THE VITACRESS CONSERVATION TRUST

Minutes of The Bourne Sub Catchment Management Group
Friday, 7 December, 2007

Chair:	Professor Gail Taylor (GT)	-	University of Southampton & Vitacress Conservation Trust
	(VCT) Trustee		
Attendees:	Simon Cain (SC)	-	Cain Bio-engineering
	Alison Graham-Smith (AG-S)	-	Natural England
	Alice Parker (AP)	-	Natural England
	Shirley Medgett (SM)	-	Environment Agency
	Graham Roberts (GR)	-	H&IOW Wildlife Trust & VCT Trustee
	Dr Steve Rothwell (SR)	-	Vitacress Salads Ltd & VCT Trustee
	Dr Pete Shaw (PS)	-	University of Southampton
	Henry du Val de Beaulieu (HB)	-	Apsley Estate
	Richard Sankey (RS)	-	Angler
Apologies:	Southern Water (SW)		
	Michael Malyon (MM)		
	William Daniel (WD)		

1. Welcome

GT welcomed the attendees.
GT explained that the rationale behind forming the Group stemmed from the VCT's Chalk Headwaters Forum in June. That meeting had concluded that progress toward improved condition of headwaters could best be achieved by individual focus groups applying specialist knowledge to their local headwaters. The VCT had decided to pioneer the concept with the objective of creating an exemplar for others.
HB asked that in future the Apsley position be represented by William Daniel or Peter Evans. GT agreed and advised there will, in any event, be opportunity for wider involvement as specific tasks are identified.

2. Objectives of the Group

Debate followed aimed at defining the Group's objectives.
SR suggested we need to define good ecological condition as applicable to the Bourne and to identify deficits, thence actions to address the same. This was agreed.

HB asked if there were a comparable site against which to measure the Bourne.

SR advised the presence of the VSL watercress farm and salad packing facility were unusual and complicating factors, only replicated above the Arle, but there buffered by Alresford pond.

SM advised that invertebrate biodiversity is the key characteristic of chalk stream health. If the invert population is right all other aspects are likely to be in order.

3. Review of facts relating to the condition of the Bourne:

General Overview (SM)

SM advised the Bourne is off target. An invertebrate population imbalance, declining with distance remains.
There are however encouraging signs of recovery and the imbalance is not evident at the Iron Bridge c.1.8Km downstream of the VSL site.
Gammarus are showing best recovery but caddis and mayfly will take longer to recolonise assuming water is now of acceptable quality.
SC advised direct observations of very healthy and diverse invertebrate life in the streams on VSL's site and suggested geomorphology as well as water quality is important.
HB asked if the apparent recovery was merely a manifestation of good flows.
SM said no, EA data suggested recovery was not explained by flow.
SR asked if the fishery was impacted.
SM advised the EA have no evidence of this, but stressed the difficulty of assessing invertebrate populations accurately, let alone highly mobile fish.
SM advised past EA concern re bullhead numbers below the VSL discharge but accepted no proper survey had been undertaken.
PS and GR felt the channel bed has poor substrate for bullheads.
GR pointed out a strong bullhead population growth followed VSL works at Fobdown to enhance crayfish habitat which involved adding flints to the stream and improving bankside cover.
SC advised evidence of excellent bullhead numbers in the streams he created from VSL effluent at St MaryBourne.
HB asked how the EA could have allowed a detrimental impact to persist for so long, damaging Apsley's property.
SM advised there was no evidence of significant discharge consent breech nor to identify the causal factor(s) of the impact. Any specific complaints had been properly investigated.

PS stated development cannot be justifiably stopped on the basis of potential risk without good science to understand the facts and upon which to base decisions.
GR felt a precautionary principle was right for designated rivers such as SSSIs but pointed out the Bourne has no formal designation.
RS advised most fishery interests have stopped looking to blame past events and moved to look forward to focus upon ways to best mitigate ongoing impacts.

Review of University of Southampton Research (PS)

One year into a 3 year PhD focused upon identifying the impact of the VSL discharge upon Gammarus pulex and evaluating on site mitigation measures. Research student is Melanie Dixon, a former EA toxicologist.

First results showed process effluent impacts upon captive Gammarus but once passed through watercress beds there is no impact.
However survival in groundwater fed control beds was low. Causal factors not yet established.
Tests were conducted during a period of exceptional weather.
Plans to repeat the work with more replicates next year, randomised between groundwater and process effluent fed beds.
Over winter lab work will evaluate the impact of watercress, other salad leaf and pure PEITC upon captive Gammarus under controlled conditions.

General discussion followed:

PS stressed importance of not over focusing upon one species…Gammarus is just a model in their study.
SM agreed it is the community, not individual species that must be monitored.
SR questioned the importance of siltation as an aggravating factor to the PEITC impact.
GR felt this is a significant issue and pointed to the Land Care initiative aimed at educating farmers re ploughing near watercourses and the damage from road drains.
HB advised he had not ploughed since 1999.
PS felt phosphates from land run-off are an issue.
SR pointed to diffuse phosphate pollution from septic tanks and sewage leaks.
SM felt algal growth / diatom surveys were best way to assess P impact rather than invertebrate population studies.

Review of key factors impacting the Bourne

(i) VSL Discharge

SR explained the 4 components of the VSL discharge to the Bourne are undisturbed watercress bed outflow; settled bed washings; salad washings and site run-off.

The watercress discharge comprises pure ground water passed through crops. Pelleted slow release fertiliser is added to beds at planting and as a top dressing. This primarily provides P, the majority in a water insoluble form derived from rock phosphates and furnaced poultry ash. Liquid fertiliser is used at times of significant growth. This no longer contains P or ammoniacal N in response to past EA concern.
Settled bed washings result from cleaning down beds prior to regravelling and planting. It has a high solids load which is settled before release. This effluent was shown to impact Gammarus in a VSL funded study (Clare Marsden) and is now passed through undisturbed watercress to mitigate the impact.

Salad washing is in pure ground water and comprises leaf debris and occasionally sand/soil washed from leaves. This too was shown to have an impact upon Gammarus (CM) and is now passed through watercress beds prior to discharge. CEH detected PEITC in both the salad wash water and settled tank water, but were unable to detect same once the flows had passed through watercress beds.

Site run-off is via oil interceptors where risk of oil pollution exists.

HB questioned the risk to groundwater from fertiliser infiltration from watercress bed bases.
SR advised beds are compacted chalk, flint, and gravel aggregate which over 100 years have become rock hard and impermeable.
No "leakage" as evidenced by the necessary ability to maintain beds in a uniform damp condition during summer plantings with only a trickle flow. Any leakage would result in dry spots in low groundwater condition and yellow crop in high water table conditions due to leaching of trace elements from base sediments.
SR questioned relevance of theoretical infiltration in any event given continual surface discharge to Bourne.
PS advised any P would likely be locked by chalk long before it was able to reach or impact groundwater.
HB questioned loss of Nitrates to groundwater.
SM agreed with SDR that watercress farms are responsible for net reductions in nitrate levels of water passed through them.

(ii) VSL Abstraction (SR)

SR advised the site is located on the perennial headwater of the Bourne. William Cobbett, in 1830, recorded the annual drying of the Bourne August through March above the current VSL site. No change in VSL abstraction for at least 25 years. But the Ibthorpe groundwater abstraction some miles above the Vitacress site is likely to have an impact.
SM advised the EA are planning a hydrogeological survey but could not confirm in which year.

(iii) Road Run-off (GR)

GR outlined the Land Care project. He advised funding was uncertain but would be clarified by March next year. Assuming a continuation he felt the Bourne Valley will be included.
HB stressed the road run-off is a significant issue.
GR advised he had met with DERRA and the DTR but found little enthusiasm for action.
Too many watercourses are impacted by road run-off.
RS felt siltation from road run-off is a significant and compounding event re river impact and cited "monumental" benefits to a river wherein road run-off had been eliminated. He advised woody debris mattresses can be deployed to filter run-off as an interim remediation.
HB felt HGV erosion of the verges to Walworth Road is a significant factor. He reaffirmed Apsley's willingness to sell the roadside land at a competitive price into a road improvement scheme.
SR advised VSL were willing to participate in an improvement scheme but felt this had to be through the relevant authorities.

(iv) Abstraction and Sewage (SW)

SW were unable to attend.
The Ibthorpe abstraction had been mentioned.
The damage to the Bourne by sewage leaking to surface gravels and thence to the Bourne as the water table rose was illustrated by a photograph SR produced showing blanket weed in the stream above the VSL site, contrasted to a clean gravel in the VSL discharge.
GR felt septic tank contamination of surface gravels up the valley are an issue.
SM advised a diatom survey could establish the impact above and below the VSL site.
It was agreed such a survey would be beneficial and SM agreed to establish the practicality.

(v) Historic Dredging Damage (SC)

SC described the work he had undertaken on the VSL site, creating varied width, substrate, flows and marginal planting. The result was a healthy invertebrate population and a good population of all year classes of trout, some to over 4 pounds.
He contrasted this with photographs of Michael Malyon's stretch of water below the site.
SC advised severe dredging had removed most geomorphological variation in the base and over widened the channel. The result was a poor substrate unable to support a good invertebrate population.
SC advised he had devised a remediation plan which had EA and NE support.

(vii) Others

No other significant impacts were identified.

4. Consider Potential to Engage with Dredging Mitigation Work

SC asked if the Group would consider funding an invertebrate population survey before and after the proposed remediation works.
PS felt it was too late to get a base line as works are due to commence in January.
SM advised the EA had a good picture of the current situation and would monitor 6 monthly.
It was agreed to rely upon EA data to measure the anticipated improvements.
HB questioned the flood risk associated with narrowing the stream as proposed.
SC advised this had been assessed and approved by the EA.
RS advised he had walked the stretch and saw no risk other than a wetting of the adjacent pastures which would be a positive outcome.
SC outlined the potential to conduct similar works to the Bourne as it enters the VSL site.

5. Agree key focus areas for further work

During general discussion the following points were made:

HB wished to see work undertaken to put the impact of the VSL site upon the Bourne beyond reasonable doubt and the obvious road impacts addressed.
AG-S warned the usefulness of the Group as an exemplar would be undermined by overly focusing upon the VSL discharge at the expense of broader issues whose address may generate outcomes useful to other groups addressing other headwaters.
GR asked SM if the Bourne has been characterised by the EA…as natural / semi modified or modified. SM was unsure.
SM agreed to consider the usefulness of a diatom survey of the Bourne.

GT summarised the key outcomes to take forward from the meeting:

1. It was agreed the most recent reports on the Bourne's condition be circulated and the subject of a detailed review. These to comprise the VSL commissioned report from Environ (June 2007); the report tabled by HB from Aquascience and the forthcoming EA report following April and November 2007 assessments.
   It was agreed the same review should consider the issue of watercress bed permeability to lay the issue to rest.

2. It was agreed to further investigate the role the Group may play in addressing the impact of road run-off. GR felt this situation would be clearer once Land Care funding was established - March.

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3. It was agreed the Group would like to be kept updated reference the dredging mitigation works, relying upon EA data to measure any improvements. Subject to the outcome, consideration would be given to the benefit of similar works to the stretch flowing through the VSL site.

6. Next Meeting

GT expressed a willingness to continue to chair the Group which was supported.
Given the next meeting will, however, have a specific technical focus, in particular a remit to review and draw conclusions from recent invertebrate survey reports, GT asked PS to chair that meeting.

A date in March to be agreed via e mail contact from GT's secretary.

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Chairman

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Dated