A non-profit organization dedicated to researching and promoting wildflowers to further their economic, environmental, and aesthetic use



Come to our Bloomin' Anniversary Celebration! On Saturday, Oct. 3, 1992, the Wildflower Center will benefit from the party of the decade — on the banks of the Pedernales River at the LBJ Ranch.

To mark the Center's 10-year anniversary, Lady Bird Johnson, our founder and co-chair, will open the grounds of the LBJ Ranch for a fundraiser to celebrate our first decade of growth and achievement.

The excitement begins in the late afternoon and lasts till sunset. Head-liner entertainment will be provided, as well as a variety of sumptuous country-style buffets in spacious tents under the majestic oaks along the riverbank. As you might imagine, the dress, in accordance with the party's theme, is "country casual"! As twilight nears, you'll be serenaded by the sounds of evening, and perhaps better understand the magical quality of a Texas Hill Country night.

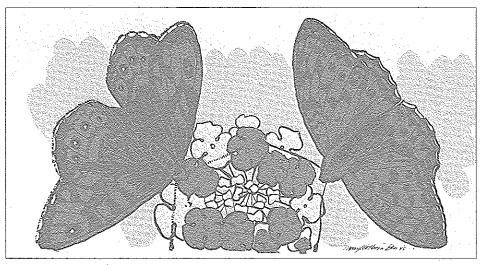
A treat is in store for those who haven't had the privilege of visiting the LBJ Ranch grounds, located 90 minutes from Austin. You'll never forget the gracious, sweeping setting!

An event committee, headed by Board of Trustees members Milly Holmes of Austin and Charlotte Strange of Houston, is planning the activities. We expect numerous out-of-town guests, and rooms have been set aside at special group rates at Austinarea hotels.

Ticket prices for this special Wildflower Center fund-raiser start at \$200 per person. Unique amenities will be provided to underwriters and sponsors. For further details, or to be included on our invitation list, please contact the Development Office, attention Marianne Pfeil, at the address listed on the back page.

We're honored to invite you to our tenth-anniversary celebration!

BUTTERFLY GARDENING



Watching iridescent butterflies flitting gingerly from flower to flower like so many bits of confetti bobbing in the sun can bring a smile to any gardener's face. Butterflies are second in importance only to bees as plant pollinators, and butterflies of a particular region often are specifically coadapted with that region's native plants. Local field guides increasingly are available to those who want to know which butterflies are common to an area and which native plants serve as nectar sources and larval host plants.

Like many other species, butterflies are suffering from the significant loss of native plant communities — a primary cause of overall species extinction. World population, urban development, agriculture, and pesticide use have resulted in fewer butterflies today than in the past.

But by protecting, restoring, and managing natural habitats in our own backyards, we can help protect these beautiful creatures by creating the conditions that promote invertebrate abundance and diversity, instead of destroying them. Reintroducing natural landscape elements into urban and

suburban neighborhoods may be one of the greatest contributions to ecosystem conservation that we can make.

Butterflies and native plant species depend on one another to survive. While butterflies pollinate the flowers, the plants provide butterflies with food, housing, and sometimes chemical protection. Eggs are laid on specific host plants, whose leaves provide ample food for the larvae. Judiciously selected nectar read on, page 3



Plant wiidflowers and native plants in your own yard or garden.

Director's Report

Water: the basis of all life

To grow, plants need water, carbon dioxide, oxygen, light, and soil nutrients such as nitrogen, potassium, and phosphorous. Although all are necessary for plant growth, water is one of the most critical. Soil nutrients enter plants dissolved in water; carbon dioxide and oxygen exchange occurs only at moist plant surfaces; water moves nutrients, food, and minerals through the plant; and plants wilt without the physical support from turgid (water-filled) cells.

Water is a unique liquid essential to all living organisms. As liquid water heats up, the molecules move more rapidly, and a higher percentage of them escape into the air. This is called evaporation; when it happens from plant surfaces (mostly leaves) it is called transpiration. Water available at the roots must match the transpiration loss at the leaves or the plant wilts. Plants in the wild develop root systems that match above-ground growth, balancing

water flow from the soil to the roots, into the plant, to the leaves and atmosphere.

When we place any plant that was propagated and grown in a container into a planned landscape, we must provide additional establishment watering until the mass of the plant's root system balances the above-ground mass of stems and leaves. How often, how much, and how long this supplemental watering must be provided differs for each plant species, soil type, and amount of rainfall.

A plant native to the local habitat (the soil type and rainfall) will achieve this water balance within one to two growing seasons and be well-suited to the soil pH, mineral content, microflora, and other elements of its habitat as well. Exotic plants may never achieve the water-in, water-out balance, and may continue to require supplemental watering, especially in the hot summer months. Other exotics might attain the water requirement balance but not be as well suited to other soil

and climatic features, requiring soil amendments, fertilizers, protection against insect damage, and protection against climatic extremes. Exotics that are truly adapted to local climatic conditions that can be used without long-term supplemental care could be well-suited to a mixed native and non-native landscape design for aesthetics. But for ecological enhancement, we recommend a community grouping only of indigenous native species.

Water is the key to life. But plants cannot chase it down or move to the closest pond for a daily rehydration, so we must understand the value of plants that can develop a balance between water loss and naturally available water. Water and the plants it supports are amazing parts of our world.



David K.
Northington, Ph.D., is executive director of the National
Wildflower Research
Center.

Wildflower

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Wildflower Center News

Wildflower Center Director Dr. David Northington will speak during the Great American Gardening Series at AmeriFlora '92 in Columbus, Ohio. His talk on gardening with native wildflowers is scheduled for 2 p.m. Aug. 22.

The Center has received a \$25,000 grant from the Meadows Foundation to participate in the Caminos Del Rio Heritage Corridor project. We will create a plan for the preservation and revegetation of native plants in the corridor, which extends 200 miles along the Rio Grande from Columbia, Mexico, to Brownsville, Texas. The Center is part of a group from the United States and Mexico working to preserve the area's historical, cultural, and natural heritage and develop the area into a coordinated tourism region.

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Kais Helenurm, a professor at San Diego State University, has been conducting a study of Texas bluebonnets (*Lupinus texensis*) at the Center. He's followed the growth of 1,300 plants from seedlings to their flowering and seed-producing stages. He wants to

determine if plants that begin as larger seedlings become plants that produce more flowers and seeds. The work supplements his greenhouse findings that larger seeds produce larger seedlings.

Beth Anderson, resource botanist, and Alison Hill, community ecologist, coauthored an article on how commercial seed producers can tap the restorationist market in the February issue of *Seed Industry Journal*.

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The Center is working with other Texas environmental organizations to advise the state on setting standards for organizations conducting science workshops for Texas teachers. The Center holds workshops each year for public school teachers.

Center botanists, volunteers, environmental groups, city, federal and Texas Dept. of Transportation officials recently rescued Eastern gamma grass at a state highway site near Plum, Texas. Grasses obtained in the rescue were planted at the Wildflower Center.

Create your own hulasty garden:

Whether you have a large house with extensive gardens and fields or a small garden apartment with a modest plot of yard space, you can attract butterflies. Much depends on your enthusiasm and how strongly you can squelch the need for neatness. Experiment and have fun!

Here are some steps for creating a beautiful, practical butterfly garden:

- Use regional field guides and butterfly lists to determine which butterflies occur in your region and which plants they use for nectar and larval food. Your yard may already contain valuable wildflowers, shrubs, and trees.
- Make the most of your natural setting. Butterflies like edges; plant low flowers at the edge of a lawn and high flowers at the edges of trees or along a fence.
- Locate a major part of the garden in a sunny, protected area. Butterflies are coldblooded and need sunshine to raise their body temperatures enough to fly on cool mornings. Place flat stones at various sunny locations in the garden for basking.
 - Provide windbreaks.
- Provide a good "pub" with a plentiful supply of nectar.
- Keep butterflies well-fed from early spring through early fall.
- Use large splashes of color. Butterflies are first attracted to flowers by color; a large flower mass is easier for them to spot. Members of the Compositae family such as asters, coreopsis, boneset, goldenrods, and

sunflowers are excellent nectar sources.

- * Leave young and old trees; butterflies like to perch on them and larvae may use them for food. Small trees such as hawthorns, buckeyes, and sumacs offer nectar and shelter.
- Provide host plants for butterfly larvae food. Don't get overly attached to the larval host plants, though, or you'll get upset when you watch hungry caterpillars eat them to shreds. They'll repay the plants indirectly by pollinating others at the next stage.
- Try to leave dead and hollow stumps and thick brush under some of the trees for butterflies to hide from predators and find warmth on rainy or colder days.
- Provide dampareas or shallow puddles.
 (But avoid sprinklers, which will wash the nectar out of the flowers.)
- Use integrated pest management to control pests. Don't use insecticides, herbicides, or fungicides anywhere near your butterfly garden, the larval food plants, or the adult nectar sources because they will kill larvae and adult butterflies. Manually treat any pest problem you have. If you have fire ants, get rid of them using a juvenile growth hormone such as Logic.

A Final Comment

Sometimes we get depressed when confronted with the multitude of environmental ills that plague us, to the point that we don't think that we personally can do anything about them.

But if we begin in our own backyards, each of us can make a diffèrence.

Noreen Damude Resource Botanist National Wildflower Research Center

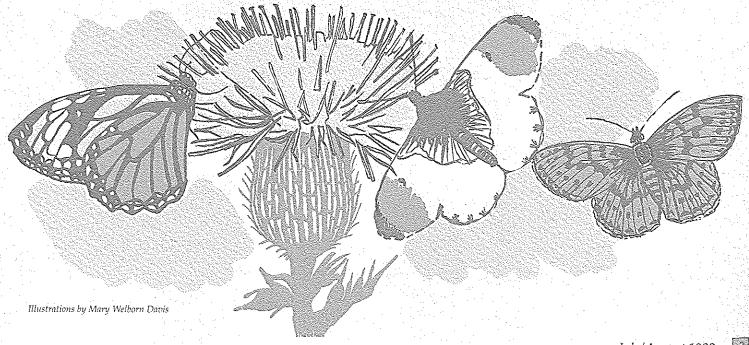
(For more information on butterfly gardening, members send a self-addressed mailing label to the address on the back page. Non-members please send \$2 for postage and copying.)

Butterflies, from page 1

plants provide fuel for adults in their quest to find mates and reproduce.

By planting local native plant species in a rich, well-planned butterfly garden, we can provide essential corridors between remaining patches of habitat and help repair the patchwork of healthy ecosystems that still exist. For every square meter you devote to your butterfly garden, you can save, besides butterflies, other beneficial invertebrates.

Noreen Damude Resource Botanist National Wildflower Research Center



Wildflowers receive STAMPS of approval

The U.S. Postal Service will issue 50 commemorative wildflower stamps July 24 at the AmeriFlora '92 gardening exposition in Columbus, Ohio.













passion-flower, plains prickly pear, red maids, rosebud orchid, round-lobed hepatica, rue anemone, sego lily, sessile

bellwort, shooting star, showy evening primrose, smooth Solomon's seal, standing cypress, stream violet, sweet white violet, tickseed, trumpet honeysuckle, Turk's cap lily, twinflower, Virginia bluebells, white mountain avens, wild columbine, wild flax, yellow

lady's slipper, and yellow skunk

Wildflower Center botanists helped the Postal Service select the wildflowers, which can be found in one or more states.

The Wildflower Center also assisted UniCover, Inc., with first-day covers that feature the stamps and information.

Wildflowers featured on the stamps are: bearberry, blue flag, bluets, bunch-

berry, California poppy, claret cup cactus, common sunflower, desert five spot, Dutchman's breeches, fireweed, fragrant water lily, fringed gentian, harebell, harlequin lupine, herb Robert, Indian paintbrush, Indian pond lily, Jack-in-the-Pulpit, large-flowered trillium, marsh marigold, meadow beauty, Mexican hat, moss campion; and, Ohi'a Lehua, pasqueflower,

It's HO HO A in the AO Southwest

Living in the Southwest means learning firsthand that nature's resources are not unlimited. Water is more precious, and growing seasons are condensed because of less rainfall than in other parts of the United States. But interesting and colorful species abound, and these books about earth-friendly landscaping in the Southwest should be valuable for many in North America.

* Southwest Landscaping with Native Plants. Judith Phillips. From arid to subalpine, tips on designing for low maintenance using arid land native plants; includes irrigation, nutrition advice, sample designs. 142 pages. Paperback. \$19.95.

 Plants for Dry Climates. Mary Rose Duffield and Warren D. Jones.
 Create a small oasis or garden spot in the Southwest desert regions. Photos throughout. 176 pages. Paperback \$14.95.

• How To Grow Native Plants of Texas and the Southwest. Jill Nokes. Comprehensive information and complete guide to the collection, propagation, and landscape use of more than 350 species of native trees, shrubs, and woody vines. 404 pages. Hardback. \$26.95.

• A Field Guide to Southwestern and Texas Wildflowers. Edited by Roger Tory Peterson. 1,505 species, more than 1,500 illustrations. Paperback. \$12.95.

 Native Texas Plants: Landscaping Region by Region. Sally Wasowski with Andy Wasowski. Innovative landscaping uses for hundreds of native Texas plants—categorized in detail from Houston to El Paso. 406 pages. Hardback. \$32.95.

• Texas Wildflowers. Campbell and Lynn Loughmiller. Field guide introduces readers to more than 300 wildflowers from 73 plant families. Includes rare plants, many species of cactus, and a wide variety of flowering trees, shrubs, and vines. 271 pages. 380 color photos. Paperback. \$12.95.

The Wildflower Gardener's Guide: California, Desert Southwest, and Northern Mexico. Henry W. Art. How to grow the most popular native plant species in this region, along with photographs and maps, as well as information on planting, propagation, light, temperature, soil requirements, and companion plantings. 176 pages. More than 60 color photographs plus illustrations. Paperback. \$14.95

Don't forget — members receive a 10percent discount! To order, please use the form below (or a photocopy). Please allow 10 to 15 business days for delivery.

Updated Handbook hits the stands!

It's here!

cabbage.

The second edition of the Wildflower Center's Wildflower Handbook is available now.

The completely revised Handbook, contains how-to's on using-wildflowers and native plants, lists of organizations and commercial sources of plants and seeds, and a list of professionals who emphasize designs using wildflowers and native plants.

This valuable resource for homeowners, landscape architects, botanists, ecologists, resource managers, conservationists, and developers is \$12.95, plus \$3 shipping. Please use the form below to order.

Get your copy today!

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| | Shipping (1-2 books: \$3.00, 3 books: \$4.00)+ |
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Crested Butte Wildflower Festival, July 6-13, Crested Butte, CO. Contact: P.O. Box 216, Crested Butte, CO 81224.

Biodiversity in Managed Landscapes, July 13-18, Sacramento, CA. Contact: Dr. Robert Szaro, USDA Forest Environmental Research, P.O. Box 96090, Washington, D.C. 20090-6090, (202) 205-1524.

Wild Kingdoms of the City, July 18, Columbus, OH. Landscape designer James Van Sweden speaks at AmeriFlora. Contact: Sherran Blair, First Community Bank of Ohio, 4300 E. Broad St., P.O. Box 717, Columbus, OH 43216, (614) 239-4680.

Leafy Spurge Symposium, July 22-24,

Lincoln, NE. Co-hosted by Great Plains Agricultural Council and Nebraska Leafy Spurge Working Task Force. Contact: NLSWTF, P.O. Box 130, Bassett, NE 68714.

Landscaping with Native Plants, July 22-25, Cullowhee, NC. Contact: Registration Office, Western Carolina University, Cullowhee, NC 28723.

Adirondack Wildflower Festival, July 25-26, Paul Smiths, NY. Contact: Adirondack Park, Box 3000, Paul Smiths, NY 12970, (518) 327-3000.

American Plants for American Gardeners, Aug. 1, Columbus, OH. Wayside Gardens horticulturist John Elsey. Contact: See "Wild Kingdoms" entry.

North American Prairie Conference, Aug. 6-9, Windsor, Ont., Canada. Contact: Paul Pratt, Parks and Rec. Dept., 2450 McDougall St., Windsor, Ont., Can. N8X 3N6, (519) 966-5852. Ecological Society of America & American Institute for Biological Sciences, Aug. 9-13, Honolulu, HI. Contact: ESA, 2010 Massachusetts Ave. NW, Suite 420, Washington, D.C. 20036, (202) 833-8775.

Society for Ecological Restoration, Aug. 9-14, Waterloo, Ont., Canada. Contact: 1207 Seminole Hwy., Madison, WI 53711, (608) 262-8547.

Eastern Native Plant Alliance Annual Meeting, Aug. 10-12, Connecticut College Arboretum, New London, CT. Contact: P.O. Box 6101, McLean, VA 22106.

Native Wildflowers: Habitat Gardening for the Future, Aug. 22, Columbus, OH. NWRC's David Northington. Contact: See "Wild Kingdoms" entry.

The Role of Native Plants in the Landscape, Aug. 27, Stevenson, MD. Contact: Irvine Natural Science Center, St. Timothy's School, Stevenson, MD 21153.

<u>Wildflower</u> Outlook

Jim Truax, manufacturer of the Truax drill seeder, has donated a wildflower seeder to the National Wildflower Research Center.

Wildflower Center botanists last Fall used the seeder to plant grass and wildflower seeds at the Center, and they anticipate using it in various projects around the Center and at its new site.

Truax, a Minneapolis native, says that his broadcast seeder design is user-friendly and better controls the seeding rate and distribution of wildflower and grass seeds.

Seed drills plant seeds in rows, so operators must make at least two passes in different directions over a site to provide a more natural look. The Truax design uses a baffle system to broadcast both wildflower and grass seeds so they are distributed over the entire area. A roller then presses the seeds into the soil.

Plus, other features have been added to the wildflower drill seeders to make them better able to accommodate the characteristically fluffy, irregularly sized seeds, adapt better to the rigors of rough

sites, and increase efficiency and versatility in planting.



According to *Horticulture* magazine, researchers Neil Anderson and Peter Ascher of the University of Minnesota Dept. of Horticulture have found that garden cultivars of purple loosestrife (*Lythrum salicaria*) are not sterile, as many in the gardening industry have claimed.

Purple loosestrife has long been the bane of Midwestern states, where the plants frequently overtake native plants. The plant is banned from sale in several states.

The Horticulture article said that the researchers, tested 17 purple loosestrife cultivars. The two found that when loosestrife cultivars come into contact with native loosestrife species, natural hybrids are formed. The resulting hybrids, in addition to being fertile, are widespread and invasive plants.



The United States Postal Service issued a recyclable stamped envelope in honor of Earth Day 1992 in April. The 29-cent stamped envelope is

printed with the words "Protect the Environment" and "Save the Rainforests." The stamp is a colorful photo of *Hillebrandia*, a genus in the Begonia family found only in Hawaii.

The envelope meets all E.P.A. recyclability standards for ink, paper, and adhesives.

Center membership: A great way to enjoy the summer!

As a member of the National Wildflower Research Center, you enjoy many benefits, including:

 Six issues of this newsletter, plus two issues of our scientific publication, Wildflower Journal.

 Priority handling of information requests to our Clearinghouse.

 Free or reduced admission to more than 80 botanic gardens and arboreta across the nation.

Why not share all these benefits — and more — with a friend? Send your friend's name, your name, and \$25 to: Membership, NWRC, 2600 FM 973 N, Austin, TX 78725-4201.

Here's a list of arboreta and botanic gardens that have a reciprocal agreement with the American Association of Botanical Gardens and Arboreta and the Wildflower Center. With proof of Wildflower Center membership, you can receive a combination of one or more benefits, including free or discounted admission, free parking, or gift shop discounts.

Arboretum at Flagstaff—AZ Arboretum of The Barnes Fdn.— Merion Station, PA Atlanta Botanical Garden—GA Berkeley Botanic Gdn.—CA Bernheim Forest Arb. and Preserve-Clermont, KY Bickelhaupt Arboretum—Clinton, IA Blithewold Gdns. & Arb.—Bristol, RI Botanica-Wichita, KS Brooklyn Botanic Gdn.—NY Cornell Plantations—Ithaca, NY Corpus Christi Botanical Gdns.—TX Crosby Arboretum—Picayune, MS Dallas Arb. & Botanical Gdn.—TX Dallas Civic Garden Center—TX Dawes Arboretum—Newark, OH Denver Botanic Garden—CO Des Moines Botanical Ctr.—IA Dixon Gallery & Gdns.—Memphis Dubuque Arb. and Bot. Gdns.—IA Fernwood Gdn.—Niles, MI Flamingo Gardens—Fort Lauderdale Folsom Children's Zoo and Bot. Gdn.-Lincoln, NE Fort Worth Botanical Garden—TX Fullerton Arboretum—CA Hayes Regional Arb.—Richmond, IN

HAVE A WILDFLOWER CENTED MEMBERSHIP? SEE THE WORLD!

Heathcote Bot. Gdns.—Ft. Pierce, FL Hershey Gardens-Hershey, PA Holden Arboretum-Mentor, OH Hoyt Arboretum—Portland, OR Huntsville-Madison Cty. Bot. Gdn.-Huntsville, AL Idaho Botanical Garden—Boise Jerusalem and University Bot. Gdn.-Israel Leila Arb. Soc.—Battle Creek, MI Leu Botanical Gardens-Orlando, FL Lewis Ginter Bot. Gdn.—Richmond. VA Live Oak Gdns. Fdn.—New Iberia, LA Living Desert—Palm Desert, CA Longue Vue Gdn.—New Orleans L. A. State & Cty. Arb.—Arcadia, CA Lvon Arb., U. of Hawaii at Manoa-Honolulu Massachusetts Hort. Society-Boston Memphis Bot. Gdn. Fdn.—TN Mercer Arb. & Bot. Gdn.—Humble, TX Minnesota Landscape Arb.— Chanhassen: Missouri Botanical Garden-St. Louis Mobile Botanical Gardens—AL Moody Gardens, Inc.—Galveston, TX Morris Arb., U. of PA-Philadelphia Muttart Conservatory—Edmonton, Alb., Canada Myriad Gdns.—Oklahoma City National Wildflower Research Ctr. N. Y. Botanical Garden—Bronx, NY Nichols Arb., U. of Mich.—Ann Arbor Norfolk Botanical Garden-VA N. C. Arb., U. of N. C.—Asheville Orland E. White Arb.—Boyce, VA Paine Art Ctr. & Arb.—Oshkosh, WI

Pennsylvania Hort. Soc., Philadelphia

Phipps Conservatory—Pittsburgh Quail Bot. Gdns. Fdn.—Encinitas, CA Rancho Santa Ana Bot. Gdn.-Claremont, CA Reeves-Reed Arboretum—Summit, NJ River Farm, American Hort. Society-Alexandria, VA Rodef Shalom Biblical Bot. Gdn.-Pittsburgh Royal Bot. Gdns.—Hamilton, Ont., Canada San Antonio Bot. Ctr.—TX Santa Barbara Bot. Gdn.—CA Scott Arb., Swarthmore College-Swarthmore, PA Sedgwick Gdns. at Long Hill Reservation—Beverly, MA Sherwood Fox Arb., U. of W. Ont .-London, Ont., Canada St. George Village Bot. Gdns. of Kingshill—St. Croix, U.S. Virgin Islands State Bot. Gdn. of Georgia—Athens Staten Island Bot. Gdn.—NY Strybing Arb. —San Francisco Tasmanian Arb.—Devonport, Tas., Australia Toledo Bot. Gdn.—OH Tucson Bot. Gdns.—AZ Tyler Arboretum-Lima, PA U. of Guelph Arb.—Guelph, Ont., Canada Washington Park Arb., U. of WA-Seattle Washington Park Bot. Gdn.—Springfield, IL Wilbur D. May Arb. & Bot. Gdn.— Reno, NV

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