Spring 2006

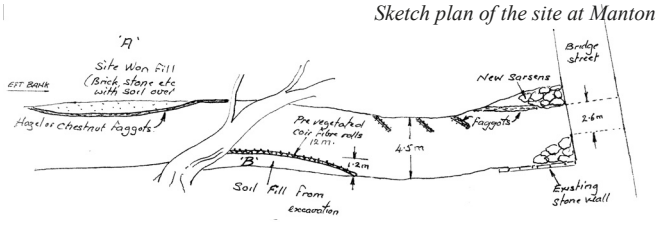
# ARK
# ACTION FOR THE RIVER KENNET

Newsletter Number 14

## River restoration project

Volunteers from across the community converged at Manton's Jubilee Field to start work on the Marlborough River Restoration Project in February. The Mayor Elect, Bryan Castle, local residents and ARK members were among those who donned waders and, guided by experts from the Environment Agency, created the green engineering that will revitalise the river.

*Sketch plan of the site at Manton*




Marlborough College's Environment Group coppiced local hazel to create the new bank structure which will improve the flow and create a diversity of habitat in this previously neglected river reach.

BBC 1's 'Countryfile' filmed the project to highlight the plight of the over-abstracted river and to show how community projects can make a difference to the environment.

The partnership project is funded by the North Wessex Downs AONB and Marlborough Area Development Trust with support from ARK, Kennet District Council, Marlborough Town Council, The Environment Agency, Wiltshire Wildlife Trust, BTCV, The Honey Street Sawmill, and the Manton Residents' Association.


*Volunteers clearing scrub and removing rubble*

## Spring river walk

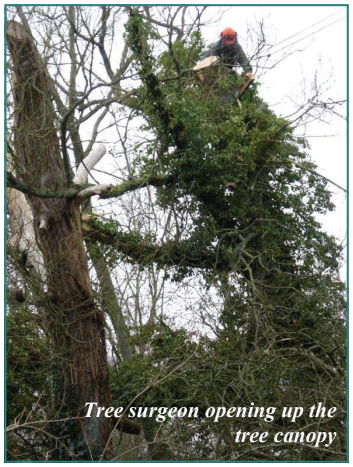
ARK's next river walk will be held on Sunday 4th June 2006. Starting at Elcot Lane, by the Marlborough Tile Factory, the walk will take in the reaches through Mildenhall and Stitchcombe before emerging from Stone Bridge Lane up to the Axford Road. Walkers can choose to walk 'there and back' or to walk one way (approx. 4 miles) and take the bus back to the start.

The walk will be signposted and marshalled. More details will be posted in the local press in May. It is free and there is no need to book in advance.

We look forward to seeing you there.


*Countryfile film the action*


*Chris Booth secures new bank structure*


*Tree surgeon opening up the tree canopy*

## Inside this issue:

## Buffer strips to reduce phosphate pollution in river

Phosphate levels in the Kennet are a continuing problem. By adopting good land management practices phosphate loads from runoff into the river can be reduced.

'Buffer strips' alongside the river help soak up phosphate and sediment laden runoff. Buffer strips simply involve excluding the edge of each field bordering the river from ploughing. If 10m or more is left it can be included as part of 'set-aside' (see www.fwag.org.uk).

Ploughing patterns influence the way water drains off the land. By ploughing along the contours, parallel to the river, rather than up and down at right angles to the river, rainwater sits in the furrows and soaks into the soil, rather than washing off into the river.

Much of the phosphate load in the Kennet originates from the winterbournes, which flow only occasionally. ARK is encouraging upstream farmers to treat winterbournes as if they were permanent river and manage adjacent land appropriately, by using buffer strips and not applying fertiliser within 10m of the 'ditch'. This could dramatically reduce the flush of phosphate and sediment that surges through the river system each time the winterbournes begin to flow.


*An example of good land management next to the Kennet.*

## The Brook (excerpts)

I wind about, and in and out,
With here a blossom sailing,
And here and there a lusty trout,
And here and there a grayling,

And here and there a foamy flake
Upon me, as I travel
With many a silvery waterbreak
Above the golden gravel,

And draw them all along, and flow
To join the brimming river
For men may come and men may go,
But I go on for ever.

And out again I curve and flow
To join the brimming river,
For men may come and men may go,
But I go on for ever.

*Alfred Lord Tennyson (1809-1892)*

## To feed, or not to feed, that is the question

**'Come on children, boots on and lets feed the ducks.'**
**'But Mummy , a man came to school and said we shouldn't feed the ducks' ...**

Bird feeding is a traditional pastime. However all that extra food is unnecessary and even harmful. So much bread is thrown into the water, or on to the bank, that it is not eaten by the ducks but by rats. Rats carry Weils disease (*Leptospirosis*) – a flu like illness that affects humans and can be fatal.

Duck feeding increases the population of water fowl out of proportion to the natural habitat. I have counted 78 ducks, two swans and four cygnets on the river in Marlborough (+ three supermarket trolleys).

Bird excrement increases phosphorus levels in the water. Nitrate levels are already far too high in the Kennet and a considerable problem. The combination of these factors is destroying the viability of a once fine trout stream and is not sustainable.

The river next the George Lane car parks is a wasteland rather than the green corridor it should be. Dabbling ducks and swans have destroyed all signs of aquatic plants, waddling ducks have eaten the grass and compacted the soil.

Please stop feeding the ducks! The eroded banks can be planted with emergent vegetation. In time *Ranunculus* will return and so will the trout. The emergent plants will take up the nutrients, improving the water quality.

Next time you are enjoying the river, leave the bag of stale bread at home and watch the ducks foraging for food that's good for them, and gradually the Kennet at Marlborough will become a pastoral scene worthy of Tennyson's 'The Brook' ... but not if Thames Water continue to over-abstract … however that's another problem!

*Chris Booth, Environment Agency*

## Membership

Thank you to everyone who has renewed their membership and made generous donations in support of ARK. If it has slipped your mind, its not too late to renew. Membership costs just £10 per year and new members receive a free 'Map and Guide to the River Kennet'. If you are able to pay by 'Standing Order' it greatly reduces administration costs. The more members ARK has the more we can do, and the greater mandate we have when negotiating for the protection of the River.

**Thank you especially to our first 'corporate members' Smiths Gore and Marlborough College.**

## Abstraction at Axford

Thames Water's licence to abstract water from the Axford borehole from 2008 is currently being negotiated with the Environment Agency. Engineering consultants WS Atkins have completed a report for Thames Water on the ecological impact of groundwater abstraction at Axford. This report shows that abstraction has a negative environmental impact and recommends abstraction is reduced to 6 Mega litres per day compared to current permitted abstraction of 13 Mega litres per day at Axford. ARK are pursuing this issue with both the Environment Agency and Thames Water.

## State of the river — Spring 2006

**River flow** The River is desperately short of water. Thirteen of the last 15 months have had below average rainfall. The poor flow in the river has left the river bed covered in silt and dead leaves. With no exposed gravel beds fish have found it hard to spawn because there is nowhere to create their *redds* (nests). Usually the female trout will dig a trench using her body and tail, she then lays the eggs and the male releases his sperm to fertilise them. The fish cover their eggs with loose gravel. To develop successfully trout eggs need a good supply of oxygen rich water flowing over them, so the low flows will impact those eggs that have been laid.

**Water quality** is reasonable. The lack of rain has meant that there has been little pollution caused by runoff and the water is clear because there is little suspended sediment.

**Weed growth** is non-existent because there hasn't been sufficient flow to stimulate growth, or to prevent swans grazing off what little weed there is.

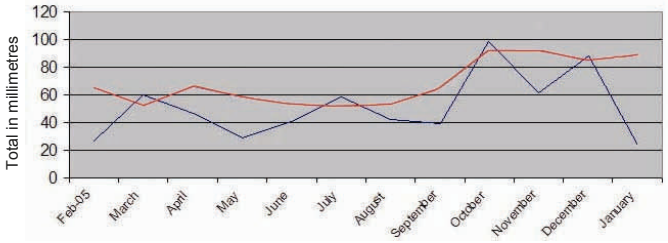
**Fly life.** Savernake Flyfishers have been surveying the invertebrate population. They have been disappointed to find no nymphs, some dark olives but no blue winged olives. They aim to conduct the same survey on the river above Marlborough and compare the two sites.

**Outlook. The outlook for the summer is bleak, unless the catchment receives 300ml of rain or more in the next month, which is unlikely.**

*Report by John Hounslow and Mike Matthews*

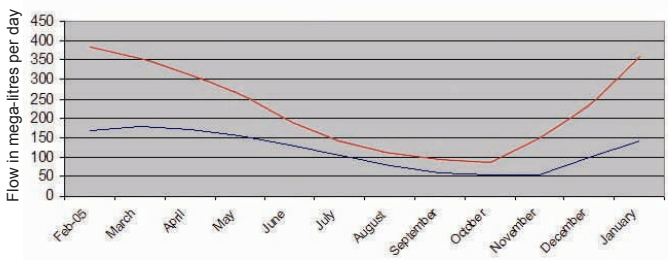
**Rainfall at Marlborough Sewage Treatment Works**
**February 2005 —January 2006**

*Blue = recorded* *Red = monthly average 1990—2004*



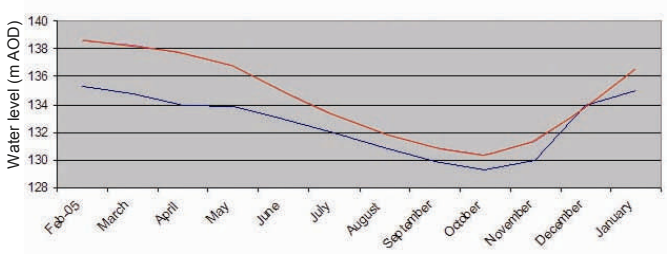

**River Flow at Knighton**
**February 2005 — January 2006**

*Blue = recorded* *Red = monthly average 1990—2004*




**Groundwater Levels Rockley Observation Borehole**
**February 2005 —January 2006**

*Blue = recorded* *Red = monthly average 1980—2004*



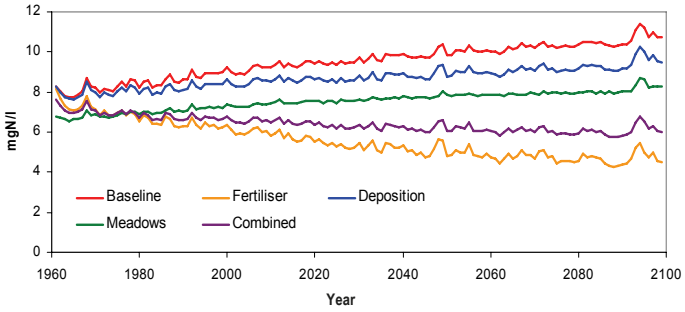

*Data source: Environment Agency*

## Water meadows may spell brighter future for the river

The River Kennet is one of the catchments being studied by the University of Reading as part of a large European Project to assess the impacts of climate change on river, lake and wetland systems across Europe.

The research predicts the likely future impacts of climate change on hydrology and water quality in the River Kennet and shows that flow rates in the river are likely to fall with drought periods becoming more extreme. Extending the research to simulate nitrate-nitrogen suggests that the droughts will trigger a release of nitrate from the soils and this nitrate will end up in the river (see simulation, in red, shown in the Figure). The UK scientists involved in the study, Prof Paul Whitehead, Dan Butterfield and Andrew Wade (University of Reading) and Dr Rob Wilby (Environment Agency) predict that nitrate – nitrogen concentrations will increase to levels close to the EU drinking water limits of 11.3 mg/l. The falling flow rates and rising nitrate levels could affect water supply but will also put in doubt plans to improve water quality and ecology of such a sensitive chalkland stream as the Kennet.

**Effects of climate change from1960-2100 on Nitrate-Nitrogen concentrations in the River Kennet and a set of Adaptation Strategies**




The team looked at whether it may be possible to mitigate the effects of climatic change. They found that **reducing agricultural fertiliser** use by 50% in the catchment has the biggest improvement (yellow), lowering nitrate concentrations to levels not seen since the 1950s. Reducing atmospheric sources of Nitrate and Ammonia by 50% does reduce the nitrate by about 1 mg/l (blue) but is a much smaller effect. Constructing **water meadows** along the river would be more beneficial, significantly slowing down the rising levels of nitrate (green). However, a practical proposition might be a combination of all three approaches to reduce fertiliser use by 25%, reduce deposition by 25% and to construct some wetland areas along the river system. This generates significant reductions in nitrate in the river (purple).

The study used climate change predictions of future rainfall and evaporation from the Hadley Centre Global Circulation Model in conjunction with a dynamic catchment model to simulate flows in the River Kennet. The European project is called Eurolimpacs and involves 38 different partners across Europe. For more information about this study see www.eurolimpacs.ucl.ac.uk or contact p.g.whitehead@reading.ac.uk

*Paul Whitehead, University of Reading*

## ARK greetings cards

A complementary sample of the new ARK greetings cards is included with your newsletter. Packs of eight cards, featuring four separate designs by local artists Simon Orton and Eric Kilner are available from outlets in Marlborough and Ramsbury, or by sending a cheque to ARK. Packs cost £8 including envelopes. All profits to ARK.

## Signal crayfish

The signal crayfish, photographed by an ARK member (right), is common in the Kennet downstream of Marlborough. These large, aggressive creatures were imported from America in the 1970s. They have gradually invaded the river networks in the south of England. They not only competitively exclude our native crayfish, but also carry a fungal disease, the crayfish plague, to which the native crayfish has no defence. Crayfish eat invertebrates, larvae, fish and fish eggs. They also graze on aquatic plants.

The American signal crayfish is identifiable by the distinctive white marking at the claw joint, and a red underside to its claws. By contrast the native 'white clawed crayfish' has creamy peachy coloured undersides to its claws. The native crayfish is generally smaller, reaching around 10cm, whilst the American crayfish grows much larger.

It is illegal to return a signal crayfish to the water in the UK, although you need a licence from the Environment Agency to legally harvest them.