



# WILDFLOWER

A non-profit organization committed to the preservation and reestablishment of native wildflowers, grasses, shrubs, and trees.

## Take advantage of improving spring weather — get your garden in order

*"I grew up in the country — rather alone — and one of my favorite pastimes was to walk in the woods, exploring, particularly in springtime, searching for the first wild violets and starry white blossoms of dogwood, feeling the crush of pine needles underfoot, the wind whispering overhead."*

Lady Bird Johnson  
*Wildflowers Across America*

Depending on where you live and how you define *spring*, this favorite season may have just begun or, perhaps, is beginning to fade. In the northern hemisphere, spring officially begins on the equinox in March and ends on the summer solstice in June.

Spring's arrival in Central Texas is heralded by the first Indian paintbrush and bluebonnets. In the Midwest, its arrival is confirmed by the first robin sighting. In southern California, it's the return of the swallows to Capistrano.

Regardless of geographic location and personal perspective, spring's longer, warmer days are an enticement to get outside. Here's a sampling of wildflower and native plant activities — gardening and otherwise — you could participate in this spring.

- Increase the diversity of species in your habitat garden. Spring is a great time to plant container-grown natives, especially as soon as the soil is workable, so they'll have a chance to overcome transplant shock and get acclimated before the summer heat sets in. Some species can be sown in the spring. Check seed packets or local references for information on when to

plant seeds.

- Evaluate your wildflower meadow. Plant more seeds or container-grown native plants to fill in bare spots. Mow a swath around the edge or through the middle for a more stylized look.

- If you want to increase your plants or share some with a friend, now is the time to dig and divide fall-bloomers such as goldenrod, liatris, and maximillian sunflowers.

- Remember to let your spring-blooming annual wildflowers go to seed before mowing.

- Cut back herbaceous perennials that died over the winter. Compost the plant debris.

- If you have limited garden space, try growing native plants in a pot or other container.

- Apply mulch to planted beds and bare soil to insulate roots, conserve moisture, and reduce erosion and competition with weeds for water and light. Many weed seeds need light to germinate, so covering them with mulch is an excellent germination deterrent. Weed seedlings are easier to remove from mulch than from soil. Leave a few inches of space between the plant and the mulch to prevent the stem from rotting.

- Check your irrigation system for leaks and plugged nozzles. In areas planted with thirsty turfgrass, consider reducing the grass-covered area by planting low-water-use native plants.

- Make a commitment to yourself and the Earth not to use pesticides that can wash into streams and water supplies. Adopt an organic or integrated pest management approach to controlling pests.

Raise your tolerance of pests.

- On your own land, preserve natural communities where possible by incorporating native plants into your landscape.

- Start a garden diary. Record blooming dates, planting dates, and other observations.

- Experiment using wildflowers and grasses as cut flowers.

- Put in a bird bath, bird feeder, or both.

- Buy plants from your local native plant nursery or garden shop. Ask whether the plants were nursery grown or dug from the wild.

- Take a wildflower tour.

- Plant a tree to commemorate a birth or marriage.

- Spend a day exploring nature with a child.

- Call or write your state's Department of Transportation to complement roadside wildflower plantings or encourage planting them.

- Help organize a plant rescue.

- Join your local native plant society.

Whether you want to conserve natural resources, expand your educational horizons, or improve the general aesthetics of your surroundings, get into some hands-on encounters with nature.

Appreciating seasonal cycles reduces stress, teaches patience, and, best of all, is great fun. Get involved for your own health and the health of our planet.

Denise D. Delaney  
Horticulturist  
National Wildflower  
Research Center

GIFTS INSIDE

## Invest in the Wildflower Center's future

The construction of the Wildflower Center's new home made progress in late February with receipt of our building permits and the pouring of the first foundations. After four months of careful site development and concentrating on protecting the land during excavation, the actual construction activities are now fully underway. As soon as all the foundations are completed, walls and roof trusses will start going up and the buildings will really start taking shape!

Thanks to an incredible effort by a small group of our Board of Trustees, we have raised 75 percent of the \$8 million needed for construction. Now, we must match a generous \$400,000 challenge grant from the Kresge Foundation in Michigan.

Because of the interest shown

by Wildflower Center members in being part of this wonderful new facility, we would like to extend the opportunity to our members to help us with two key items: hardwood floors in the Education Gallery, library, and office reception area; and limestone blocks for the courtyards, building walls, and garden walls.

For those partial to gardens instead of buildings and construction materials, the site planner and landscape architect have designed a "Members Garden" to be built and planted exclusively from contributions made by Wildflower Center members. A donation of any amount will count toward the funding of this garden, which will cost \$25,000 to complete. While planted only with indigenous plant species, the garden will be designed to provide a beautiful, formal

setting and provide constant color throughout the year.

Please use the pledge form on page 6 to make your donation to the Center's new home. I look forward to providing updates through the rest of 1994 as we anticipate our move to the new site in the early spring of 1995. We believe you, our members, will find the Wildflower Center's new home something of which you can be truly proud. We hope each of you will want to become a permanent part of our new facility and hope all of you will be able to visit as soon as we are open.



David K. Northington, Ph.D. is the Executive Director of the National Wildflower Research Center.

## Wildflower

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## WILDFLOWER CENTER NEWS

Nine adventurous members spent the last two weeks of March exploring Ecuador and the Galapagos Islands on this year's first EcoTour. Led by Center botanist Flo Oxley and Education Director Julie Barrett Heffington, the group visited the rainforest, the Charles Darwin Research Station, Cotopaxi, the world's highest active volcano, and saw some of the world's rarest creatures and plants.

The Wildflower Center co-sponsored a native plant symposium with the Santa Barbara Botanic Garden. "Plant Conservation and Landscape Design. An Ecological Approach." Wildflower Center Executive Director Dr. David Northington spoke on "Grasslands, Habitats and Restoration Efforts."

Julie Barrett Heffington and Flo Oxley attended the "Non-profits in Travel Conference" February 28 in Washington, D.C. The conference focussed on developing and offering educational and

environmentally sensitive ecotours as a positive membership benefit.

Dr. David Northington will be the keynote speaker for the 1994 National Convention of the National Council of State Garden Clubs May 20 in Stamford, Connecticut. Every local chapter of the NCSGC has pledged \$10 to the Wildflower Center's new facility capital campaign.

Director of Volunteer Services, Peggy Budd, held several volunteer orientation sessions focussed on the new facility. Many new volunteer opportunities will occur when the Center relocates. In-depth training in botanical and interpretation will be offered to volunteers selected to act as docents.

By the time this column appears, the foundations will have been poured for the buildings at the Center's new site. Construction is underway and the projected opening date is April 1995.

# How the length of day and night affect flowering

Driving north from Texas to Ohio last March, I noticed the further north I drove, the wildflowers along the highway seemed to disappear. Over a span of a dozen miles or so, the roadside flowers became less dense until just a few were scattered here and there. On the return trip twelve days later, I noticed prodigious numbers of wildflowers where they had been sparse before. Why? What triggers a flower to bloom in one place one week and another place the next?

Plants respond to many stimuli, including air and soil temperature, moisture, soil condition, and light. The temperature and amount of moisture present may change from year to year, and other environmental stimuli, such as soil condition, are not constant factors. The amount of light, however, remains constant from year to year.

Light has three characteristics: duration, quality, and intensity. The amount of time a plant is exposed to light (duration) is the most important factor in determining when it will bloom. Plants native to an area become adapted to the amount of light received

during different seasons, a process known as *photoperiodism*. Until recently, botanists thought the amount of *daylight* triggered flowering. However, research has shown the amount of *darkness* causes most plants to bloom. In the spring, as the days become longer, the nights become shorter — and once the needed hours and minutes of darkness have been reached, the plant will bloom.

But why do the same species bloom at different times in different latitudes?

The seasonal change

from winter to spring is caused when the Earth gets closer to the sun — and more importantly — when the Earth changes its attitude relative to the sun. During the winter, the Northern Hemisphere is tilted away from the sun, but in the spring, the Earth's axis starts tilting toward the sun, so the Northern Hemisphere gradually receives increasing amounts of daylight. As the Earth tilts, the sun appears higher in the sky. The lower latitudes, closer to the sun, receive a little more daylight *sooner* than

the higher latitudes.

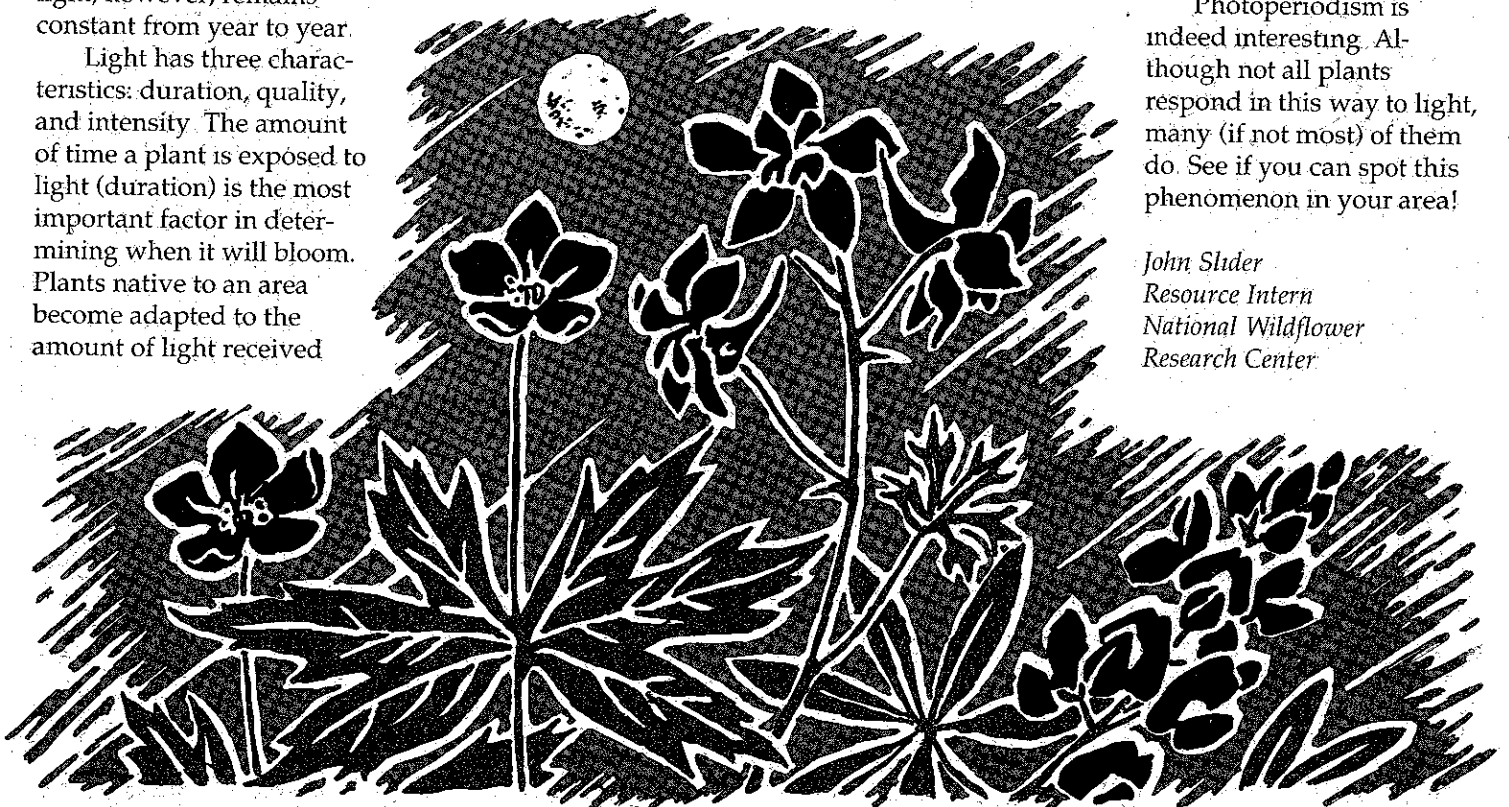
For example, on March 17th, at 31 degrees north latitude, the night might be twelve hours long. At 34 degrees north latitude, the night might be twelve hours and five minutes. If a plant needs twelve hours of darkness to bloom, it will bloom first at 31 degrees north. Ten days later, the 35 degrees north latitude location will be receiving a shorter period of darkness, and the plants in that area will bloom.

Plants requiring shorter amounts of darkness to bloom, such as lupines (*Lupinus* spp.) and blue phlox (*Phlox divaricata*), are known as *short-night plants*. The whole process is reversed in the fall as the nights get longer. *Long-night plants* include strawberries (*Fragaria chiloensis*) and woolly blue violets (*Viola papilionacea*).

Photoperiodism is indeed interesting. Although not all plants respond in this way to light, many (if not most) of them do. See if you can spot this phenomenon in your area!

John Slider  
Resource Intern  
National Wildflower  
Research Center

The amount of time a plant is exposed to darkness (duration) is the most important factor in determining when it will bloom.



# Wildflower

## NOTEBOOK



**Botanical Name:** *Aconitum columbianum*  
**Pronunciation:** Ack-OH-ni-tom cole-um-BEE-a-numb  
**Common Name:** Monkshood  
**Family Name:** Ranunculaceae (Buttercup Family)  
**Range:** Throughout western North America

**Habitat:** Moist woods and high mountain meadows, usually along streams  
**Bloom Period:** June to August

The first time I looked into a monkshood flower, I expected to see a small,

serene face staring out at me! Yes, this plant really does resemble the cowl, or hood, of a monk's robe. Flowers are produced in racemes and may range in color from a deep bluish-purple to a greenish-yellow. White forms are occasionally encountered.

A round head of purple petals is surrounded by a series of sepals. The upper sepal, hood-shaped and beaked at the front, forms the cowl. Two broad sepals frame either side of the flower, while two smaller sepals are found below.

Many species of *Aconitum* are poisonous or a source of drugs. Monkshood is extremely toxic to livestock and has occasionally killed people who have eaten it.

Because it is toxic both before and after it flowers, young greens may also pose a danger. The roots may be mistaken for the edible fleshy roots of other species. When raw plant parts are chewed, they produce a tingling sensation in the mouth.

A perennial, monkshood does well in rich soils and partial shade. Once plants become well established, they should not be disturbed unless absolutely necessary. They will die if they are dug up and moved. Easily propagated by seed or division, monkshood seedlings generally take two to three years to flower.

A European cousin of monkshood, *Aconitum napellus*, is the "wolfbane" of werewolf legends.



**Botanical name:** *Salvia azurea*  
**Pronunciation:** SAL-vee-ah az-YOO-ree-ah  
**Common name:** Blue sage, pitcher sage  
**Family name:** Labiatae (Mint Family)  
**Range:** Minnesota, south to Florida, west to Arkansas, Texas, Mexico, introduced in Colorado and Nebraska

**Habitat:** Dry prairies  
**Bloom Period:** July to October

*Salvia azurea* is a wide ranging perennial flower that has been spread even farther by gardeners who love it. The sky blue flowers are whorled along a square stalk that can reach four feet in height. The

lower leaves are often lanceolate or oblong and serrate while the upper leaves are linear.

The tubular flowers are two-lipped, a characteristic of flowers in the mint family. The upper lip is two fused petals that shelter the pollen bearing anthers. The lower lip is broad and three-lobed, about half an inch to three-fourths of an inch long, twice as long as the upper lip and is blue striped with white.

A bee looking for nectar might first be attracted to the blue color, finding a convenient landing pad on the broad lower lip. Guided by white stripes called *nectar guides*, the bee searches for nectar, brushing against the anthers and picking up pollen.

The genus name *Salvia*

is Latin for "healer" and many salvias have been used medicinally. The specific epithet, *azurea*, is Latin for sky-blue.

*Salvia azurea* does well in open, well-drained areas. The seeds need no treatment and can be planted in the fall when they are mature or saved and planted in the spring. As with many perennials, patience is needed as flowers planted from seed may not bloom the first year. They must first develop their thick perennial roots.

Many salvias are easily propagated from tip cuttings. Take five-inch cuttings from new growth below a node, remove the lower leaves, and place in a moist, porous potting soil. Using a rooting hormone may help.

# FROM THE FIELD

**Flora Fest '94, May 1-8, Niles, MI**  
**Contact:** Fernwood Botanic Garden,  
13988 Range Line Rd., Niles, MI  
49120

**Brushfires in California Wildlands:  
Ecology and Resource Management  
Symposium, May 6-7, Irvine, CA**  
**Contact:** Dr. Jon E. Keeley, Professor  
of Ecology, Dept. of Biology, Occi-  
dental College, Los Angeles, CA  
90041

**Plants and People of the Southern  
Sonora, May 11, Tucson, AZ** **Contact:** Arizona Native Plant Society,  
Tucson Chapter, PO Box 41206, Sun  
Station, Tucson, AZ 85717

**Sixth Annual Wildflower Pilgrim-  
age, May 12-14, Door County, WI**  
Field trips to various natural areas,  
state parks, and private lands. Pre-  
registration required. **Contact:** The  
Ridges Sanctuary, P O Box 152,  
Bailey's Harbor, WI 54202-0152, (414)  
839-2370

**Ecosystem Management Strategies  
for the Lake Superior, May 16-19,  
Duluth, MN** **Contact:** Cont Ed &  
Extension, Univ of Minnesota-  
Duluth, 403 Darland Admin Bldg,  
10 University Dr., Duluth, MN  
55812-2496, (218) 726-6819

**Wetlands Restoration and Creation,  
May 19-20, Tampa, FL** **Contact:**  
Frederick J Webb, Dean of Environ-  
mental Ed. Programs, Hillsborough  
Comm College, Plant City Campus,  
1206 N. Park Rd., Plant City, FL  
33566, (813) 757-2104

**Oklahoma Wildflower Workshop,  
May 20-21, Tulsa, OK** **Contact:**  
Joanne Orr, Beautification Coordina-  
tor, Oklahoma Dept. of Transporta-  
tion, 200 NE 21st Street, OKC, OK  
73105, (405) 521-4037

**Tree City USA National Confer-  
ence, June 5-7, Nebraska City, NE**  
**Contact:** The National Arbor Day  
Foundation, PO Box 81415, Lincoln,  
NE 68501-1415, (402) 474-5655

**Symposium on Society and Resource  
Management, June 7-10, Fort Collins,  
CO** **Contact:** College of Natural  
Resources, Colorado State Univ., Fort  
Collins, CO 80523, (303) 491-6591

**Connecticut State Museum of  
Natural History and Audubon  
Society of Northeast Connecticut  
Ninth Annual Wildflower Festival,  
June 12, Storrs, CT.** **Contact:** Carol  
Davidge, Connecticut State Museum  
of Natural History, University of  
Connecticut, U-23, 75 North  
Eagleville Road, Storrs, CT 06269-  
3023, (203) 486-4460

**Global Strategies for Environmental  
Issues, June 12-15, New Orleans, LA**  
**Contact:** Natl Assoc of Environmen-  
tal Professionals, 5165 MacArthur  
Blvd NW, Washington, D C 20016,  
(202) 966-1500

**Ecosystem Health and Medicine:  
New Goals for Environmental  
Management, June 19-22, Ottawa,  
ONT, Canada** **Contact:** Remo  
Petrongolo, Symposium Mgr., Ofc  
of Cont. Ed., 159 Johnson Hall,  
University of Guelph, Ont., N1G 2W1  
CANADA, (519) 824-4120, ext 3064

**American Horticultural Society's  
Open House at River Farm, celebrat-  
ing the new children's garden. June  
19-20, Alexandria, VA** **Contact:** AHS  
at (703) 768-5700

**International Conference on Ecology  
and Environment, June 20-24, Drake  
Bay, Costa Rica** **Contact:** Elizabeth  
Arnaez, Dept of Biology, Costa Rica  
Institute of Technology, P O Box 159,  
Cartago, Costa Rica, Central America

**Native Plants in the Landscape, June  
23-25, Millersville University,  
Millersville, PA** **Contact:** Grace  
Evans, (717) 872-3742

**Cities and Sustainable Develop-  
ment, June 24-July 3, Manchester,  
England** **Contact:** Global Forum '94,  
Eastgate, Castle St., Castlefield, Man-  
chester, M3 4LZ, United Kingdom

# Q

Questions,  
questions,  
questions! the  
Clearinghouse  
at the National  
Wildflower  
Research  
Center answers  
thousands of  
questions a year on wildflowers and  
native plants and how to grow them.

**Q: What happened to my Wild-  
flower Center member number?  
I know it was a long number, but  
I don't remember what it was.  
Now there are only five letters  
on my membership card.**

**— "adqr"**

**A:** Those five letters are your new  
membership ID. Your ID serves the  
same purpose as your member  
number did—it helps us make sure  
you get all the benefits you're entitled  
to as a Wildflower Center member.  
Why the change? It's part of our  
conversion to a new computer  
system. An alphabetic code is shorter  
and easier to type than a numeric  
one. Technology marches on!

**— Membership Department**

**Q: What is the best time to plant  
sunflowers?**

**— Mike Odell**

**A:** The best time to sow sunflower  
seeds is midsummer (July and  
August) after they have been refriger-  
ated for nearly a year. Sunflowers can  
also be propagated using stem  
cuttings taken anytime before  
flowering. Place the cuttings in a fast-  
draining medium (3 parts sand to 1  
part peat). When the roots are one  
inch long, transplant the cuttings  
into four-inch pots and allow them to  
overwinter in a protected area  
outside. The plants can be trans-  
planted into the garden the following  
spring.

**— Clearinghouse**

**YES,** I want to participate in the special Member's Capital Campaign for the new National Wildflower Research Center facility.

- \$500 Large specialty building or courtyard stone  \$ 50 Hard wood floor plank  
 \$ 50 Regular paving stone or medium building stone  \$ 20 Small building stone  
 \$ \_\_\_ Contribution toward the "Member's Garden"

- I have enclosed my check made out to NWRC  
 I prefer to charge my contribution and have provided information below

**Bank Information:** Please provide the following information if you wish to charge your contribution.

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Signature \_\_\_\_\_

Telephone. Home ( ) \_\_\_\_\_

Work ( ) \_\_\_\_\_

### Wildflowers Work : Join the National Wildflower Research Center!

Members of the National Wildflower Research Center support wildflower and other native plant work across the nation. Benefits include *Wildflower*, the newsletter and *Wildflower*, the journal; 10% discount on unique Center products such as wildflower books, calendars, and T-shirts; advance notice on tours and discounts to Center seminars; free wildflower information from the Center's Clearinghouse; a membership card; and other benefits.

- \$25 Supporting Member.** All benefits listed above.  
 **\$50 Sustaining Member.** All the above plus a set of specially commissioned wildflower note cards.  
 **\$100 Key Member.** All the above plus wildflower tote bag and invitations to special events.  
 **\$250 Center Sponsor.** All the above plus full-color wildflower address book.  
 **\$500 Trust Member and \$1,000 Benefactor.** All the above plus special privileges.

\* Thank you! Your contribution is partially tax deductible. Contact the Development Office for detailed information on tax deductibility.

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- Mail to: Membership, National Wildflower Research Center, 2600 FM 973 North, Austin, TX 78725-4201

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## Wildflowers Work!

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