



**WAVE Project**  
Water Adaptation is Valuable for Everybody

# Somerset Update

Spring 2011



# Introduction

This leaflet provides an update on progress for WAVE – “Water Adaptation is Valuable for Everybody” – a partnership project supported by EU Interreg IVB NWE funding.

Through WAVE, organisations in Belgium, France, Germany, the Netherlands and Somerset are working together to prepare for changes to water systems caused by climate change and help make these systems more ‘climate-resilient’.

Somerset partners in WAVE are Somerset County Council, Environment Agency, Farming and Wildlife Advisory Group (FWAG), Royal Society for the Protection of Birds (RSPB), Somerset Drainage Boards Consortium (SDBC) and Somerset Wildlife Trust (SWT).

At the halfway stage, the project is already helping communities across Somerset adapt to increased flood risk and other impacts that climate change will have.

The Council’s Climate Change Strategy highlighted the risks that climate change poses to Somerset, with sea level rise, changing weather patterns and increased storminess likely to lead to both increased and prolonged flooding and summer drought. The County Council therefore coordinated a group of local partners and linked up with European partners to bid for European funding to address water management and climate change adaptation in Somerset.

The bid was successful, and brings in approximately £900,000 of European Regional Development Fund money into the county from 2008-12 to better understand the likely impacts of climate change and the adaptations that will be required to deal with these.

The project aims to achieve this in Somerset through a combination of the following:

- 1) identify, using predictive modelling, the local effects of climate change in Somerset, and produce outputs for use as communication tools;
- 2) manage the risks, by employing a number of approaches, including:
  - a. sustainable management of excess water - working with natural processes to make more space for water in the environment; minimising the impact on communities (landowners) whilst maximising opportunities for wildlife and other local interests.
  - b. reduce flood risks, for example by tree planting
- 3) raise awareness, so that landowners and wider local communities are better informed on how they can and will need to adapt to a changing climate

In addition there are a series of ‘Joint Actions’ where the focus is on European partners working closely together and learning from each others’ best practice. These are themed around spatial planning, risk prediction, multifunctional land use, and emergency planning.

## Working with schools

Communicating with local communities about the risks from climate change is key to the success of WAVE. In Somerset, we have been organising school visits to farms whose land will be used for storing floodwater from the River Parrett. The scheme will also benefit wildlife by creating new habitats.



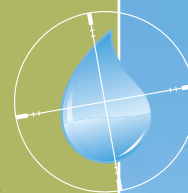
# Brue Valley Living Landscape



## Aims

This sub-project led by Somerset Wildlife Trust (SWT) is a landscape-scale conservation scheme. It aims to develop a vision for the future of the Brue Valley that offers robust strategies for adapting to climate change. It combines surveys of habitats with studies of the socio-economic benefits that people obtain from the area's ecosystems.

The resulting vision will help landowners adapt to shifts in water levels and improve biodiversity on their land where possible. It will also give decision-makers and local communities a deeper understanding of the potential impacts of climate change on the valley's landscape.



## Progress

### Habitat surveys

Good progress has been made in the habitat surveys, with only nine per cent of the sub-project area left to survey at December 2010. SWT has combined data supplied by partner organisations with field and aerial surveys to produce a comprehensive picture of habitats in the Brue Valley.

### Mapping opportunities

SWT is working with its local partners on mapping the opportunities for wildlife habitat gain and adaptation to climate change. This work involves examining existing habitats, water management and farming systems to identify opportunities and plan how they might be realised over the next 10 years. In 2011, partnerships will be developed to achieve these opportunities.

### Socio-economic study

During the second half of 2010, consultants recruited by SWT prepared a baseline report on the socio-economic benefits of habitats in the sub-project area. After the partners agreed this report, the consultants assessed possible effects on the Brue Valley of different climate change scenarios taken from the UKCP09 projections.

The consultants also drew up four socio-economic scenarios to combine with generic scenarios used elsewhere. In 2011 they are finalising the research by combining all this data, describing possible effects on habitats in the sub-project area and identifying opportunities for adaptation over the next 40 to 60 years.

### Biodiversity vision

SWT is working with Natural England and the RSPB in 2011 to create a draft 50-year biodiversity vision for all of the Somerset Levels and Moors. Catchment by catchment, the vision will describe how the area might alter as the result of various drivers of environmental change.

### Advice for landowners

SWT more than doubled the number of visits to landowners in the second half of 2010. It has completed 13 agri-environment scheme applications that will bring almost £1.5 million into the local economy over the next 10 years, and four more applications were in progress at December 2010.

Advisory work will remain a high priority as most Environmentally Sensitive Area agreements in the Levels and Moors end between 2011 and 2013. Environmental Stewardship is replacing ESA but cannot deliver conservation on a landscape scale, so SWT will work with partners to develop new agri-environmental schemes and mechanisms such as carbon trading or green infrastructure.

### Land purchase

SWT has continued to work on plans for restoring two pieces of land it has bought in the Brue Valley. It hopes to have started work on both in the summer of 2011 following agreement with the planning authority and Natural England.

SWT has also succeeded in buying five parcels of land totalling 12.8ha that border its nature reserves at Catcott and Westhay. Their purchase will enable the restoration of species-rich grasslands, the securing of water levels that will help existing habitats and the provision of more habitats for threatened species such as bitterns.

### Communications and Volunteering

SWT has produced a draft leaflet about the sub-project and sent its newsletter View from the Brue to more than 500 landowners and organisations.

Funding from Wave has helped in employing an estate worker to lead parties of volunteers and buying a vehicle to transport them. More volunteers have been recruited to the project, bringing the total involved to 153.



“We're at the forefront of showing how the theory of landscape-scale conservation can be put into practice.”

David Leach  
Brue Valley Living Landscape  
Project Manager, Somerset  
Wildlife Trust



# A new approach to sustainable land and water management



## Aims

Led by the RSPB and Somerset Drainage Boards Consortium (SDBC), this sub-project aims to develop measures that will enable adaptation to climate change in vulnerable floodplains, based on an evolving understanding of the inter-relationships between water management, land management and the environment.

## Progress

### Adapting King's Sedgemoor floodplain to climate change

Advisory visits have been made to 28 farmers in places that were identified for restoration in the Sutton Hams, Walton and Aller Moor areas. The RSPB has submitted six applications for Environmental Stewardship covering 203ha. A further 12 applications for 257ha on Butleigh & Walton Moor and Aller Moor may be in the pipeline for 2011-12, subject to confirmation by Natural England.

### Floodplain connectivity

The target for the Greylake Connectivity Project is to reconnect 114ha of grazing marsh that makes up the RSPB's reserve to the floodplain and enable water levels to be better managed, especially in winter. The main sluice has been installed and is functioning well: water flowed onto the nature reserve directly from the King's Sedgemoor Drain during two small floods over the winter.

The focus is now on replacing two inlets at the east end to allow floodwater from Moorlinch Moor onto the reserve and improving culverts under gateways to allow floodwater to spread faster across the site.

### Adapting Pawlett Hams floodplain to climate change

Work by the RSPB, SDBC and partners with funding from WAVE and elsewhere has enabled Pawlett Hams to become a showcase for the future of farming and conservation in this internationally important wetland.

Local, national and international groups now visit it to see new techniques in water and land management that are more resistant to the potential impacts of climate change than agricultural practices regarded as intensive.

The area, which borders the River Parrett north of Bridgwater, had been intensively farmed with major arable cropping and heavy use of fertiliser and pesticide, combined with extreme water management and drainage to facilitate the use of heavy machinery. The pursuit of low winter water levels had put a significant strain on water level management across the whole 400-hectare floodplain.

WAVE has funded the purchase of nearly 15 hectares and installation of drainage infrastructure across the site, allowing complete control of water levels through the year, creating optimum conditions for native species and enabling key habitats to be protected and enhanced. Additional landscaping has created better feeding grounds for rare, breeding wading birds.

A public access area has been created on the northern edge of the site, allowing local people and visitors to enjoy the Pawlett Hams. It has a WAVE-funded mobile building with information about climate change and interpretation boards explaining about the project.

### Land acquisition

The RSPB continued negotiations with two landowners in the second half of 2010 but these were unsuccessful. It is seeking to buy strategically important pieces of land on West Sedgemoor, Greylake and elsewhere.

Its top priority is to acquire land that gives it full hydrological control of blocks of wet grassland for wintering water birds and breeding waders.



"We're restoring part of the floodplain back to its original function which will not only help manage flooding but also benefit wintering birds."

Harry Paget-Wilkes  
Site Manager, RSPB,  
West Sedgemoor  
& Greylake Reserves



# Farm Water Management Plans



## Aims

Led by the Farming and Wildlife Advisory Group (FWAG), this sub-project aims to help farms plan their water resources in a better way that mitigates the effects of wetter winters and drier summers. These Farm Water Management Plans cover water use, retention, quality and storage.

## Progress

Visits to farms to discuss their water management were one focus for this sub-project in June–December 2010. A total of 20 farm visits were made and two Farm Water Management Plans were agreed.

A second focus was on setting up demonstration projects to show how farm water can be conserved and recycled. Five different demonstration projects were set up:

### **Branston Ltd, Ilminster**

A demonstration project set up by FWAG is helping this potato packing plant reduce its use of mains water by 95% and its effluent discharge by at least 80%. What effluent is now discharged is of better quality than before the project.

Branston previously used about 85 cubic metres of water a day to wash potatoes, with 79% coming from the mains and the rest from boreholes, and the effluent was discharged to the public sewer.

Its new recycling system treats the wastewater from washing potatoes by removing the soil. The water then passes through a membrane bioreactor that combines a membrane filtration process with a suspended growth bioreactor. The recycled water is stored and used on site to wash potatoes.

### **Leaze Farm, Haselbury Plucknett**

Water used in the milking parlour on this large, commercial dairy farm and cheese-making plant is now being recycled. The wastewater runs into a sand trap and the resulting clean water is pumped into a holding tank before being re-used in the parlour.

### **Manor Farm, Isle Abbotts**

Rainwater harvesting installed on this medium-sized commercial dairy is reducing mains water use by 25–35%. A system has been installed for collecting rainwater, passing it through sand-based filters and storing it. The water is then used to wash down the milking parlour and cattle collecting yards and also for cooling milk and spraying.

### **Meare Green Court, Stoke St Gregory**

Rainwater harvesting is being used to water cattle and supply a neighbouring willow processing business. Rainwater collected from the roofs of farm buildings is stored in holding tanks before being used for cattle drinking in the barns and in processing willow at the Willow and Wetlands Centre.

### **Smokey Farm, Staplegrove**

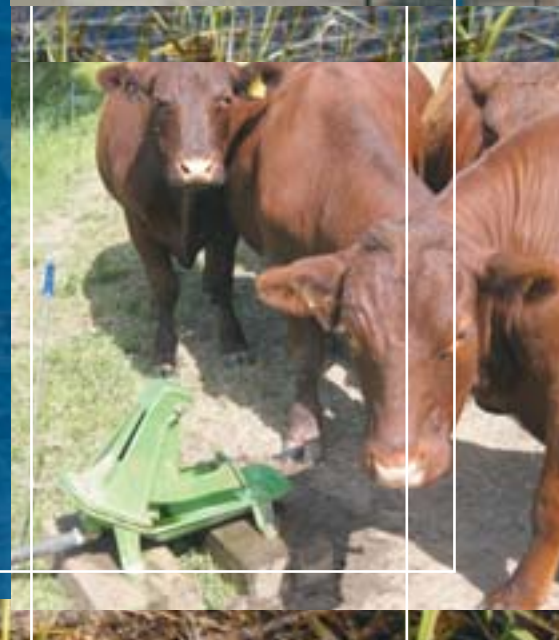
FWAG installed a system to control excess run-off from the roofs on this dairy farm and separate clean and dirty water. It includes small retention ponds planted with reeds to help filter the run-off before it enters the main watercourse.

In 2011, FWAG plans to make 20 more visits to farms to discuss water management, develop a further five Farm Water Management Plans and arrange an additional three demonstration sites.



“We are encouraged by the response we’ve been getting from farmers – they’re keen to reduce their mains water use and harvest rainwater.”

**Ben Thorne**  
FWAG, Somerset & Dorset



# Community and floodplain woodlands



## Aims

Led by Somerset County Council (SCC) with support from FWAG, this sub-project aims to establish new woodlands to reduce water run-off, create a long-term carbon sink and provide native woodland that will be an amenity for use by the community and a haven for wildlife.



## Progress

During the second half of 2010, SCC carried out preparatory work for the planting of eight new community woodland schemes and encouraged a further 100 native tree planting schemes throughout Somerset. FWAG continued its programme of visits to farms to find suitable planting sites and monitor existing sites.

The community woodlands were as follows:

- **Eames Woodland, Ilminster** – planting on Wessex Water land with public access; £3,500.
- **Horton Cross community woodland** – planting on village hall land with public access; £1,000.
- **Longrun Meadows flood relief scheme** – planting on Taunton Deane Borough Council open space; £15,500.
- **Nether Stowey bypass woodland** – planting on Parish Council land; £1,000.
- **South Petherton (phase 3)** – planting a Town Council community woodland; £500.
- **Wedmore community woodland and orchard** – planting on private land with public access; £5,500.
- **Westford, Wellington (phase 2)** – planting on Environment Agency land as part of a flood relief scheme, with public access; £6,000.
- **Withycombe community woodland** – planting on Crown Estates land with public access; £3,500.

One challenge for the partners is finding suitable sites for woodland that are both accessible to the public and close to towns or villages. We believe that the solution is to cast the net as widely as possible in the public and private sectors.

A second challenge is to identify enthusiastic individuals or groups that can help organise volunteers to plant and maintain the new woodlands.

All the community woodlands listed above have now been completed. In 2011, the focus is on searching for suitable sites for further planting and volunteer groups that can carry out planting and maintenance.

For FWAG, the focus is on planting additional floodplain woodland and monitoring existing plantings to assess their effectiveness in reducing flood risk.



“The work we’ve done so far shows there are people in many communities who recognise the importance of planting new woodlands to help in the fight against climate change and increase woodland cover in Somerset.”

Cllr David Hall, Cabinet Member, Strategic Planning & Economic Development, Somerset County Council



# Climate change and its implications for water management



## Aims

The Environment Agency aims to predict how climate change will affect Somerset using modelling based on the latest scenarios. It is producing predictions in the form of both maps and panoramic photomontages.

These predictions will be used by the Environment Agency in discussions with the public and other interested parties about how managing water resources and planning land use can adapt to a changing climate over the next 50-100 years. They will also be used in assessing how climate change will affect flood defences and water control structures in Somerset.

## Progress

During the second half of 2010, the Environment Agency investigated flooding from all sources – tides, rivers and rainfall – in the Parrett & Tone and Brue & Axe catchments.

Its consultants developed computer models of the effects in 50 and 100 years' time of the predicted rising sea level, increased river flows and intense rainfall. They have produced maps showing where flooding from tides and rainfall could occur, and the modelling and mapping of flooding from rivers are being finalised.

The Environment Agency has launched a website ([www.somersetwave.co.uk](http://www.somersetwave.co.uk)) that shows panoramic photos taken from major landmarks in the two catchments, including Brent Knoll, Burrow Mump and Greylake. The interactive site allows users to pan around and flip from site to site.

When the flood modelling exercise is complete, the projected flood outlines will be overlaid on the panoramic views to create photomontages showing possible flooding over the century.

The Environment Agency has also drafted a storyboard showing how flood risk in the past, present and future shapes the Somerset landscape and human activity and wildlife within it.

In 2011, the Environment Agency plans to meet again with landowners and farmers to discuss the results of its flood modelling and mapping.

With its partners it will then finalise the concluding messages and toolkit. These should identify the pressures from future flooding resulting from climate change and how decision-makers and landowners can manage and adapt to change.

The new website will have maps of the extent and depth of flooding as well as the photomontages showing the current situation and predictions for 50 and 100 years' time. These innovations should prove to be effective tools in communicating with the affected landowners and local communities.

The Environment Agency presented this work at the annual conference of the Chartered Institution of Water and Environmental Management 'Big Society: Future Environment', in April 2011.



"The new website puts over in an eye-catching way crucial information about where flooding might happen in Somerset as the result of climate change."

**Ken Moss**  
Project Manager, Environment Agency



# Contacts



**Somerset County Council** – [www.somerset.gov.uk](http://www.somerset.gov.uk)  
**Steve Dury, WAVE Project Manager**  
01823 355170 [SDury@somerset.gov.uk](mailto:SDury@somerset.gov.uk)



**Environment Agency** – [www.environment-agency.gov.uk](http://www.environment-agency.gov.uk)  
Ken Moss, Project Manager, Wessex Area (Bridgwater)  
01278 484511; [ken.moss@environment-agency.gov.uk](mailto:ken.moss@environment-agency.gov.uk)



**Farming and Wildlife Advisory Group** – [www.fwag.org.uk](http://www.fwag.org.uk)  
Ben Thorne, FWAG, Somerset & Dorset  
01823 355427; [Bthorne@somerset.gov.uk](mailto:Bthorne@somerset.gov.uk)



**RSPB** – [www.rspb.org.uk](http://www.rspb.org.uk)  
Harry Paget-Wilkes, Site Manager, West Sedgemoor & Greylake Reserves  
01458 252820; 07736 633095; [harry.paget-wilkes@rspb.org.uk](mailto:harry.paget-wilkes@rspb.org.uk)



**Somerset Drainage Boards Consortium** – [www.somersetdrainageboards.gov.uk](http://www.somersetdrainageboards.gov.uk)  
Phil Brewin, Ecologist  
01278 789906; [pbrewin@somersetdb.co.uk](mailto:pbrewin@somersetdb.co.uk)



**Somerset Wildlife Trust** – [www.somersetwildlife.org](http://www.somersetwildlife.org)  
David Leach, Project Manager  
01823 652405; [david.leach@somersetwildlife.org](mailto:david.leach@somersetwildlife.org)



Investing in Opportunities



West Sedgemoor RSPB reserve - Andy Hay ([rspb-images.com](http://rspb-images.com))

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