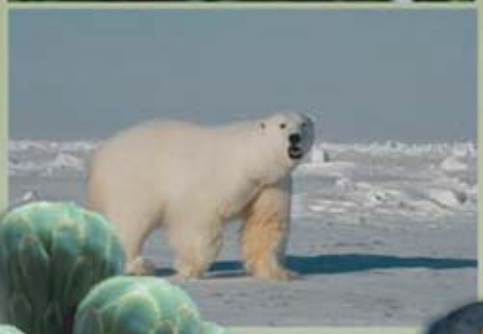
USA npn National Phenology Network



Phenology: The Seasonal Pulse of the Biosphere

What is Phenology?

Phenology is the study of periodic plant and animal life cycle events and how these are influenced by seasonal and interannual variations in climate. Examples include the timing of leafing and flowering, agricultural crop stages, insect emergence, and animal migration. All of these events are sensitive and integrative measures of climatic variation and change, are relatively simple to record and understand, and are vital to both the scientific and public interest.

Why monitor phenology?

Phenology is an excellent global change indicator. Combining phenological information with climate forecasts yields insight into future conditions and enables human adaptation to ongoing and future climate change. In addition, phenological data are useful in agriculture, drought monitoring, and wildfire risk assessment, as well as management of invasive species, pests, and infectious diseases. To fully utilize the value in phenological data, however, a large-scale network of integrated phenological observations is required. Be a part of this new national network: your observations can make a difference!

What is the USA-NPN?

The USA National Phenology Network (www.usanpn.org) is a collaborative effort among federal agencies, environmental networks and field stations, educational institutions, and individuals from the public, all making phenological observations. The USA-NPN was recently established to organize and support large-scale participation and offers standard protocols and data management capabilities for phenological observations. Please consider contributing to this valuable enterprise!

At this time, plant phenology protocols are available. An animal phenology program, focusing on mammals, birds, fishes, amphibians, reptiles, and insects, is currently under development and targeted for release in 2011.

How do I monitor plant phenology?

Select one or more plant species to monitor, and identify one or more individuals of each species at your home, place of work, or elsewhere in your community. Then make observations following the plant phenology protocols for that species.

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Selecting species

The USA-NPN has identified many plant species to be monitored, selected for characteristics such as a wide-spread distribution, importance to a local ecosystem, or special environmental concern (for example, allergenic or invasive species).

A special group of species, called calibration species, were selected for their broad ranges, their relative abundance or their overall importance. Phenology data from these species will allow us to create a spatial network of observations with sufficient overlap to allow inter-correlation of species responses across the entire nation. You may or may not be able to find one of these species growing near enough to conveniently observe, but if you do please consider monitoring it in addition to any other species you choose.

The USA-NPN will be adding more species to the plant monitoring program over time. If you do not see your species of interest on the list, you may be interested in developing a plant profile for consideration and review by the USA-NPN. Go to www.usanpn.org/participate for more information.

Monitoring protocols

Monitoring plant phenology consists of watching one or more individual plants and recording the occurrence of key phenological events (e.g., leaf-out, first flower). USA-NPN plant phenology protocols are likely the most appropriate for SEEDS observers, as these protocols require some ecological or botanical knowledge. Alternatively, Project BudBurst (www.budburst.org), the USA-NPN general education and outreach program, offers protocols appropriate for all levels of expertise and would be ideal for education or outreach activities involving local schools or the larger community.

Sampling design

Monitor as many or as few species and individuals as desired. Plants may be selected to try to answer local questions of interest as well as to contribute to a nationwide monitoring effort. Consider the following questions when designing a monitoring site:

- Is there another monitoring site nearby? Can I monitor the same species as the site nearby?
- Is there an elevation or environmental gradient across which I can take observations?
- Are there species on the USA-NPN list that are of local importance to my community?
- What's close and easy for me, as a SEEDS student or chapter, to monitor?

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