

Project BudBurst

Become a Citizen Scientist as You Watch Flowers Bloom

By Mari N. Jensen

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Biologists refer to the timing of seasonal events such as flowering or the first unfurling of leaves as “phenology.” Humans have used such well-known clues to the onset of spring for centuries. Phenological patterns can help time the planting of crops or flowers, track the effect of climate change on plants and animals, anticipate wildflower displays and make predictions about fuel loads and wildfires.

To learn more about large-scale changes in plants’ behavior over time, it is essential that the date and location of phenological events like “first leaf” and “first fruit” be observed and recorded for many different plants in as many locations as possible across the country. So Project BudBurst, a nationwide project enlisting adults and youth to track when plants leaf out and bloom, was created. Similar projects have been going on in Europe for years and have offered clues into how plants are responding to warming global temperatures.

The initial stage of Project Budburst ran from April through June 2007 and drew thousands of “citizen scientists” who observed and recorded changes in trees and flowers. Anyone was able to join by signing up on the Web site, www.budburst.org and clicking on the Participate! button.

The site makes it easy for people to identify their plant and pinpoint the plant’s location on the map of the U.S. The Web site also has information for teachers and for students.

“Various types of groups all over the country were involved,” said Barron J. Orr, an assistant professor of arid lands studies and a geospatial extension specialist at the University of Arizona in Tucson. “In my case, the focus was on after-school programs and things students can do with their parents.”

By the end of June, participants in 26 states had reported 913 events, and project scientists are beginning to produce maps of when plants bloom and leaf out all over the United States by compiling the information submitted. This year’s information will be compared to historical records to see how the nation’s backyards, parks and forests are changing.

Some of Arizona’s many plants that project scientists want to learn about include the saguaro cactus, the common dandelion, pink evening primrose, white clover, shrubby cinquefoil, chokecherry, big sagebrush and yarrow.

The project will continue for many years, said Orr, a member of the USA-National Phenology Network’s Citizen Science Working Group, and will be expanded beginning in 2008.

“It will help us understand our changing environment. We have good maps of vegetation, but we have very little data on trends. We need something to serve as an indicator of changes through time and across landscapes. It’s fun, it’s easy, and it’s essential for scientific understanding.”

Not only do scientists benefit from the data collected through Project Budburst, so do the participants. By observing plant changes in their own yards, community parks and neighborhoods, adults and children are learning more about their local ecosystems and plant species. They’re also beginning to understand more about climate change and global warming. ❖

NATIONAL PHENOLOGY NETWORK

Project BudBurst is a collaborative effort of the Chicago Botanic Garden; Plant Conservation Alliance; ESRI; the National Science Foundation; the USA-National Phenology Network; the University Corporation for Atmospheric Research; the University of Arizona; the University of Montana; the University of California, Santa Barbara; the University of Wisconsin-Milwaukee and the University of Wisconsin-Madison. The U.S. Bureau of Land Management, the National Science Foundation and Plant Conservation Alliance provided funding for the spring 2007 event.

Project BudBurst grew out of a workshop held October 2006 at the University of Wisconsin-Milwaukee, with funding from the U.S. Fish and Wildlife Service, U.S. Geological Survey, National Science Foundation and NASA. The project is part of the USA-National Phenology Network (NPN), a consortium of scientists, natural resource managers and database and web application developers. The network’s purpose is collecting and analyzing data and making it publicly available to better understand and adapt to changes in the environment.

The National Phenology Network’s National Coordinating Office is located in the UA’s Office of Arid Lands Studies, part of UA’s College of Agriculture and Life Sciences. Funding for the national office is provided by the U.S. Geological Survey, with additional support from UA’s College of Agriculture and Life Sciences and College of Science, Institute for the Study of Planet Earth and Office of Arid Lands Studies.

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