A review of spring 2010 – Richard Smithers and Tim Sparks

Readers may remember media interest in the weather during early spring 2010 because January and February were the coldest for 30 years. Unsurprisingly some spring events expected at this time of year, such as blackthorn flowering, were consequently late.

However, monthly temperatures in March and April were above average and as a result some events expected in these months were relatively early; for instance butterfly emergence and leafing in some trees. Overall, mean February-April temperatures were still warmer than both 2001 and 2006.

Some species showed rather unexpected responses, which are detailed below.

Weather

Monthly spring temperatures have been quite variable over the last five years (see Figure 1). Spring 2010 got off to a chilly start with the coldest January since 1987 and coldest February since 1991. Average temperatures for January-February were 1.7°C below the 30-year average (1961-90). Both months saw heavy snowfalls. Temperatures did not rise until mid-March, and the monthly temperature for March was ultimately slightly above the 30-year average despite strong winds with snow in the north as the month ended. April was dry, fine and sunny, particularly in Wales, and the monthly temperature was 0.9°C above average. Early May was quite cool but temperatures soon rose and a particularly warm spell from 20-24th set a new May record in Scotland, although overall the monthly temperature was slightly below average. June was dry and sunny becoming very warm in the second half, particularly in England, with the monthly temperature 1.0°C above average.

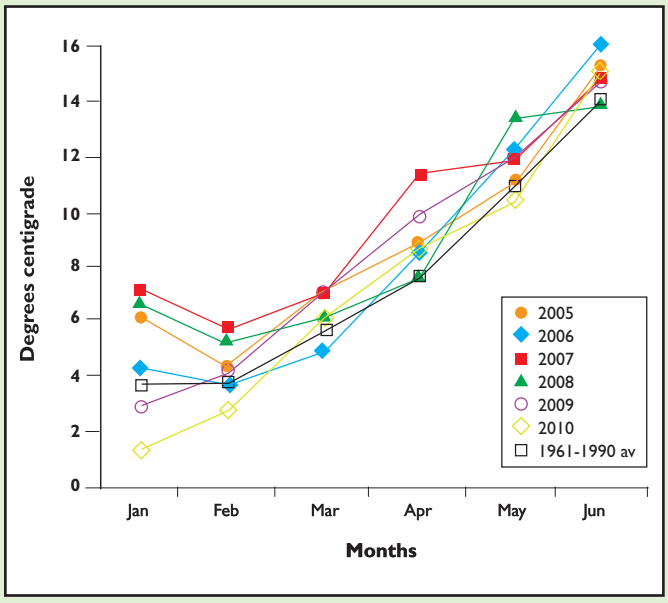


Figure 1. Average monthly Central England Temperature (°C)

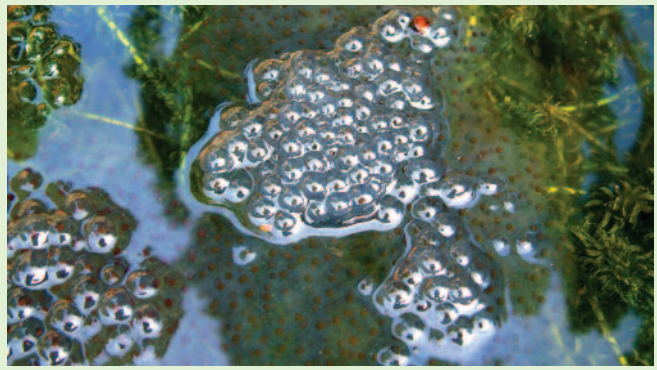
Events

In spring 2010, colder temperatures until mid-March resulted in subsequent events being later than our baseline year of 2001 (the year spring temperatures were very close to the 1961-1990 30-year average). However, warmer temperatures in the second half of March appear to have reversed the situation for events from early April onwards.

Events that on average occurred later than in 2001 were:

- **Lesser celandine first flower** on 20 April, five days late and 17 days later than 2009
- **Hawthorn budburst** on 27 March, 4 days late and 16 days later than 2009

- **Hawthorn first leaf** on 6 April, 3 days late and 15 days later than 2009
- **Lawn first cut** on 2 April, 2 days late and 13 days later than 2009
- **Frogspawn** on 14 March, 2 days late and 10 days later than 2009



- **Larch budburst** on 6 April, 1 day late and 10 days later than 2009
- **Elder first flower** on 29 May, one day late and 9 days later than 2009.

Lesser celandine: WTPL, Hawthorn budburst: WTPL/Christine Martin, frogspwan and elder flowers: WTPL/Margaret Barton.

- **Speckled wood** on 29 April, 13 days early but 7 days later than 2009
- **Green-veined white** on 30 April, 12 days early but 9 days later than 2009.

Trees were less precocious with tree budburst on average 3.3 days earlier than 2001 but ash was 11 days earlier, which is interesting since ash is usually less responsive than other trees.

Two events seem to buck the trend described above, as on average:

- **Snowdrops** actually flowered one day early on 4 February. Is this an unfair comparison with 2001 because a warm December 2000 may have delayed flowering in spring 2001 until plants had experienced a sufficient period of low winter temperatures.
- **Blackthorn** flowered six days late on 9 April, the same date as in 2006 and 15 days later than 2009. Its lateness was much commented on by the media at the time. Why did the cold winter have a longer-lasting impact on it than other events in late March and April? One possibility is that blackthorn has the potential to flower very early in warm springs and such records were absent in 2010.

Butterflies were seemingly unaffected by the early cold and responded rapidly to the warmth in late March and April, emerging on average substantially earlier than in 2001:

- **Small white** on 23 April, 14 days early but 9 days later than 2009
- **Orange tip** on 26 April, 13 days early but 7 days later than 2009

These results are presented graphically in Figure 2: As mentioned above, 2001 is considered a baseline year because spring temperatures were very close to the 1961-1990 30-year average. In Figure 2 we compare 2010 mean dates with those from 2001; mean dates (solid circles) above the dotted line were later in 2010 and vice versa. The blue line indicates whether weekly mean temperatures were warmer in 2010 than the 30 year average 1961-1990.

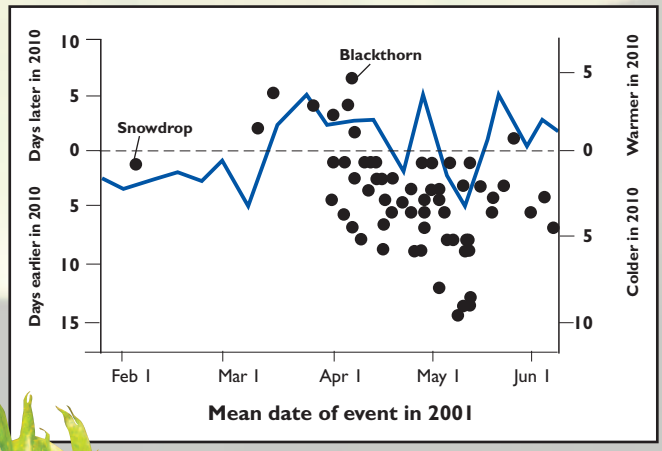


Figure 2: A comparison of 2010 mean dates with those from 2001.

Green-veined white: WTPL, orange tip: WTPL/Pete Holmes, small white: WTPL/Richard Becker, speckeld wood: WTPL/Margaret Barton and ash budburst: WTPL/Pete Holmes.

Oak leaf background: WTPL/Peter Carpenter