

## Spring phenology analysis 2014



*“Spring 2014 was warm, and many natural events arrived early as a result. These temperatures should have seemed exceptional - but they didn't.”*

Sian Atkinson, Senior Advisor, Conservation and External Affairs

### Is warm the new normal?

After a mild winter and a wet start to the year that saw widespread flooding, spring 2014 was warm. Not quite as balmy as the highs of April 2011, when temperatures reached 28°C but certainly comparable to some of our previous very warm years. In fact, a spring like this should have seemed exceptional – but it didn't.

In contrast, spring 2013 was deemed exceptionally cold, though in truth only March was especially chilly. Otherwise, temperatures didn't stray far from the 1961-90 average, which we use as our baseline.

Does this mean we're becoming accustomed to an earlier, warmer spring?

This year, nature's response was broadly as expected, with many events recorded earlier than in the benchmark year of 2001\*. These included budburst, migrant birds and insects, with brimstone butterfly recordings in particular the earliest since 2001.



WTPU/ALBERT HORTON

### Thank you

Many recorders regularly send us a small donation (see survey form) to cover the cost of printing and posting their recording form and the staff time to enter their records into our database. Sadly, we can't always acknowledge each of these separately, but please be assured they are greatly appreciated and play a big part in allowing us to continue sending out paper recording forms.

\*chosen for the closeness of temperatures to the 1961-90 30-year average

Between mid-December 2013 and the end of January 2014, some areas had five months' worth of rain

## Sunshine and storms

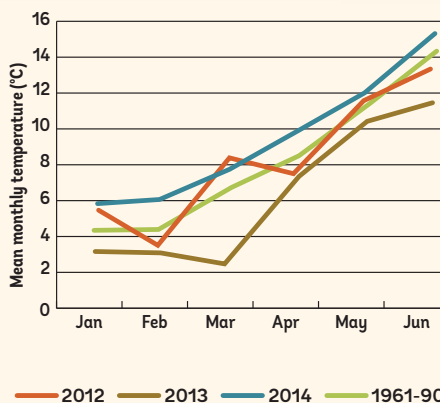
The year began with high winds and persistent rain, particularly in the south. In the six weeks between mid-December 2013 and the end of January 2014, some areas had five months' worth of rain.

Stormy, unsettled weather continued into February, leading to extensive flooding in the Somerset Levels and river Thames. Despite this, temperatures were mild, much warmer than the average, and snowfall was confined to the Scottish Highlands.

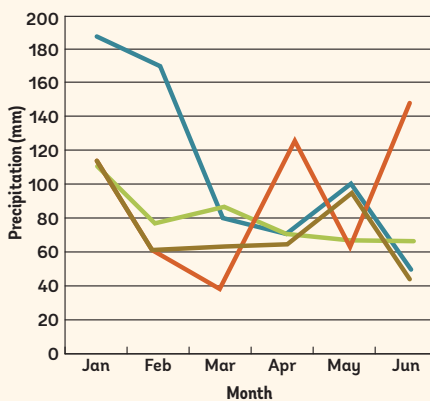
It all changed in March, which was drier than average in most areas. We saw several warm days, as high pressure settled over the country mid-month, and temperatures hovered at more than a degree above the three-decade average. April and May were also warmer than that baseline: April 2014 was our third warmest since 1910 (only 2007 and 2011 pipped it to the post). Unsurprisingly, there were few frosts.

June stayed warm, with higher temperatures than average. It wasn't all rosy, though: heavy downpours in the early and latter parts of the month led to flooding in some parts of the UK.

Mean Central England Temperature (2012-14) compared with 30-year (1961-90) average



UK monthly precipitation (Jan-Jun) 2012-14 compared with 30-year average for 1961-90



WTPL/PAUL GLENDELL





Butterflies like the small tortoiseshell (left) were among the earliest species to be recorded in 2014

## Early birds (and budburst, and butterflies)

We analysed the data collected by Nature's Calendar recorders, and found all events were happening on average earlier than in the benchmark year of 2001 – some up to two, three or even more weeks earlier. Much of the data is broadly comparable to 2011 and 2012, both notably warm spring seasons. This isn't a completely consistent trend, though – the findings are very different from 2013, when temperatures were much colder.

Migrant birds were first seen on average six days earlier than in the benchmark year of 2001. This mirrored data collected for 2013 – as well as 2007 and 2009 – though in 2011, the average was nine days earlier than the benchmark year.

Breeding behaviour was observed on average 12 days earlier than the benchmark (and 14 days

earlier than in 2013). This, along with figures from 2012, represented the equal earliest we've seen.

Insects were recorded 19 days earlier than the benchmark year; the third earliest since 2001. Particularly notable were brimstone butterfly, (26 days earlier) and small tortoiseshell (26 days earlier). This comes in sharp contrast to 2013, when insects were recorded an average of three days later than in 2001.

Frogspawn bucked the trend to some extent: it was first recorded an average of six days earlier in 2014, but was eight days early in 2011, and five days late in 2013.

Trees and flowering plants bloomed on average 16 days early – close to 2011, when we saw the earliest record of 17 days sooner than the benchmark year.





Once again, the difference between this year and the last was stark: they were four days late in 2013.

Grasses were seen 11 days early, compared with 15 days early in 2011, and one day late in 2013.

Budburst was on average 14 days early, the same as in 2012, though 2011's 16 days before benchmark was earlier still. This was mirrored by first leafing: also 14 days early on average, two days earlier than 2012. Though once again, 2011 was earlier - 17 days sooner than in 2001.

As before, 2013 stands out: budburst and first leafing were both an average of three days late that year.

## Leafing: a closer look

Figure 1 shows how first leafing has advanced more in some tree species than others in 2014

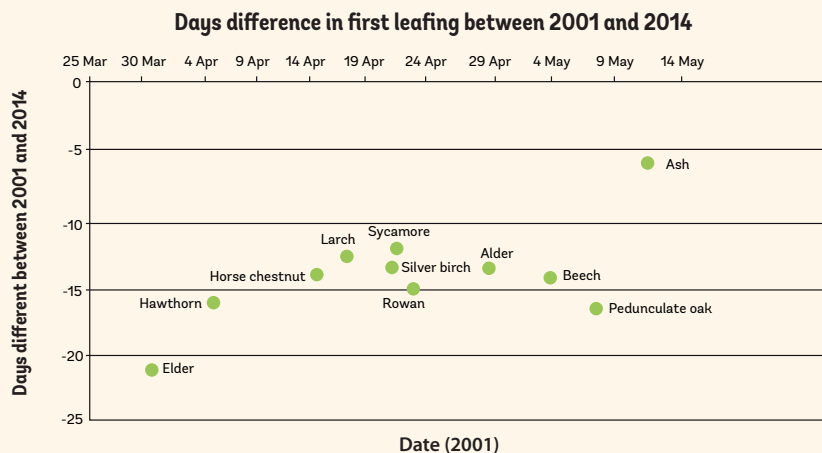
compared with 2001, with elder leafing on average three weeks earlier, and ash only 7 days, reinforcing the point that species may respond in different ways to fluctuations and changes in climate.

## Shaping the future

We received 48,012 records in total, a drop from spring 2013, when we had 50,148. Our database contains hundreds of thousands of records, the earliest from more than 250 years ago. Your contributions combine to form a bigger picture, a powerful dataset that helps scientists understand nature's response to long-term climate trends. In turn, this informs conservation strategies and thinking.

Please keep your records coming in, and see if you can persuade a friend or two to join you by referring them to our website

[www.naturescalendar.org.uk](http://www.naturescalendar.org.uk)



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