



# USA National Phenology Network

## 2019-2024

### Strategic Plan

USA National Phenology Network is a national-scale monitoring and research initiative focused on collecting, organizing and delivering phenological data, information, and forecasts to support natural resource management and decision-making, to advance the scientific field of phenology, and to promote understanding of phenology by a wide range of audiences.



## Vision

Providing data and information on the timing of seasonal events in plants and animals to ensure the well-being of all humans, ecosystems, and natural resources in the face of climate change.

## Mission

The USA-NPN collects, organizes, and shares phenological data and information to aid decision-making, scientific discovery, and a broader understanding of phenology from a diversity of perspectives.

*Phenology – the timing of recurring plant and animal life cycle stages such as leafing and flowering, insect emergence, and bird migration – is very responsive to local environmental conditions. Accordingly, the timing of these events can vary dramatically from year to year with variations in weather.*

The timing of seasonal events in plants and animals over the course of a year can have a major influence on the timing of activities and events that are relevant to humans such as planting dates, onset of the allergy season, the optimal time to treat for invasive and pest species, and periods of peak bloom or leaf color.

Anomalously early or late timing of these events can lead to dramatic effects to food production, ecosystem structure and functioning, the intensity of allergies, the spread of disease, and even whether plants like the iconic Tidal Basin cherry trees in Washington, DC will be in flower during the festivals set aside to celebrate them. Further, directional change in phenology, driven by increasing global temperatures, is resulting in rapid and substantial changes in ecosystem structure and functioning.

Information regarding when seasonal events are expected to happen in plants and animals, including insects, is a key ingredient to anticipating and scheduling activities such as planting, management and control measures, and tourism. Such knowledge requires a rich set of observations of phenological events across the nation as well as increased ability to predict their timing and intensity in an era of rapidly changing conditions. This information can also support adaptation planning for longer-range changes, such as species vulnerability assessments and restoration efforts.



# The USA National Phenology Network

Established in 2007, the USA National Phenology Network is a national-scale monitoring and research initiative focused on collecting, organizing and delivering phenological data, information, and forecasts to support natural resource management and decision-making, to advance the scientific field of phenology, and to promote understanding of phenology by a wide range of audiences.

We work with researchers, resource managers, educators, communication specialists, non-profit organizations, human health organizations, science networks, indigenous partners, and the public. We seek to engage representatives from many backgrounds and worldviews to ensure the benefits from our work are shared equitably. We recognize that by being more inclusive, we are stronger and our work is better.

## Network Functions

The efforts of the USA-NPN are organized and directed by the staff of the National Coordinating Office (NCO).

Led by the NCO, the Network undertakes many functions, including:

- Seeking out and engaging members from a broad range of backgrounds to identify whether and how phenology information is of value to their work
- Creating, maintaining, and sharing data, data products, phenology forecasts, and decision-support tools in collaboration with end users
- Offering online data exploration, visualization, analysis, and access tools
- Facilitating interaction among members of communities collecting and using phenology data, information, and tools through “Communities of Practice”
- Offering standardized approaches to monitoring phenology
- Promoting the collection of high-quality long-term phenology observations
- Maintaining a national phenology information system, including *Nature's Notebook*, a plant and animal phenology observing program, and the National Phenology Database
- Communicating the value of phenology to partners, participants, the media, and the public
- Promoting and facilitating growth and adoption of ecological prediction techniques and products

## Core Values

The USA-NPN's core values reflect what we value and how we represent ourselves in our work as well as our aspirations for the future.

### INCLUSION

We work closely with others. We listen carefully and respectfully to the needs and thoughts of our partners, participants, and stakeholders from various cultural frameworks, and use their input to shape our activities, products, and priorities. We recognize that being more inclusive and welcoming makes us stronger. We are committed to deeper consideration of equity in all aspects of our work.

### DEDICATION

We take pride in delivering high-quality products and setting the standards within the field. We invest the time necessary to ensure that what we develop is accurate, thorough, and consistent. We seek and rely on input from our many, diverse partners to define and shape these products, recognizing the strength of many minds and cultures.

### INNOVATION

We push boundaries in the work we undertake, often forging ahead of others. Our work is original and interdisciplinary. We think creatively. We are not afraid of failure. We learn from our mistakes and rapidly adapt. We recognize that diverse perspectives and different ways of thinking about a problem lead to stronger and bolder solutions.

# Strategic Themes

Strategic Themes are the main focus areas of the Network's strategy and the key areas in which we must excel to achieve our vision, mission, and strategy. The USA-NPN's Strategic Themes include Informing Decisions, Advancing Science, Communicating and Connecting, and Creating an Equitable and Inclusive Network.

## Informing Decisions

**5-year Aim:** Natural resource and human health decision-makers recognize that phenology information is critical to their work as a result of interacting with the USA-NPN. Together with end-users, the USA-NPN identifies phenology data and information needs and delivers relevant, timely phenological information to meet these needs. The monitoring capacity, tools, and data products offered by the USA-NPN are used widely by many to effectively carry out their missions.

To support conservation and management of plants, animals, and ecosystems as well as decisions related to human health, recreation, land use and risk management in variable climates and changing environments, the USA-NPN's 5-year goals are to:

- Identify, build, and sustain relationships in new and diverse stakeholder communities.
- Regularly and repeatedly engage stakeholders to identify and develop the most relevant and useful phenological information to address stakeholder concerns and priorities in formats and on schedules that are mutually beneficial.
- Based on stakeholder and partner input, develop and deliver tools, maps, and products depicting historical, real-time and predicted plant and animal activity.
- Support and engage tool and product users in understanding and applying phenological information in their planning and decision-making.



## Advancing Science

**5-year Aim:** The data, models, tools, and resources offered by the USA-NPN lead to a better understanding of the patterns and environmental factors that influence plant and animal phenology. This deeper understanding supports and improves decisions related to the environment and human health.

To support scientific advancements in the field of phenology that will lead to improved management and decision-making, the USA-NPN's 5-year goals are to:

- Coordinate and support research to identify the environmental elements that influence key biological seasonal events for many plant and animal species, with emphasis on species of particular importance to public health and safety (e.g., invasive species, vectors of disease, species of management concern), and other plants and animals of interest to our partners and stakeholders.
- Support and enhance research from both Western and Indigenous approaches to improve understanding of the effects of changes in the timing of key biological events, including impacts to humans, plants, animals, and ecological communities, as well as how they interact with hazards such as wildfire, flooding, drought, spread of disease and biological invasions.
- Play a leadership role in increasing capacity and knowledge around ecological prediction, encouraging the inclusion of underrepresented voices. Develop and operationalize predictive and integrative models to forecast activities of species of management concern, migratory and cross-jurisdictional organisms, and species that are important for public health and safety.

## Communicating and Connecting

**5-year Aim:** As a result of communicating with partners, stakeholders, and the general public, our understanding of their needs for phenology information is increased. Likewise, these communities more deeply appreciate the value and importance of phenology – both in collecting observations and using this information in their everyday activities. Consequently, active participation in phenology monitoring increases among many individuals and partner groups in the US.

To engender a deeper appreciation for, understanding of, and use of phenology information, the USA-NPN's 5-year goals are to:

- Listen to and build relationships with people from diverse cultures, worldviews, and perspectives.
- Effectively communicate the importance and relevance of phenology to scientific and management audiences, the media, and the general public.
- Cultivate broad, integrative, multi-disciplinary communities of practice engaging audiences with applications ranging from research to resource management to outreach and engagement.





## Creating an Equitable and Inclusive Network

**5-year Aim:** The diverse stakeholder voices shaping the USA-NPN lead 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.

To foster an equitable and inclusive network, the USA-NPN's five year goals are to:

- Assess and address organizational practices that may foster or hinder diversity, equity and inclusion, including office norms, hiring norms, and staff development. We will seek expert assistance on these topics.
- Collaborate with like-minded organizations to advance diversity, equity and inclusion in the fields in which we operate, including citizen science, ecology, natural resources.
- Place emphasis on meeting new audiences in their spaces; attend meetings to listen, learn, and build relationships.
- Develop an online presence and tools that are accessible to multiple audiences, in terms of abilities and languages.

### CONTACT INFORMATION

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