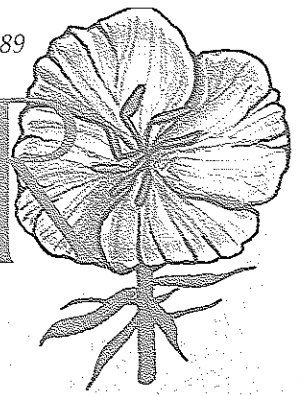


# WILDFLOWER



A nonprofit organization dedicated to researching and promoting wildflowers to further their economic, environmental, and aesthetic use.

## Butterfly Gardens: A Complement to Nature

A habitat for butterflies? That is exactly the purpose of the Day Butterfly Center at Callaway Gardens, Pine Mountain, Georgia. The center, which opened in the fall of 1988, includes an 8,000-square-foot conservatory for butterflies and plants and an outdoor garden designed to attract butterflies native to the area.

Butterfly gardens are becoming popular across the country, as awareness of the need to protect them and their natural habitats continues to heighten. The National Wildflower Research Center's spring seminar, "Butterfly Gardens: A Complement to Nature," addressed this interest.

Butterfly gardening and landscaping with native plants are quite compatible. Designing a home garden for butterflies helps to conserve the biodiversity of your area. Many native plants serve not only as nectar sources for adult butterflies, but also as host species for their earlier life stages. A single native plant bed,

carefully planted with larval host plants and nectar flowers, can be a center attraction for both butterflies and butterfly watchers.

Your own butterfly garden can be as simple as a few nectar plants in pots, or as complex as a home landscape designed with sequentially flowering nectar plants. Plant species appropriate for butterfly gardens vary across the country. Some nectar plants with widespread ranges include *Echinacea purpurea* (coneflower), *Lupinus* spp., and *Eupatorium* spp. (boneset).

Butterflies prefer open, sunny spaces — a full-sun wildflower garden is ideal. A wind-sheltered garden with a fence or a windbreak of trees and large shrubs also attracts winged visitors. Water is essential. Butterflies are unable to drink from open water, but puddles, wet sand, or a shallow dish filled with rocks or gravel serve as butterfly oases. Butterfly visitors you can expect depend on what part of the country you live in. Don't, for instance,

expect woodland butterflies to frequent your wildflower meadow garden. Some butterfly species are found throughout the United States while others have restricted ranges.

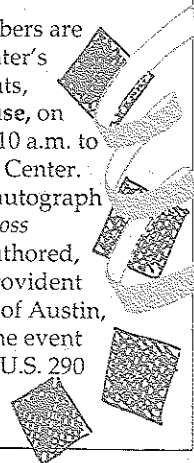
Cultural practices in your garden can affect butterflies in certain growth stages. Pruning trees and mowing the lawn may destroy eggs and caterpillars during the warm-weather season. It is important to consider all four stages of the butterfly life cycle—egg, caterpillar, cocoon and adult—in protecting habitats for wild populations, such as the monarch roosting sites in California and Mexico and the lupine populations that host the Karner blue.

For a butterfly gardening bibliography and fact sheet, write to the Wildflower Center (address on page 6). Fact sheets are free to members; nonmembers need to send a mailing label and \$1 for postage.

Katy Kramer McKinney,  
Research Botanist,  
National Wildflower Research Center

### It's a Hot Summer Celebration!

Wildflower Center members are invited to one of the Center's most festive annual events, **Membership Open House**, on Saturday, May 27, from 10 a.m. to 1 p.m. at the Wildflower Center. Lady Bird Johnson will autograph copies of *Wildflowers Across America*, which she coauthored, from 10:30-11:30 a.m. Provident Development Company of Austin, Texas, is underwriting the event and also helped rename U.S. 290 East near Austin — now **Bluebonnet Parkway**.



## Wildflower Center News

Lady Bird Johnson, the National Wildflower Research Center's founder and co-chairman, has been recognized by the Texas Legislature for championing wildflowers and the environment. Her efforts precipitated the recent debut of a wildflower curriculum for Texas schoolchildren.

The Texas House and Senate passed resolutions and held ceremonies to commend Mrs. Johnson, highlight the new curriculum, and celebrate Mrs. Johnson's 75th birthday, which fell last year when

(read on, back page)



Frame for Research: Spring finds botanists using a one-meter-square frame to count seedlings for a Wildflower Center study.

# Director's Report: A Successful Season!

This is easily our most active and exciting spring ever! In March, we announced the publication of our *Wildflower Handbook* with a symposium featuring talks by Professor Arthur E. Bell, recently retired director of the Royal Botanic Gardens, Kew, in England; Darell Morrison, dean of the School of Environmental Design at the University of Georgia in Athens; and Doug Welsh, a horticulturist with the Texas Agricultural Extension Service and member of the National Xeriscape Council, Inc. Board of Directors.

The next day our annual spring seminar focused on butterfly gardening, with talks by Dr. Lawrence E. Gilbert of The University of Texas Department of Zoology, Dr. Raymond W. Neck, conservation biologist with the Texas Parks and Wildlife Department, and Dr. William Calvert and Carlos Gottfried of Monarca A.C. of Mexico.

In April, in addition to beginning our busy visitors' season and hosting Wildflower Days at the Center, we led a "Wine and Wildflowers" tour of Napa Valley. April 29 through May 1 were packed with meetings and activities,

as the annual meeting of the Wildflower Center's national Board of Trustees took place in Austin.

As the newsletter goes to press, we look forward to one of the most exciting events in our history — a Conference of Wildflower and Native Plant Organizations, sponsored by a grant from the American Conservation Association and hosted by the Wildflower Center. The conference should foster increased communication between groups and identify mutual concerns that will allow cooperative efforts and projects.

Participating are representatives from over 25 wildflower and native plant societies, botanic gardens and arboreta, conservation and preservation organizations, garden club associations, and related groups, taking part in conference activities at the Wildflower Center and Lyndon B. Johnson State Historical Park. We have high hopes that the outcome will be a truly national network of information exchange and focused activity.

In early June, an equally exciting meeting will be hosted by the Wildflower Center. Stemming from mutual concerns expressed during the recent national meetings of the

American Seed Trade Association, the meeting will bring most major wildflower seed producers together to discuss the need for standardized seed testing and quality, uniform label information for seed mixes, standardized planting and management guidelines, consistent use of terms such as *wildflower*, *native*, and *exotic*, a code of professional ethics, and methods of self-regulation.

The Wildflower Center hopes that these discussions will result in significant advances for the wildflower seed industry and, as a result, broaden consumer participation in successful wildflower planting programs nationwide. We are encouraged by the interest members of the industry have expressed in addressing those topics and pleased that the Center will play a central role in the discussions. We look forward to reporting on the outcome in the next issue of *Wildflower*.

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



## Wildflower

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**Executive Director:** David K. Northington, Ph.D.

**Editor:** Candace Kiene

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## Wildflower Outlook

The *Wall Street Journal* has reported that the National Park Service is bulldozing areas of Florida's Everglades Park to combat aggressive exotic plants growing wild there. The newspaper noted that a few of the exotics in the park are crowding out native plants.

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**Betty Benkert Knorr, Ph.D.**, Horticulture Chairman of the New Jersey Native Plant Society, has been named to "Who's Who in the World." In 1960 she established Project SNAP (Save Native American Plants), a continuing nationwide effort. At press time she was scheduled to attend May's Conference of Wildflower and Native Plant Organizations at the Wildflower Center.

The Cullowhee organization will present American Native Landscape Awards for creative use of native plants at July's Cullowhee Conference in North Carolina. Self-nomination forms are due by June 1. Find them at nature centers in the Southeast or write Natives Landscape Corp., P.O. Box 2355, Covington, LA 70434.

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Two *Guides to Points of Interest You Can See on Interstate 90 — Without Stopping* are available from John Brainerd, a Wildflower Center member. They include his illustrations of roadside plants and cover New York-Massachusetts-Pennsylvania and Ohio-Indiana-Illinois. Write him at RFD 1, 245 Varnum Rd., West Brooksville, ME 04617.

# Proper Care Gives Staying Power to Cut Flowers

Prairie gentian, or *Eustoma grandiflorum*, is a North American prairie wildflower that lasts exceptionally well in flower arrangements. In fact, most wildflowers will last at least a week in arrangements, with proper care. Here's how to enjoy them during the spring and summer.

As for any cut flowers, the vase life of wildflowers is limited. How long a stem lasts in water depends on how and when it was cut or harvested, the attention it receives after harvesting, and what species it is. Some species (many lilies) last only a day. Others last two or three weeks.

Although strong, healthy flowers can be gathered from the wild — with the landowner's permission — it is best to use stems from carefully tended wildflower gardens. Garden-grown material has a better chance of being in good condition and is usually easier to collect.

Choose young flowers that are just beginning to open, or flowers that have not yet begun to shed pollen. Look for large, robust stems with good color in the leaves and flowers. Gather flowers in the evening or early morning.

Collect scissors, a gathering container, vases, and water. Make sure

your tools are clean. If bacteria are present, the stems sour more quickly. Always use nonmetal containers, holding lukewarm water, for collecting. Use a sharp blade to harvest flowers. Never twist or break off stems; cut them extra long and at an angle to maximize absorption of water. Place stems in water immediately, and strip off any leaves below water level.

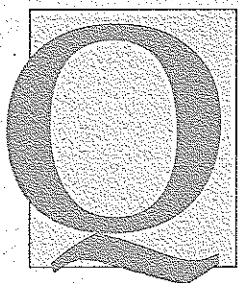
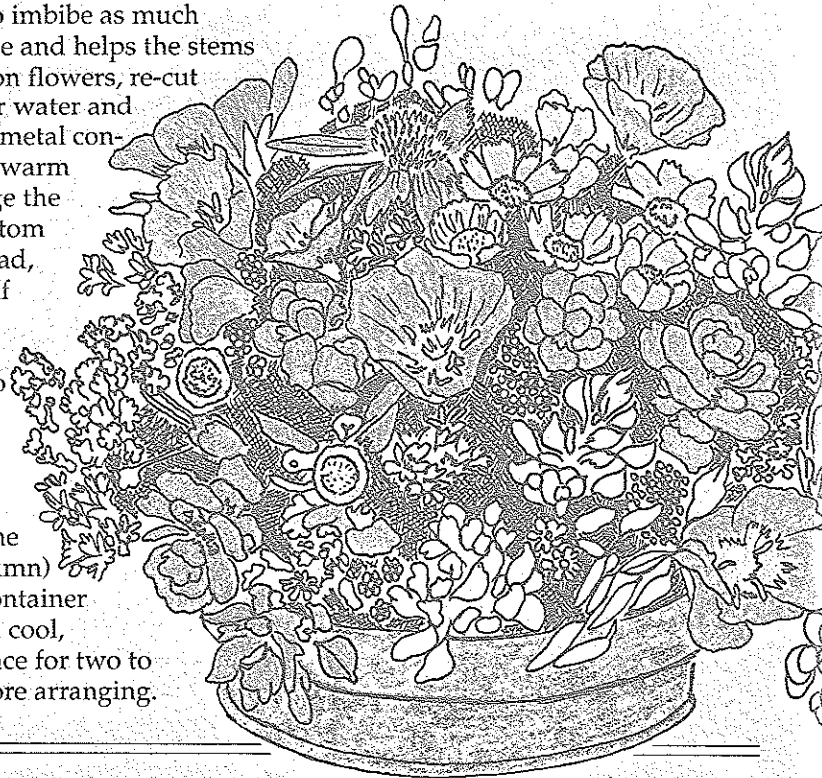
Ideally, wildflowers should be conditioned before they are arranged. This allows tissues to imbibe as much water as possible and helps the stems last. To condition flowers, re-cut each stem under water and place into a nonmetal container with lukewarm water. Submerge the stems to the bottom of the flower head, leaves and all. If foliage is fuzzy, strip off the bottom leaves to halfway up the stem, and submerge stems to this level. Put an additive in the water (next column) and leave the container and flowers in a cool, dark, humid place for two to eight hours before arranging.

After arranging, keep the vase filled. Change the water regularly. Additives deter bacterial growth and provide food for plant tissues. They can be purchased at floral supply stores or made up at home. A simple recipe is to use 2 parts water to 1 part tonic water or nondiet lemon soda.

## REFERENCE:

*Arranging Cut Flowers*, Ortho Books

Katy Kramer McKinney,  
Research Botanist,  
National Wildflower Research Center



*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.*

*This issue of Wildflower begins a new column, Clearinghouse Q & A, which features some of those questions and the answers.*

**Q.** I planted part of my yard with wildflowers last fall. When should I mow them?

**A.** It is best to wait until the seeds or pods have fallen. At least wait until

they have ripened; they will look brown or black, dry, and brittle. Seeds usually ripen six to eight weeks after wildflowers have bloomed. For native grasses, wait until late fall or winter to mow, and leave at least six inches of stubble.

**Q.** When should I fertilize my wildflowers? What kind of fertilizer should I use and how much?

**A.** In general, wildflowers do not need fertilizer; proper soil preparation is more important. Applying fertilizer to wildflowers encourages foliage growth at the expense of blooms. Native trees and shrubs, however, can benefit from a light application.

**Q.** How deep should you till the soil before you plant wildflowers?

**A.** Do not till! Just loosen the soil surface enough (about one-half inch deep) to ensure good soil-seed contact. Tilling deeply will expose dormant, undesirable weed seeds, which will then germinate and create competition problems.

*If you have a question about native plants, write to the Clearinghouse at the Wildflower Center (address on page 6). Free wildflower information and priority handling of questions is a benefit of membership in the Center. We ask nonmembers to enclose \$1 for postage and a self-addressed mailing label or 3-by-5-inch card.*

# Roots and Fungi: A Vital Partnership

The palmate, lacy leaves of the maple tree (*Acer* spp.) may be the most noticeable part of the tree, but the not-so-obvious roots may be the most important part. Roots not only anchor the tree but also act as a mouth, where nutrients and water enter. Because of the important role roots play in plant survival and vigor, anything that increases root growth or allows a plant to function more efficiently is a great benefit.

Maple trees, along with 90 percent of all flowering plant species, form an association between the plant roots and fungi. Those associations — called mycorrhizal associations — increase root growth and development, improve nutrient uptake, and increase disease resistance.

Mycorrhizal fungi develop *hyphae*, branch-like structures that increase the absorptive area of root hairs. Plants with few root hairs are often dependent on mycorrhizae for absorption of nutrients. Some species, including a number of orchids, cannot survive without the associations.

Mycorrhizal associations also increase tolerance to root pathogens, drought, and adverse soil pH. Transplant shock is greatly decreased for plants associated with mycorrhizae. Those benefits make using mycorrhizae important in reestablishing native plants in the environment.

Fungus-root associations have been noted since the end of the 19th century. In the 1920s, researchers began to study mycorrhizal fungi in the establishment of pine trees. Interest in mycorrhizae has grown tremendously over the years. Currently, there is a great interest in utilizing mycorrhizae in mine reclamation, where soils have been disturbed or destroyed. The Wildflower Center conducts research on the benefits of applying mycorrhizae to wildflowers and other native plants to help reestablish them.

Elinor Crank,  
Research Horticulturist,  
National Wildflower Research Center

## From the Field

Missouri Botanical Garden  
Walking Tours *May through October, 4344 Shaw Blvd., St. Louis, Mo.* Guided tours of Shaw's Garden at 1 p.m. on Tuesdays and Saturdays, and at 2 p.m. on Sundays. Contact: (314) 577-5141.

Oklahoma Wildflower Day  
*May 20, Quartz Mountain State Park.* Sponsored by the state parks and recreation department. Contact: (405) 563-2238.

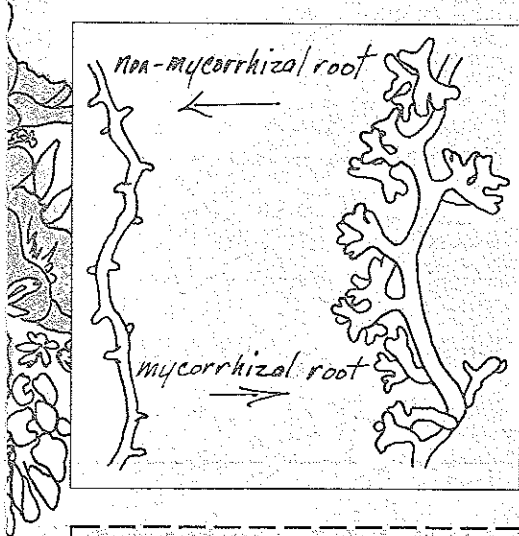
Garden in the Woods' Annual Plant Sale *June 10, 10 a.m. to 3 p.m. Hemenway Road, Framingham, Mass.* Wildflowers and planting information available. Contact: (508) 877-6574.

Wildflower Festival *June 11, 1-5 p.m. The Connecticut State Museum of Natural History, The University of Connecticut, Storrs, Conn.* Lectures, workshops and demonstrations. The event is for adults and children. Contact: (203) 486-4460.

Trees and Shrubs of the Wasatch, *June 17, State Arboretum of Utah, Salt Lake City.* Part of a series of field trips; meets at area shopping mall. Register by May 19. Contact: (801) 581-5322.

Wildflower Photography Workshop *June 16-18, Colorado Springs, Colo.* Lecture and workshop. Contact: Bear Creek Nature Center, (719) 520-6387.

Cullowee Conference *July 27-29, Cullowee, N.C.* This organization addresses native plants in landscapes in the eastern United States. Contact: Natives Landscape Corporation, P.O. Box 2355, Covington, LA 70434.



## Wildflower Handbook has the answers!

When should you plant wildflowers? Where? How?

The National Wildflower Research Center's *Wildflower Handbook*, a new source book, tells you exactly where, when, how — and why — to use wildflowers and other natives in your garden or landscape. Our source book contains handy how-to chapters plus a directory of places to find native plants and wildflower information in all 50 states!

To order, complete and mail form below:

Send \_\_\_\_\_ *Wildflower Handbook(s)* to:

Name \_\_\_\_\_ Phone (\_\_\_\_) \_\_\_\_\_

Street address \_\_\_\_\_

City /State / ZIP \_\_\_\_\_

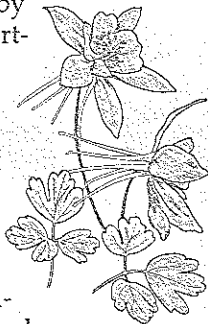
Make check out to "NWRC" and mail with form to: NWRC, 2600 FM 973 North, Austin, Texas 78725-4201. *Wildflower Handbook* is \$9.95 per copy plus \$3.50 for shipping up to 2 copies (Texas residents also add 6% sales tax).

## ROCKY MOUNTAINS

Warmer days flaunt an array of wildflowers, enticing travelers to set out for wildflower sights across the country. "For visitors, the Rocky Mountains represent the ultimate in contrasts and contradictions," writes Panayoti Kelaidis, curator of the Denver Botanic Gardens' Rock Alpine Garden, in *Rocky Mountain Alpines* published by Timber Press in Portland, Oregon.

The highest, most rugged peaks are in the southern Rockies of Colorado, where the prime wildflower season is from mid-July through September.

One scenic loop goes from Gunnison to Crested Butte. Take Ohio Creek Road northwest of Gunnison. Look for *Ipomopsis aggregata* (scarlet gilia), *Campanula rotundifolia* (harebell) and *Castilleja miniata* (Indian paintbrush).



The scenery changes to pine and aspen groves as you enter Gunnison National Forest. At Ohio Pass (elevation 10,000 feet), blue columbines or *Aquilegia caerulea*, the state flower of Colorado, nestle on precarious rocky slopes. Crested Butte, named the "wildflower capital of Colorado" by Governor Roy Romer in

1988, sponsors a wildflower festival. Call (303) 349-6438 for details.

## NORTHWEST

In Oregon, the Siskiyou National Forest at the southwest corner of the state is home to eight species of *Lilium*. The U.S. Forest Service office in Grants Pass (just west of Siskiyou) keeps a record of wildflower species in the forest. June and July are good months to visit.

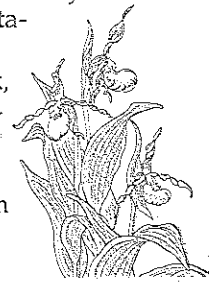
From May to August, the Olympic Peninsula and the Mt. Rainier and North Cascades National Parks never fail to reward photographers. Alpine and sub-alpine meadows dazzle the eyes with *Erythronium montanum* (white avalanche lily) and multi-hued *Castilleja* spp. (paintbrush).



## MIDWEST

The most prominent wildflowers of Midwestern summers are prairie plants. Minnesota has preserved over 45,000 acres of native prairie, and the Minnesota Department of Natural Resources offers a guide to Minnesota prairies. Some of the most interesting are the so-called goat prairies in the Driftless Area (unglaciated

region) of Iowa and Minnesota. Since these steep, limestone-capped bluffs were never cultivated, they have retained original vegetation. King's Bluff in O.L. Kipp State Park, southeast of Rochester, is one goat prairie. Besides grasses, unusual species such as *Cypripedium candidum* (white lady's slipper) and *Saxifraga pensylvanica* (swamp saxifrage) thrive. Minnesotans will celebrate "Prairie Day" on August 19, dedicating Highway 56 from Rose Creek to Le Roy as the state's first wildflower route.



## SOUTH- & NORTHEAST

The Blue Ridge Parkway, which meanders primarily through the mountains of North Carolina and Virginia, offers a 500-mile continuum for wildflower viewing in late spring and early summer. Farther north, visit the New England Wild Flower Society's Garden in the Woods, southwest of Boston in Framingham, Mass. The garden provides wildflower color from mid-April to October, and the meadow area is magnificent in summer.

Beth Anderson,  
Resource Botanist,  
National Wildflower Research Center



## BOOK REVIEW: WILDFLOWERS OF INDIANA

"As I worked with living plants, I became fascinated with their settings and the ways they grow together," says Maryrose Wampler, nationally recognized wildflower artist from Indiana. Her original paintings, representing over 300 plant species, illustrate *Wildflowers of Indiana*, published by Indiana University Press.

"The fieldwork became as integral a part of the painting as the board, brushes, and paint," Wampler says. "The plants began to dictate not only composition but surrounding subjects.

In order to share more of what I consider a plant's personality, I try to include some companion plants, ground litter, insects, or animals if they seem appropriate. It has become apparent that the world is full of paintings, but I must leave my drawing room to find them."

Reading about Maryrose's and husband Fred's camping excursions through Indiana to find wildflowers to paint is a wonderful complement to the illustrations. Fred is a teacher, and his text is informative. He tells you where the couple found specimens and recounts their field

experiences, such as tramping canyon trails and poking under hemlocks for *Chimaphila maculata* (spotted pipsissewa). Readers who skim the copy will miss his low-profile humor.

The Wampers have produced a work that is not a field guide but a beautiful volume that should increase awareness and appreciation of nature.

Annie Paulson Gillespie,  
Resource Botanist,  
National Wildflower Research Center

### Key Equipment Needed!

Administrative staff at the Wildflower Center need donated self-correcting electric typewriters to streamline operations. If you can help, please call Wendy Wood at (512) 929-3600.

### From the Gift Shop

Bright wildflower sprays handpainted on a favorite item, the Battersea box, have inspired a seasonal special! These enamel and copper boxes (1-1/2 inch diameter) are regularly \$110. Now:

Special nonmembers' price, \$99  
Special members' price, \$89

Add \$4.50 for shipping. Texas residents also add 6% sales tax. Send check to "Gift Orders," NWRC, 2600 FM 973 North, Austin, TX 78725.

### Wildflower Center News (continued from page 1)

the Legislature was not in session. In April 1988, the former First Lady was feted with a jubilee celebration in Washington, D.C., which expanded the Wildflower Center's endowment fund.

The new curriculum was initiated by the Texas State Teachers Association and developed in cooperation with the Wildflower Center. Ohio-based National Computer Systems, Hart Graphics of Austin, and United Parcel Service underwrote the project.

The Wildflower Center has been awarded a \$10,000 matching grant from the Texas Agricultural Diversification Program to study commercial seed production of *Castilleja* sp. (Texas Indian paintbrush). John Averett, research director, Katy McKinney, research botanist, and Elinor Crank, research hor-

ticulturist will conduct the research. Beth Anderson, resource botanist, received a grant from the Garden Writers Foundation to develop slide programs on wildflowers of five floristic regions.

An issue of concern — plant conservation and reintroduction — was addressed by the Second Texas Rare Plant Conference, cosponsored in March by the Wildflower Center.

From the Development Office...Did you know that national corporations and large local organizations often have Matching Gift Programs? Both donations and membership dollars can be multiplied up to fourfold. Even some small companies have these programs. Personnel offices can provide forms to complete and send with your check for a membership or donation.

### Celebrate Spring! Join the National Wildflower Research Center

Members of the National Wildflower Research Center support wildflower 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; special advance notice of and discounts to Center seminars; free wildflower information from the Center's Clearinghouse; a membership card signed by Lady Bird Johnson; 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 garden apron and invitations to special events.
- \$250 Center Sponsor. All the above plus annual limited edition wildflower poster.
- \$500 Trust Member and \$1000 Benefactor. All the above plus special privileges.

\* Thank you! Your contribution is tax deductible to the extent permitted by applicable law.

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- \* Make your check payable to: NWRC
- \* Mail to: Membership, National Wildflower Research Center, 2600 FM 973 North, Austin, Texas 78725-4201

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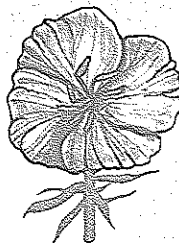
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