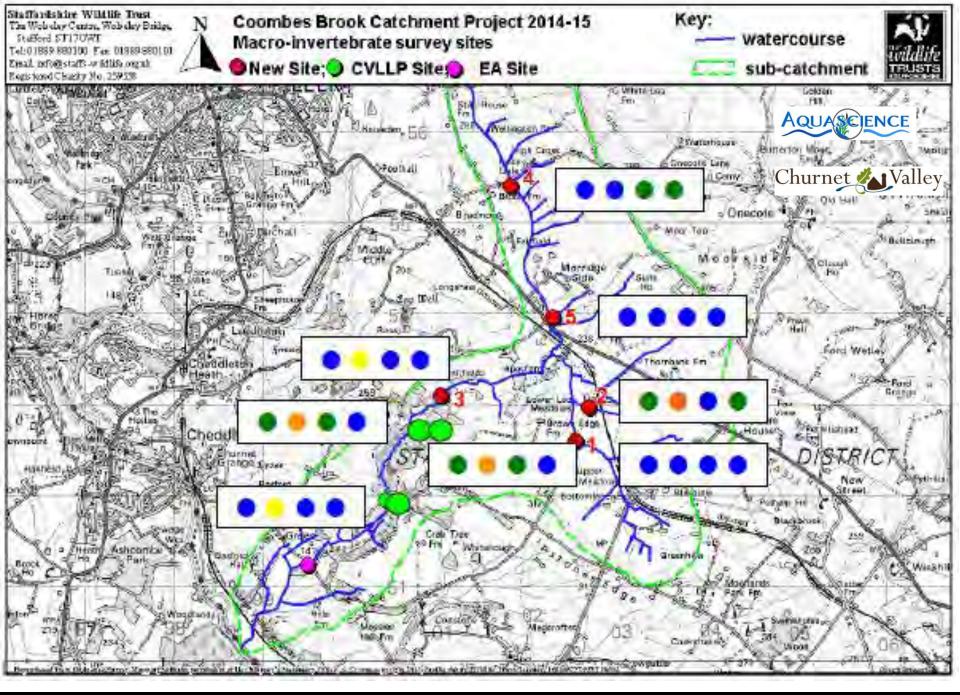




Organic enrichment O TRP] enrichment O Flow O Siltation O



Stress level descriptor	Colour code	PSI (sediment) value	TRPI (nutrient TRPI value)	Organic (Saprobic value)	Flow (LIFE value)
Heavily impacted	•	0-20	0-20	3.2 - 4	<6
Impacted	•	21-40	21-40	2.7 – 3.19	6 - 6.49
Moderately impacted	•	41-60	41-60	2.3 - 2.69	6.5 - 6.99
Slightly impacted	•	61-80	61-80	1.81 - 2.29	7.0 - 7.99
<b>Un-impacted</b>	•	81-100	81-100	1.0 - 1.80	>8.0

















Total Number of Species in Sample

# River Dove (ungrazed), Staffordshire. Sampled by J R Webb 2013

Number of species associated with each PANTHEON label

River Till (ungrazed), Northumberland. Sampled by J R Webb 2013

Number of species associated with each PANTHEON label

Total Number of Species in Sample	83	50
Running Water Species	26	20

ERS Species 6 14

Riparian sand species 4

Riparian shingle species 1

http://www.brc.ac.uk/pantheon







# Montane Mayflies

















# Crayfish in Crisis

2017-21

### Slow the Flow Project







