



# Bristol Naturalists' Society

Registered Charity No. 235494

## Wildlife News: Week 43 – October 28<sup>th</sup> 2007

### Weather

A colder week, average 12.3C, well below the recent average for this week. This has brought October's average down to 15.0C, still above the long term average of 14.1C. The year-to-date average is 15.5C, and starting to fall steadily. The twelve month figure is still 14.6C, but still falling slowly. Indeed 2007 is now colder at this stage than 2006, 05 and 03 but still warmer than 2004. It could finish up being the coldest year since 2001, but a lot can happen in the next two months.

It was an entirely dry week until Sunday when 5mm fell. Total rainfall is now only 180mm above the average for this date.

### Autumn Colour

has probably reached its peak. Some Beech trees are magnificent, and stand out in the Avon Gorge, which is already looking decidedly bare. But it is surprising the way some Lime trees are bare, others still bright green, and the same is true for specimens of other species. This emphasises the individuality of trees, and the complexity of the process of leaf turning. Japanese Maples are probably at their peak at Westonbirt, and if we get a decent autumn gale next week many trees will lose their leaves abruptly. At the moment leaves are falling continuously under their own weight, and the constant flicker of movement is fascinating. Because it has been so dry many leaves on pavements have been ground to powder, which is unusual, as it is much more frequent to find them clogging gutters and drains. Some, like Acacia, disintegrate rapidly, others, like Plane leaves are tough and may take months to break down.

### Flowers on the Downs.

This week there were just 39 species left in flower, still above the average for the week of 35. This was a fall of just eight on last week, as I re discovered one or two I thought had gone. It is interesting that over the past four years the rate of change in the number of species varies, on average, from a maximum of plus six a week in May to a minimum of minus six a week through September and October. I was delighted to find Eucalyptus in flower- it is not easy to spot, but it is an Australian species that sticks by the Australian seasons, regardless of day-length or temperature.

### Severn Estuary

Last week I examined the problem of the discontinuity of tidal power, and the fact that it could not replace any existing power station, but merely replace part of their output on a varying basis. Further research, using the recently published Sustainable Development Commission report (which can be found at [www.sd-commission.org.uk](http://www.sd-commission.org.uk)), suggests that the situation is even worse than I thought. A tidal Barrage would only be producing usable power (known as the load factor) for 22.5% of the year. This is because of the fourfold difference between the maximum power that it can produce on spring tides, and the low level on neaps. Furthermore its peak output is for just four hours a day, and from 1am to 3am at night, when demand is at its lowest, and when it would compete with base load nuclear power rather than

replacing more expensive fuels, which also produce CO<sub>2</sub>, and 1 to 3pm, when it would be of some value. It would only produce 0.6% of our energy needs (though 4.4% of electrical generation), and though it might save 5.6m tons of CO<sub>2</sub> a year this is only 0.9% of our CO<sub>2</sub> output.

This week **power distribution**. The power would be carried on the national grid, and would involve a massive change to the power line structure. The 1989 barrage report suggested that three 400 kV cables would be needed from the English side and two from the Welsh. 370 km of new lines would be needed, and a further 85 km rebuilt or uprated. Lines would stretch to Southampton, London and Birmingham, Because of the sharp fluctuation in output there would have to be complex substations associated with the Barrage. It is quite unclear where these would be sited or what they would look like. Long-distance transmission of electrical power leads to progressive loss of power caused by resistance in the power cables, so that up to half the power generated by the Barrage could be lost before it was used. Until the creation of the National Grid in the 1920s generation was done locally by local companies, with local power stations and short transmission distances, hence high efficiencies in power use. The National Grid was set up because coal fired power stations were cheap and simple, as well as very inefficient as the huge associated cooling towers wasted a large proportion of the heat produced, and because a universal system was needed to balance supply and demand. No-one was worried then about CO<sub>2</sub> emissions. Thus although a barrage system could theoretically at maximum output for brief periods during spring tides in March and September produce 7% of national demand, over half this power would be wasted in heating up power lines, since the local area does not need the power it would produce, as the three nuclear power stations supply more than enough. It would make far more sense to provide tidal power from in-stream turbines that served the needs of local communities. They too would be discontinuous, though they could operate on both ebb and flow of the tide, but would still only provide power for at most twelve hours a day, but at least much of it wouldn't be wasted. And it could be argued that the £15bn cost of the barrage might be much better spent on micro-generation by fitting solar panels to ten million homes, guaranteeing that power was used where it was generated.

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