National Parks Phenology Project

Understanding Climate Change Through the Timing of Nature

Briefing for UK National Park Colleagues

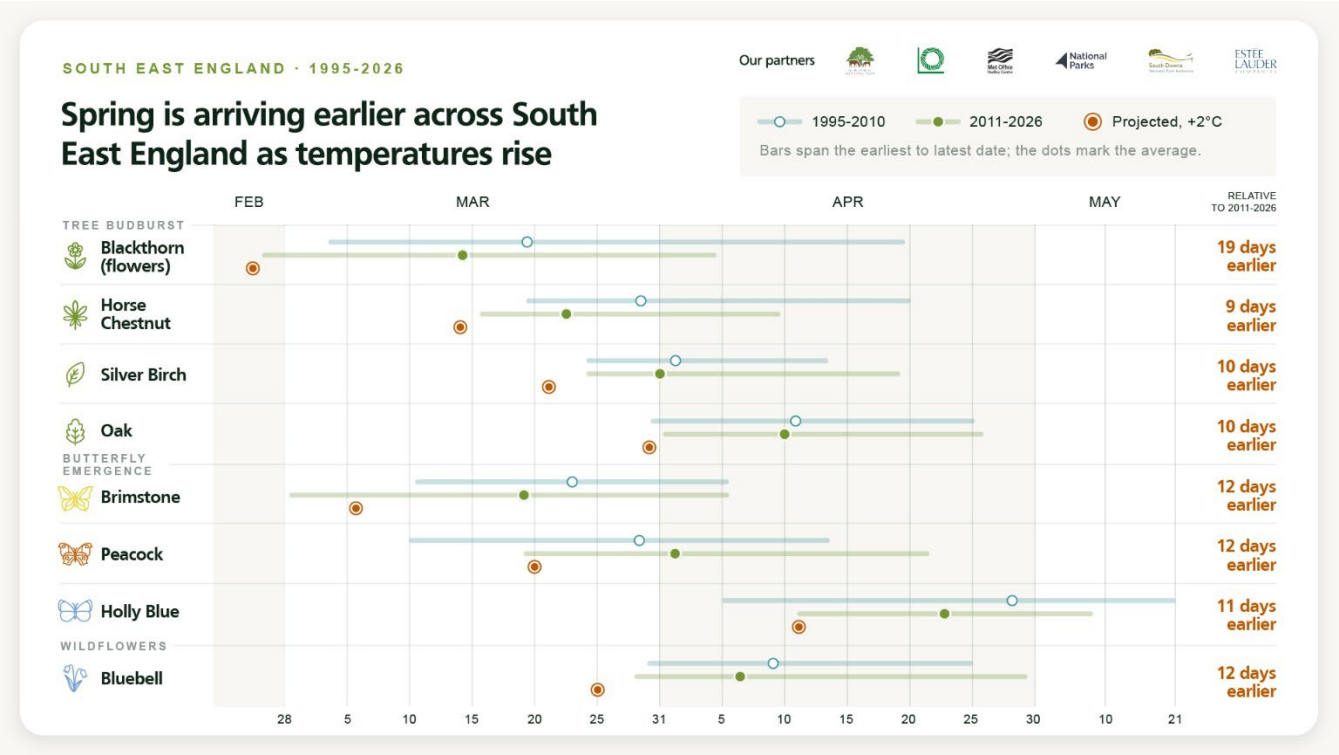
Why we're sharing this

Over the past year, colleagues from the New Forest National Park Authority, South Downs National Park Authority, the Met Office, Woodland Trust and National Parks Partnerships have been exploring a simple but powerful question:

How is climate change affecting the timing of seasonal events in nature that people can see and experience in our National Parks?

Using long-term citizen science records and climate data, we've developed a pilot methodology to examine changes in flowering, tree budburst and invertebrate emergence. The results provide clear evidence that many spring events are occurring earlier as temperatures rise, while also highlighting the value of citizen science as a tool for public engagement, climate communication and long-term environmental monitoring.

This paper shares what we've learned so far and begins a conversation about whether there is appetite to expand this work across the wider Protected Landscapes family.



Why Phenology Matters to National Parks

National Parks are on the frontline of climate change. We are already seeing shifts in habitats, species behaviour, drought risk, flooding and ecosystem function.

However, many impacts remain difficult to communicate because they are gradual, complex or largely invisible to most people.

Phenology, the study of seasonal events in nature such as flowering, budburst, migration and insect emergence, offers a different approach. It provides a tangible way of understanding climate change through changes that people can directly observe year after year.

For National Parks, this creates opportunities to:

- Build long-term ecological evidence bases.
- Strengthen climate change communication.
- Get people involved in meaningful citizen science.
- Support adaptation planning and nature recovery.
- Connect people more deeply with landscape change.

Importantly, the same observations that help people engage with nature can also contribute to robust scientific analysis.

The Value of the Partnership

One of the most significant achievements of this pilot has been the partnership itself, bringing together expertise, data, public engagement and investment that rarely sit within a single organisation. This project demonstrates the value of convening complementary partners around a shared challenge.

The partnership combined:

- **Scientific expertise** from the Met Office, providing robust climate datasets, statistical analysis and interpretation of results.
- **Protected Landscape knowledge** from the New Forest National Park Authority and South Downs National Park Authority, ensuring the work was grounded in real-world landscape management, climate adaptation and nature recovery priorities.
- **Citizen science infrastructure** through Woodland Trust's Nature's Calendar programme, drawing on decades of volunteer observations and demonstrating the power of public participation in environmental monitoring.

- **Convening and partnership support** from National Parks Partnerships, helping to connect National Parks with external collaborators and opportunities for wider impact.
- **Horizon scanning and scalability opportunities** incorporated through the Landscape Observatory, ensuring the design of the project fostered thinking and innovation to make the most of future opportunities.
- **Private sector investment** through Estee Lauder Companies, providing funding that enabled innovation and the development of a project that may not otherwise have been possible through traditional public-sector funding alone.

Together, these contributions created something greater than the sum of its parts: a project that is scientifically credible, operationally relevant, publicly engaging and externally funded.

As National Parks increasingly explore new models of finance and partnership working, this project provides an example of how organisations with very different strengths can come together around a common purpose. The result is not only valuable evidence about the impacts of climate change, but a model for how Protected Landscapes can collaborate with scientists, communities and responsible businesses to tackle some of the most complex environmental challenges facing the UK.

Importantly, the project demonstrates that corporate investment in nature does not need to be limited to habitat delivery alone. There is also value in supporting the science, monitoring, engagement and evidence that underpin effective nature recovery and climate adaptation. By connecting climate science, citizen participation and landscape stewardship, the partnership has created a compelling foundation on which a larger Protected Landscapes-wide programme could be built.

From Pilot to Protected Landscapes Programme?

One of the most encouraging findings from this project is not simply a science-backed confirmation that spring is arriving earlier, but that the underlying methodology appears transferable.

The core components already exist:

- National citizen science datasets.
- High-resolution climate information.
- Strong scientific expertise through the Met Office.
- Protected Landscapes with extensive visitor engagement opportunities.
- Growing interest in climate adaptation and environmental monitoring.

A future Phase 2 could explore:

Expanding Geographic Coverage

Moving beyond the New Forest and South Downs to include other National Parks and, potentially, National Landscapes.

Increasing Participation

Building a larger network of volunteer observers and visitors contributing phenology records from Protected Landscapes.

Developing Shared Indicators

Creating a small suite of nationally consistent phenology indicators that could complement existing climate adaptation and nature recovery monitoring.

Exploring New Technologies

Integrating datasets from platforms and other citizen science tools, alongside Nature's Calendar records.

Creating a National Story

Developing a compelling and evidence-based narrative about how climate change is affecting some of the UK's most cherished landscapes.

An Invitation to Collaborate

This work remains at an early stage, but the pilot has demonstrated both scientific credibility and public engagement potential.

We are keen to hear from colleagues across the National Park family who may be interested in:

- Testing the methodology within their own landscapes.
- Exploring opportunities for citizen science engagement.
- Contributing species expertise.
- Developing climate adaptation applications.
- Shaping a collaborative Phase 2 programme.
- Identifying potential funding and partnership opportunities.

If there is sufficient interest, the next step could be a workshop bringing together climate, nature recovery, monitoring and visitor engagement colleagues from across

the Protected Landscapes network to explore what a shared programme might look like.

The pilot has shown that phenology can help make climate change visible. The opportunity now is to explore whether we can create a Protected Landscapes-wide approach that generates valuable scientific evidence while inspiring more people to observe, understand and respond to environmental change.

To find about more, you can read a blog post about the work on the Nature's Calendar website here, Have you noticed spring arriving earlier? - Nature's Calendar or contact:

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