



NATURE'S CALENDAR

Autumn analysis 2023

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**WOODLAND
TRUST**

Summary

Autumn 2023 was generally warm and wet, with record-breaking temperatures in September and bumper crops of hawthorn haws and holly berries.

Temperature

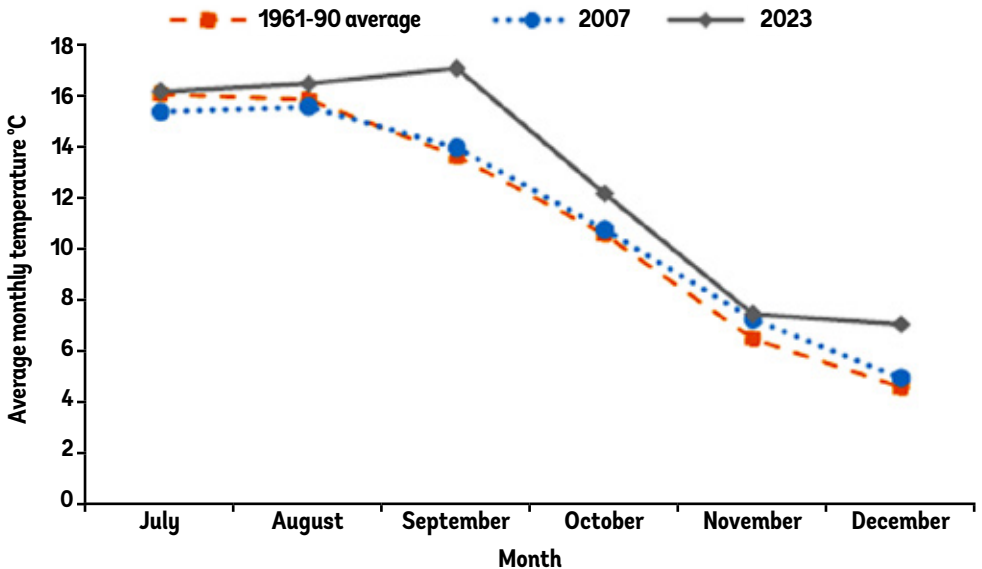


Figure 1: Average monthly temperatures 2023 (Central England Temperature^{*1}) compared with 30-year average (1961-90) and 2007 benchmark^{**} year.

- The first two months of autumn 2023 were similar in temperature to the 30-year average (1961-90) but the remaining months were all warmer.
- Average monthly temperatures for July-December were 0.1-3.4°C greater than the 30-year averages.
- September was particularly warm compared to the 30-year average and was the warmest September in the CET dataset, which dates back to 1659. December was the 15th warmest December in the dataset.

* The Central England Temperature (CET) dataset is a record from a roughly triangular area of the UK, enclosed by Bristol, Lancashire and London.

** 2007 is used as a benchmark year because the mean monthly temperatures in autumn were similar to the 30-year average (1961-90) temperatures.

Rainfall

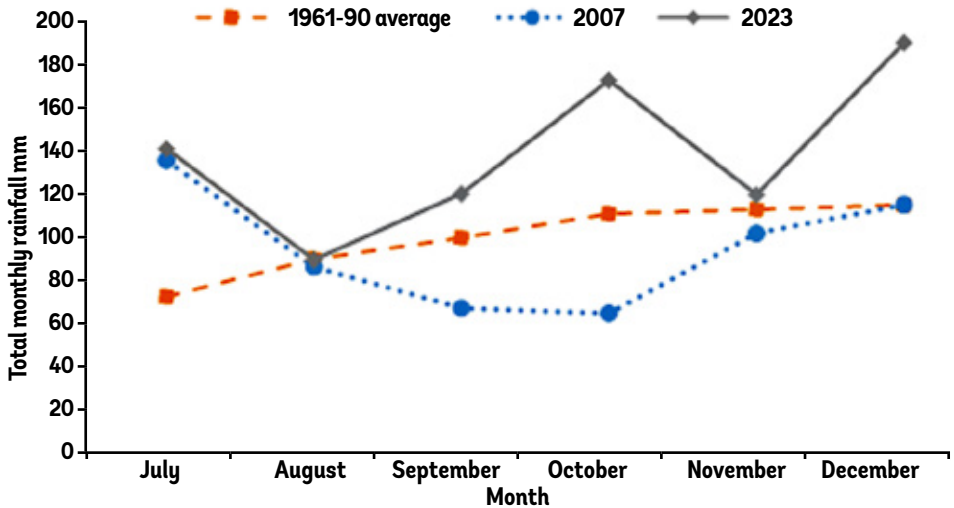


Figure 2: Monthly rainfall totals 2023 (HadUK-Grid²) compared with 30-year average (1961-90) and 2007 benchmark** year.

- Monthly rainfall totals in July, September, October and December were 20-74mm greater than the 30-year average.
- July, October and December were the 6th, 7th and 9th wettest months in this rainfall record, dating back to 1836.
- Monthly rainfall totals in August and November were similar to the 30-year average.

Nature's Calendar records

There are 85 different seasonal events that can be recorded for the Nature's Calendar project in autumn. During autumn 2023, our volunteers recorded 9,589 observations. The most popular events recorded were bramble first ripe fruit, lawn last cut and ivy first flowering. For each species and event, all the records are combined and a UK average date is calculated. These average dates are compared to the average dates in the benchmark year of 2007.

On the following pages we take a look at

some of the most fascinating findings from this season.



Ivy first flowering

A fantastic year for autumn fruit

The Nature's Calendar 'amount of fruit' scores are really important because they provide an indicator of winter food availability for wildlife, as well as an indicator of the seed source available for natural regeneration of trees and shrubs.

'Amount of fruit' is a subjective assessment of fruit crop, recorded since 2001, where a fruit score of one represents no fruit and a fruit score of five represents an exceptional crop.

It's often linked to climate variables in preceding seasons.

Autumn 2023 was a very productive season overall. The 2023 'amount of fruit' scores are shown in Figure 3, compared to the minimum and maximum scores since 2001, for each species. The 2023 scores for all species were high.

Hawthorn – a bumper crop of haws

- During spring 2023 we received several anecdotal reports of particularly spectacular hawthorn blossom.
- The UK average date of hawthorn first flowering in 2023 was 1 May. The flowering coincided with the relatively dry weather in May and June, providing ideal conditions for insect pollinators.
- We wondered at the time if the plentiful blossom in the spring would result in large crops of haws in the autumn.
- Warm, wet weather in September produced large, ripe fruit. By October, hedgerows and woodland across the UK were awash with red haws. It even made the national news!
- Now the results are in, we can confirm that the average 'amount of fruit' score for hawthorn in autumn 2023 was 4.2,



Hawthorn haws

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the highest average score (joint with 2014) since our records began in 2001.

- This was good news for wildlife. Haws are eaten by migrating birds such as redwings, fieldfares and thrushes, as well as small mammals.

Bountiful berries and hips

- Holly trees were also covered in berries this autumn. The average 'amount of fruit' score for holly was 4.1, the highest average score since our records began.
- The crop of dog rose hips was also record-breaking. The average 'amount of fruit' score was 3.9, the highest average score since 2001 (joint with 2013).

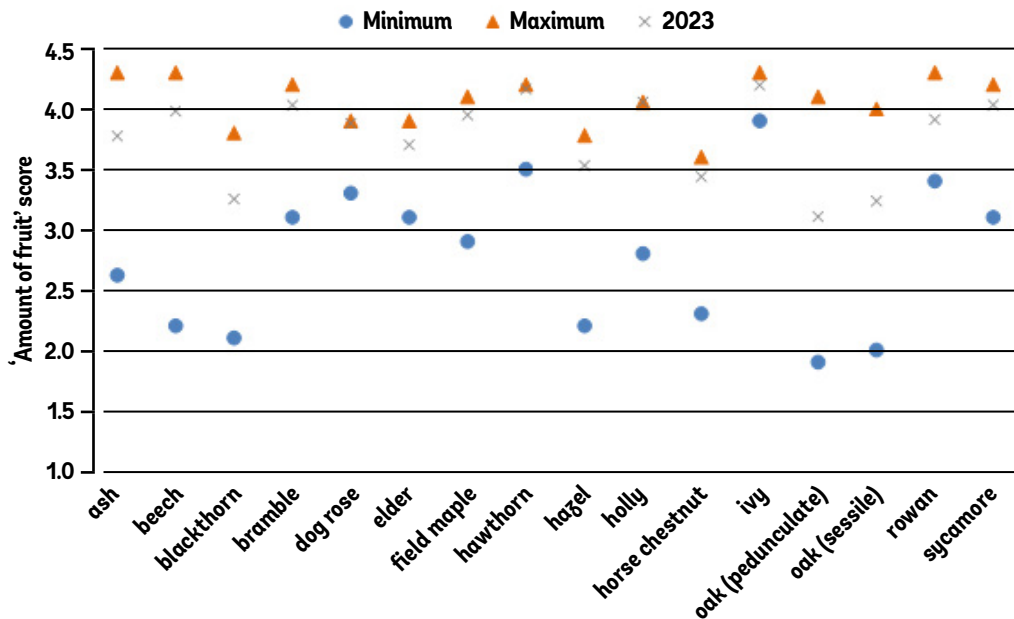


Figure 3: Minimum and maximum UK average ‘amount of fruit’ scores from the dataset 2001-2023 compared to the 2023 score.

Migrant birds

Winter arrivals

- Fieldfare and redwing ‘first recorded’ dates were on average more than a fortnight later than during the benchmark year. Their average respective ‘first recorded’ dates were 13 and 23 November, the latest they have been since the Nature’s Calendar project began.
- It’s not clear if this actually represents later migration and arrival in the UK in 2023, or if the plentiful food supplies in rural areas (for example the bumper crop of haws mentioned above) and the warm weather in September and October meant that these birds had little need to visit gardens and towns for food (where they are much more likely to be spotted by our volunteers) until much later in the season.



Redwing

Summer departures

- House martins, swallows and swifts all departed earlier (five, two and eight days, respectively) than during the benchmark year. As expected, swifts departed first (the average last recorded date was 5 August) and house martins and swallows departed more than a month later (15 and 17 September).

Autumn leaves

- The average date of first autumn tinting varied from three to 16 days later than during the benchmark year, while the average date of full autumn tinting varied from four to 12 days later than during the benchmark year.
- Even horse chestnut leaf tinting, which is now often early due to leaf miner turning the leaves brown prematurely, was later than during the benchmark year.
- The later tinting was most likely due to the above average temperatures, as cold temperatures and shorter days are thought to be the triggers for the breakdown of chlorophyll in leaves.
- The average date of bare tree also ranged from one to nine days later than during the benchmark year.

Lawn last cut

- The average date of lawn last cut was 25 October, five days earlier than the benchmark year.
- Although we'd expect the mild temperatures to have prolonged the grass growing season (which usually results in a later date of lawn last cut), the wet weather may have prevented lawn cutting.



Ash full autumn tinting

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Beech full autumn tinting

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Oak autumn tinting

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Project news

British Science Week

Nature's Calendar partnered with British Science Week during March 2024 to get the UK public looking out for signs of spring in their local area. Nature's Calendar was featured in the British Science Week Community Activity Pack and we were very excited to co-host a live webinar with science, natural history and wildlife presenter Liz Bonnin! The webinar explored the history of phenology recording in the UK and advised volunteer recorders on how to be confident in identifying and recording the four spring events that we use to calculate the spring index³: hawthorn first flowering, horse chestnut first flowering, orange tip butterfly emergence and swallow arrival. We're delighted that many new volunteer recorders have joined the project as a result and we look forward to analysing the records in a few months' time. The webinar was recorded and is available to watch on the Nature's Calendar website: <https://naturescalendar.woodlandtrust.org.uk/blog/2024/british-science-week>

Jean Combes

Every single Nature's Calendar record adds vital information to our database, but the contribution of one phenologist has been especially significant.

Jean Combes has contributed what is believed to be the longest recording of phenological data by a single person anywhere in the world, and was awarded an OBE in the New Year's Honours list in 2009 for her services to phenology.

Jean Combes started recording in 1947 (before the Nature's Calendar project was established) and her records provide invaluable information about the post-war

period, when climate change was starting to become a major environmental issue.

Her oak budburst records, in particular, have become famous. They have been used by scientists, government departments and research organisations interested in the impact of a changing climate on trees and wildlife. The oak budburst dates that she recorded from 1950 to 2023 vary hugely from year to year but the general trend is towards budburst happening earlier than it used to.

Jean Combes passed away in August 2023, aged 96. Jean recorded the changing seasons for more than 70 years and we would like to take a moment to acknowledge her phenomenal contribution to the science of phenology. We are delighted that Jean's friend has volunteered to continue her records into the future and has already recorded budburst (on the same trees as Jean) this spring 2024.

Thank you

Thank you so much for your continued support. We hugely appreciate all the time and effort you put into recording.

We're always on the lookout for more volunteers to take part in the project. Anyone can sign up and find out more at: naturescalendar.woodlandtrust.org.uk

References

- ¹ Parker, D.E., Legg, T.P. and Folland, C.K. (1992) A new daily Central England Temperature Series, 1772-1991. *International Journal of Climatology*, 12, 317-342.
- ² Hollis, D., McCarthy, M., Kendon, M., Legg, T. and Simpson, I. (2018) HadUK-Grid gridded and regional average climate observations for the UK. Centre for Environmental Data Analysis.
- ³ JNCC (2023). UK Biodiversity Indicators. <https://jncc.gov.uk/our-work/uk-biodiversity-indicators-2022>

**Thank you so much for your continued support.
We hugely appreciate all the time and effort
you put into recording.**

**Anyone can sign up and find out more at
naturescalendar.woodlandtrust.org.uk.**



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Cover: Fieldfare on hawthorn; David Whitaker/Alamy Stock Photo CP01656 06/24