



# Bristol Naturalists' Society

Registered Charity No. 235494

## Wildlife News: Week 42 – October 21<sup>st</sup> 2007

### Weather

Another week dominated by high pressure. In the 80 days since the start of August we have had only eight days when a low pressure system has swept across us, and 41 when high pressure has been more or less centred over us. In summer high pressure leads to hot conditions as the land heats up rapidly under the long hours of sunlight. In winter however, in exactly the same conditions, high pressure creates frost and cold because clear skies during the long hours of darkness lead to massive heat loss from the land surface. At present we have just over ten hours of light and just under fourteen of dark, so it is little wonder that we have had the first two frost nights. Last year the first frost did not come until Nov 2<sup>nd</sup>. Since 1997 the dates of first frost have varied by 40 days between Oct 4<sup>th</sup> (1999) and Nov 14<sup>th</sup> (2005), but there has been no obvious pattern, and no relationship with the overall temperature of Autumn. However frosts undoubtedly have an impact on autumn leaf colour, and also the length of the flowering season for plants.

The average temperature for the week was 14.6C, which is spot on the average for the past decade for this week. We have thus had 28 weeks with an average temperature above 15C, whereas the average of the past decade has been just 24 weeks above 15C. The difference is entirely created by this year's astonishing April temperature, which had an impact on plant life for the whole of the rest of the summer. The average temperature to date for the year is 15.5C, and starting to fall. The average for the past twelve months has also started to fall again, to 14.6C, because last autumn was exceptionally warm.

Despite the dominance of high pressure the week also saw an amazing 39mm of rain, caused by a slow moving weak front that crossed the country from NW to SE on the 16<sup>th</sup> and 17<sup>th</sup>. October's total has reached 62mm, 34% below normal, and the total rainfall for the year has reached 900mm, which is the long-term annual average. In a normal year we would expect another 200mm by the year's end. The twelve month rainfall total is 1170mm, the tenth month in a row that we have had over 1000mm in the previous year. This is no sort of record- in 2000-2001 we had 21 months with over 1000mm for the previous twelve months. Since 1853 the annual total has exceeded 1000mm on 32 occasions, or once every five years.

### Garden birds

The build up of bird numbers in gardens during the winter always starts slowly, and is probably related to the pressure of migratory numbers. There was a report this week of 500 Fieldfare being seen at Marshfield, and another suggested a lack of berries in Finland, so it may be that we may be in for an interesting winter. However in my garden numbers are below any recent year at this stage, as there seem to be almost no Blackbirds, and very few tits coming to the feeders. However it remains important to ensure that a variety of foods are always available; a combination of fats, peanuts and sunflower seeds, in feeders and scraps put out at the start of the day seems to work well. When birds need food they will find it.

## Plants on the Downs

This week there were 44 species left in flower, similar to the average of the past four years of 40. Bright sunshine helps plants keep flowering, but frosts will tend to slow growth activity down to zero. With shorter days, and a much weaker sun, the energy total available to plants is falling rapidly, and this has the consequence that everything happens much more slowly than at the height of summer. Many plants manage to survive in flower for much longer than might be expected. There is a huge variation between species, some having a very brief flowering season, and others surviving in flower throughout the year. The average for 181 species that I have monitored on the Downs for more than three years is 13.6 weeks, though the average for individual years has varied between 12.4 weeks and 14.9. Essentially hot summers and autumns see shorter flowering seasons, whereas cooler ones have longer, essentially because hot conditions, especially if they are dry, encourage rapid flowering and seed setting, and the reverse is true in cool wet conditions. Thus this year's cool summer ought to lead to a longer than normal average flowering season.

## Severn Estuary

I am hoping to run a series of notes about the estuary in the bulletin each month, and would appreciate any help I can get, but I will try out a few comments here as well. I have been reading some of the previous comments from the last serious study that ended in 1989 to try to understand all that is involved. So this week we will start with fundamentals.

The concept of tidal power generation using a barrage is fundamentally flawed. It is inherently discontinuous, as it is governed by the ebb and flow of the tide, and the most effective method is to generate during the ebb tide, ie while the height of the water in the basin is above the height of the sea outside. That means that the daily maximum output is twelve hours of power, but the timing of this twelve hours will differ every day of the year in line with the tides. Furthermore the power output is not constant but will vary with the progressive change in the volume of water in the basin and the height difference across the barrage, starting low, rising to a peak and then falling back to zero. A further variation is caused by the monthly cycle of spring and neap tides, as power generation on neap tides will be much lower than that on spring tides, because there will be less water in the basin. Indeed for about a week in every month there will be so little difference between the height of water in the basin and outside that maximum power generation will be very low. Furthermore there is an annual cycle, associated with the position of the sun, which ensures that the greatest generation will occur during March and September, and the least in December and June. Normal hydroelectric power, using dams high in mountains, is designed to be turned on an off in line with demand, which is at its maximum during the day, and during winter. Tidal barrage power does not fit in with this rhythm at all, and simply provides up to a possible maximum of 7% of total demand, to the power available, on a variable and intermittent basis, and thus could not replace a single existing power station. It would actually make the operation of existing power stations more difficult; they already have to vary their output with varying demand, but with tidal power would have to vary it with varied input as well.

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