



## **Environment: habitat and conservation**

### *Challenges for the Future*

#### **Dr. Sandy Smith, Open University**

Water can be stored underground naturally but it can also be stored above ground artificially in reservoirs. There are two reservoirs on the Severn but their main function is water supply, not flood protection. You would need to build many more across the catchment for effective flood protection and this is a very expensive option. But the Severn already has its own natural reservoir. At the confluence of the Severn and Vyrnwy Rivers fifty square kilometres of flood plain provides an impressive amount of storage. The natural storage capacity of flood plain is enhanced by a man-made flood protection system. This dates back to the 18<sup>th</sup> century. This may look like an ordinary grassy bank but, in fact, it's called an argy.

These embankments prevent floodwater coming onto the field behind them during smaller floods. But during big floods, like the floods of autumn 2000, the water will overtop the argys. Gates like this one hold water on the field for a while and then let water flow back into the river more slowly. The confluence area can temporarily store about a third of the floodwater from the Severn and the Vyrnwy. But this is not enough to stop the big floods from causing havoc in Shrewsbury. To do that you'd probably need a major change in land use.

It's already difficult to farm riverside land productively because of the floods.

#### **Barry Jones, Farmer**

It's something you get used to. Other people from outside of the flood area don't really appreciate what we have to put up with, but we get used to it, we get on with it and we cope to the best we can.

#### **Dr. Sandy Smith, Open University**

Farmers are already being encouraged to think more about biodiversity. Under the Countryside Stewardship Scheme they're offered incentives to restore arable cropland to grassland.

#### **Barry Jones, Farmer**

The land that we've taken out, which is approximately sixteen hectares, is land that's fairly non-productive and it's non-productive for the very reason that we have a flood every winter and so we have to replant that land to successfully get a crop.

#### **Dr. Sandy Smith, Open University**

If there are schemes to encourage biodiversity, then many believe there should be similar schemes to encourage flood alleviation. Upstream of Barry's farm, just over the border in Wales, is Dolydd Hafren Nature Reserve. This stretch of the flood plain shows how the river could be managed differently

#### **Clive Faulkner, Montgomeryshire Wildlife Trust**

The majority of the rivers in this area are constrained by farming, by land management. All the way down the Severn valley farms come right up to the edge and they defend that land, understandably, but here because it's a nature reserve we can just let the river rip. It can do its own thing. You get the banks of shingle, stones piled up and every year they're in a different place. You get the banks eroded every year, cut away, cut, cut, cut and the river will move into a new bit of field but, at the same time as it moves into new areas, it'll leave other areas behind and create pools and oxbow lakes in an unpredictable fashion across the whole reserve.

#### **Dr. Sandy Smith, Open University**

Some think this kind of environment could have real benefits in terms of flood alleviation.

**Clive Faulkner, Montgomeryshire Wildlife Trust**

In the past we've considered that the best way to manage the land is to get the water off the ground as quickly as possible, but of course we're so good at that now, with the new technologies that we have, any rain that falls goes straight into the river, whoosh, straight down to Shrewsbury. What we're now realising is the best way to manage potential floods is to hold the water on the land and of course areas such as this nature reserve, we're quite happy to hold that water for a couple of days, we're quite happy for the land to flood, we're quite happy for the river to meander and slow that water passage down. It's only fifty hectares, but I think it demonstrates the principle very well.

**Dr. Sandy Smith, Open University**

This option presents a number of problems, however. For it to have a real impact, a great deal of farmland would have to be converted into wash land. You'd also need to be able to control how long water stays on the land. To alleviate flooding, water needs to be stored, but only temporarily. Water needs to drain off the land before the next flood or it'll be too saturated to provide any more storage.

As we've seen, there are no simple explanations for why the River Severn floods in Shrewsbury and there are no simple answers for what we ought to do about it.

Without doubt, the changing environment of the Severn presents us with a number of challenges for the future. One of these could be climate change. Some climatologists are predicting that in the future extreme weather events will become much more frequent. This can mean more big floods.

There's still a great deal of uncertainty about climate change. What is certain, however, is that the river is continually renewing itself. Perhaps we, too, will need to renew the way we live and work alongside it.