EDITED BY KELLI WHITLOCK BURTON

Budding Scientists

How does your garden grow? A team of ecologists and climate scientists wants to know. Project BudBurst invites the public to record the timing of leaves, flowers, and fruits to help track climate change. Part of the USA National Phenology Network (NPN), the project began in 2007 to foster consistent continentwide monitoring of phenology—the timing of annual biological cycles. Participants from across the United States enter their reports on the Project BudBurst Web site, and university and government researchers will analyze the data.

Jake Weltzin, a government ecologist and NPN executive director, says the network aims to understand how climate variation affects ecosystems. Plant phenology is a "sensitive integrator" of environmental factors, he says. For example, the timing of lilac blooms in the western United States is one of the best ways to predict a wildfire year.

To monitor how plants respond to climate, NPN will maintain a database that includes contributions from trained researchers and Project BudBurst participants. In 2007, a test run of BudBurst fielded 913 observations from 26 states. Sandra Henderson, a science educator and Project BudBurst coordinator, says the program captured the public imagination because of the climate change connection. "People don't want to sit on the sidelines and be passive observers," she says.

Without Bounds

NET WATCH

Bound encyclopedias can't hold a cursor to the multimedia display of the first part of the Encyclopedia of Life (EOL), a Web site assembled by a consortium of 25 museums, botanical gardens, and other scientific institutions. The effort, funded in part by $12.5 million in grants, aims to provide one-stop shopping for biodiversity for scientists and the public. Launched last year (*Science*, 11 May 2007, p. 818), EOL will come online in stages. The first phase, unveiled in late February, includes information on 30,000 plants and animals. Eventually, the site will incorporate images, distribution maps, life histories, and identification data for each of Earth's 1.8 million known species.

The first entries were built using multiple existing sources, an effort the collaborators hope to automate in the future. The first set of pages concentrates on fish and amphibians, as well as plants related to peppers, tomatoes, and petunias. Work on the project is ongoing. However, scientists note, given the rapid rate of new species discovery, it's a project that likely will never be finished.

>> www.eol.org

Let the Sun Shine

New TiO_2-infused fabric is self-cleaning when exposed to light.

Researchers from Australia and Hong Kong plan to take the wash out of washday with fabrics that clean themselves. The self-cleaning property comes from coating the fibers with nanocrystals of titanium dioxide, a photocatalyst that decomposes dirt and stains when exposed to light. Walid Daoud, a chemist at Monash University in Churchill, Australia, and colleagues at the Hong Kong Polytechnic University describe their findings in the 26 February issue of *Chemistry of Materials*.

The photocatalytic property of titanium dioxide is well known. Daoud and his colleagues developed a treatment for fabric fibers that chemically bonds the titanium dioxide nanocrystals to the fibers. Although sunlight produces the best results, the self-cleaning works under any light source, even while the clothes are being worn. The crystals also inhibit the growth of odor-causing bacteria.

Daoud foresees initial applications in clothing for campers and soldiers. "But the target is really to reduce the consumption of water, detergent, and energy used in laundering and dry cleaning," he says. The treatment shouldn't increase the cost of fabric production, says Daoud, who is negotiating with potential industrial partners. Self-cleaning fabrics could be on the market in 2 years.

True Blue

Bowls, ritualistic objects—even people—were painted a brilliant turquoise blue before being offered up as sacrifices by the Maya, the original residents of the Yucatán Peninsula. Now, 14th century pottery recovered from an ancient sacrificial well reveals just how the Maya created the blue pigment.

The Maya started using the pigment known as "Maya blue" about 500 C.E. Researchers knew that its ingredients included indigo and the clay mineral palygorskite, but the rest of the preparation process was unknown. Studies of a Maya bowl found at the bottom of the Sacred Cenote, a famous sacrificial well in Chichén Itzá, showed traces of a resin incense called copal. Researchers now believe that when heated, the copal fused the indigo and palygorskite together, producing the long-lasting blue pigment.

Archaeologist Dean Arnold of Wheaton College in Wheaton, Illinois, came across the bowl, which had originally been uncovered in 1904, while examining collections at the Field Museum in Chicago. In Maya culture, each of the three ingredients had healing power, says the Field Museum's Gary Feinman. "The Postclassic Maya appear to have used this pigment as a key component in rituals that petitioned for rain to heal the Earth from drought and desiccation," he says. Arnold's team reported the findings online 26 February in the journal *Antiquity*.

CREDITS (TOP TO BOTTOM): WALID DAOUD; WIKIPEDIA; FIELD MUSEUM OF CHICAGO

Published by AAAS