



2025 Annual Report



ARIZONA



GORDON AND BETTY
MOORE
FOUNDATION

 **USGS**
science for a changing world



USA-NPN Annual Report | Letter from the Director

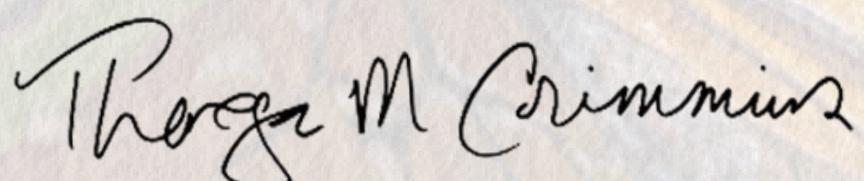
Greetings friends of the USA National Phenology Network,
It is with mixed feelings that I reflect on 2025. On one hand, I am disheartened and exhausted by all the incredible challenges that so many of us in this country – and beyond – have contended with. On the other hand, I am filled with gratitude for how the USA-NPN team and so many of our partners and collaborators pulled together in so many moments to keep things afloat. And I'm amazed to report that at the moment, our funding is in good shape, many thanks to a generous grant from the Gordon and Betty Moore Foundation.

Despite the many challenges, we have many good things to share. First, we are so fortunate to have had Erin Grady join the USA-NPN team. Erin brings a wealth of experience in volunteer science and engagement and is playing an incredible role in refining and reimagining how both *Nature's Notebook* data contributors and data users engage with USA-NPN offerings.

I am also still beyond excited about the new *Nature's Notebook* app that is set to go live this spring. Our team, which includes several very talented collaborators, has been working hard on this for over a year. Every detail is being carefully considered, with increasing accessibility for existing and new audiences the overarching goal. I am so excited about what this new app will enable.

And on the topic of improving access, we've made major updates to many of the resources available to both *Nature's Notebook* observers and Local Phenology Program leaders. The refreshed materials and interfaces are far more user-friendly and engaging. The aim here is to make it much easier and more fun to get to the business of being outside, looking at organisms, and recording what they are doing.

I look forward to sharing more positive updates in the coming months. Here's hoping things show an upturn for everyone. Thank you for your continued support of all things phenology, this work would not be possible without you!



Theresa Crimmins, USA-NPN Director

USA-NPN Annual Report | 2025 Accomplishments

All-time (2009-2025)

3,545

Active *Nature's
Notebook* Observers

32,537

3.8 M

Phenology
Records

44.4 M

3

New Data Products Created -
Late Bloom Index,
Japanese Beetle
Pheno Forecasts

105

16

Publications using
contemporary data,
models, and data
products

185

251

Local Phenology Programs
Submitting Observations

614

22

Local Phenology
Leaders Certified

256

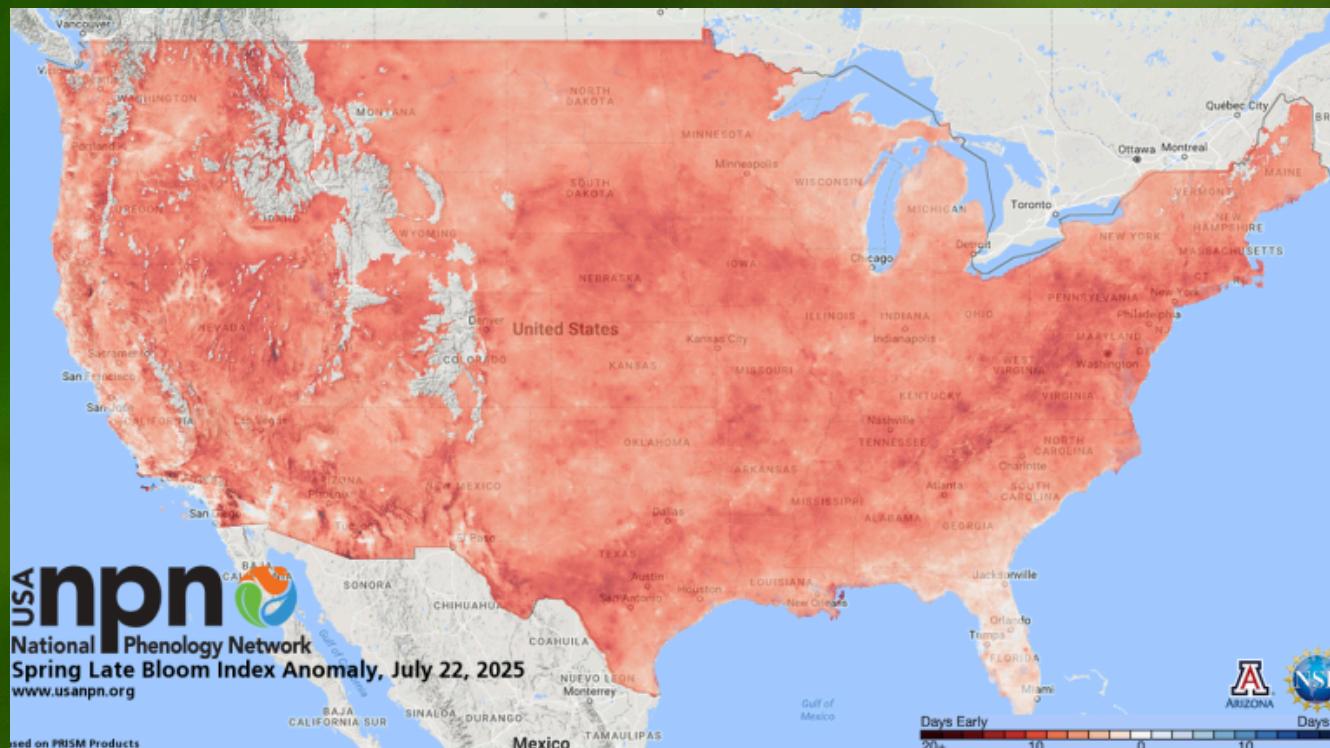
Photo: Dulcey Lima

2025

USA-NPN Annual Report | Advancing Science

The USA-NPN offers data, models, tools, and resources that lead to advances in understanding of patterns and drivers to plant and animal phenology.

Each year, USA-NPN Status of Spring maps reveal when spring first arrives and whether it is earlier or later than usual. In 2025, we added a new facet to the season: the end of spring. The Late Bloom Index indicates when plants that bloom at the tail end of the season, like black cherry and snowberry, are flowering. This information helps us understand the length of the spring season in a particular year, as well as whether a location that sees an early start to spring also sees an early end.



Hatzis et al. 2025. doi.org/10.1016/j.agrformet.2025.110443

USA-NPN Annual Report | Informing Decisions

The USA-NPN provides relevant, timely phenological information to support decision-making in a wide range of applications based on needs expressed by various user groups.

Since *Nature's Notebook* launched in 2009, over 30,000 participants have contributed nearly 50 million records from more than 20,000 locations on hundreds of species of plants and animals. These data are information-rich, but because they are sampled inconsistently in space and time, insights are sometimes challenging to identify.

To address this challenge, we partnered with researchers at the Vector Institute, a non-profit AI research institute based in Canada, in a year-long collaboration supported by the Turkish Informatics Foundation. Together, we prototyped intuitive, conversational interfaces based on agentic AI. These advances enable exploration of complex data using natural language.

While the tools created through this partnership are still under refinement, this opportunity to experiment with cutting-edge technology was a valuable experience for the USA-NPN team. We are continuing to experiment with these tools while bearing environmental costs and data privacy in mind.



Photo: Gina Lloyd

2025

USA-NPN Annual Report | Communicating & Connecting

The USA-NPN supports a greater understanding and appreciation for phenology among all inhabitants of the country.

The Citizen Science Naturalist Program at the historic Mount Auburn Cemetery in Cambridge, Massachusetts started in 2016 with a mission to engage well-trained volunteers in tracking many taxa, from plants to birds to bats to butterflies. The MAC Phenology Team, now headed by Jacqui Kluft, includes 160 trained members who monitor 16 tree and shrub species.

MAC Citizen Scientists was awarded our 2024 PhenoChampions. We recognize them for the deep connection their volunteers feel with the trees they track and their innovative activities such as flying a drone to observe acorns at the tops of the very old oaks they monitor. According to observer Sandra Gray, creator of the sweetbay magnolia featured on the group's logo, "my life is richer for this program." Congratulations and thank you for your efforts, MAC Citizen Scientist observers!

**Mount Auburn Cemetery
Citizen Scientists**



Photo: Gina Lloyd

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USA-NPN Annual Report | Growing an Equitable & Inclusive Network

The USA-NPN listens to diverse stakeholders, leading to a stronger network and an improved understanding and application of phenological information. The benefits of USA-NPN programs, tools, products and partnerships accrue to people from all backgrounds reflected in the US population.

In 2025, we continued work to overhaul the *Nature's Notebook* mobile app to make it easier to use and more engaging for participants from all backgrounds. Our approach to this redesign centers around intentional outreach to both current and future participants of *Nature's Notebook*.

Our user engagement efforts centered on three activities in 2025:

1. We regularly solicited feedback from our Mobile App Working Group, composed of educators, public health professionals, members of tribal-affiliated colleges and restoration groups, and youth from the Undergraduate Network for Increasing Diversity of Ecologists.
2. We sent periodic, brief preference surveys to more than 600 individuals both inside and outside the *Nature's Notebook* community who signed up to provide input on the app.
3. We facilitated focus groups with Local Phenology Leaders and individuals that use *Nature's Notebook* to engage others in phenological data collection with their organizations or communities.

Input from these groups is shaping the new app in ways that will lower barriers to entry and create a welcoming experience to help users connect with nature where they live.

Photo: Dulcey Lima

2025