

WILDFLOWER

The Newsletter of the National Wildflower Research Center

Volume 4, Number 4 Winter 1987

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

Wildflower Center Sows Seeds for the Country

Elinor Crank

September was planting month at the National Wildflower Research Center - research for the upcoming season has begun! These research projects will not only provide wildflower knowledge for Central Texas, but the methods and techniques developed here will form the model for researchers to implement in other regions of the country. Here is a listing of just some of the innovative projects Wildflower Center researchers, Katy McKinney and Elinor Crank, are pursuing for the upcoming season.

- **Wildflower combinations.** An extension of the 1986-87 project on learning how to mix wildflower species. This year bluebonnets and phlox will be used in varying proportions.
- **Large scale planting.** This study will help determine what kinds of ground preparation different wildflower seeds prefer. The following seeds will be compared: bluebonnets, as an example of large, round, heavy seed; horsemint which is small and oblong, and indian blanket which is fluffy.
- **Cut flower trials.** Vase life potential will be determined for all wildflower species growing in the Center's research plots. This includes Black-eyed Susan, horsemint, bluebonnets, and indian paintbrush.
- **Pollination biology of horsemint.** Visitation rates of insect pollinators will be recorded to determine if pollinators distinguish differences between the various colors of this species.

- **Staggered planting project.** Wildflower seed will be sown from the months of September through April. Data gathered from the 1986-87 season has been entered into a computer and this year's goal is to continue the study in order to gather reliable results.



Katy McKinney, Wildflower Center research botanist pictured above sowing seed in a staggered planting test plot, attended the conference of the American Association of Seed Officials in Roanoke, Virginia this summer. A resolution of wildflower seed regulations was submitted and passed. So look for more information in the future on wildflower seed standards in the industry.

Shop for the
Holidays at
Wildflower Days!

Set aside time for some good times on Friday or Saturday, November 20 and 21 from 10 am to 4 pm. Wildflower Days, which are special seasonal shopping days at the National Wildflower Research Center, will take place.

Quentin Steitz of Columbus, Texas will tell you how to dry grasses and wildflowers, then put them to glorious use in long lasting flower arrangements. Albert and Ann Rountree of Marshall, Texas will demonstrate wreathmaking using a fascinating assortment of natural pods, barks, nuts, and berries. Each speaker will give two presentations; please contact Alane Snider at the Center (512) 929-3600, for more details.

Hotline for Texas

The National Wildflower Research Center's Wildflower Hotline will blossom for the first time this spring. Due to an overwhelming amount of interest in wildflower sighting in the spring, the Center's Clearinghouse will provide special wildflower reports through a recorded phone message.

Just call (512) 929-3607 from March through May, and you will hear of all the Texas wildflower hot spots. This will include what is blossoming, as well as what highways and byways to travel to see spectacular displays.

The State Arboretum of Utah sponsors the Utah Wildflower Hotline, telling of their wildflower sightings. Call (801) 581-5322 for detailed descriptions of what's hot in Utah!

New Goals, Plans for 1988.

David Northington, Executive Director

This issue of *Wildflower* marks the end of the National Wildflower Research Center's first five years of existence.

Reviewing those years and the Wildflower Center's programs is exciting because of the public's response to our efforts. To a great extent, those responses guide our work and they range from encouraging to overwhelming in nature. We feel that we are on or ahead of schedule for all our primary research and education programs, and have initiated additional projects that were unanticipated or not planned for the first five years.

The information gathered through our on-site research, the development of over 200 fact sheets by the Center's Clearinghouse botanists, and the expansion of our education programs has all been made possible through the generous support and interest of our growing membership. According to experts, and even more importantly, the members themselves, our membership program offers excel-



Dr. David Northington

lent benefits and enjoys extremely loyal support. Members receive discounts to seminars sponsored by the Wildflower Center, reduced prices on all Center products, and access to our extensive library of wildflower literature.

The need for continued growth of our membership will become more important as we move into our next five years. If you are a member, you are part of a rapidly growing family of over 8,500 in every state of the nation.

We are excited about our future. The surface has only been scratched and the number of people who are taking a real and active interest in wildflowers is increasing at an unbelievable rate. The number of wildflower plantings we hear of each month alone indicates the scope of this interest and enthusiasm. Consequently, the need

poplars, sycamore, and many others.

The plant is spread by bird droppings which land on the tree after the bird has eaten the berries (it is obviously not poisonous to birds). The seed will germinate in the bark of the tree, spreading its roots into the vascular system of the host, drawing water and nutrients. An infected tree is often stunted and the host limb for the mistletoe will often die. Mistletoes are evergreen, giving a deciduous tree the appearance of being full of leaves in the winter.

There is no easy way to permanently remove mistletoe. Currently, the best method is digging the roots out of the wood with a knife. Any chemical used to kill the mistletoe would kill the host limb of the tree. Spreading of the parasite can be contained by cutting the flowers before fruit is formed.

The story of the mistletoe is interesting when one considers the unusual growth habit of this plant, along with the sacred and traditional role it has played. So this Christmas when you stand under the mistletoe kissing a loved one remember not to eat the berries and think of the ancient Druids who held the plant sacred.

Elinor Crank is a horticulturalist and research botanist working at the National Wildflower Research Center.

for the quality of information the Center provides is becoming more and more important.

As we head into this exciting future, we do so with a Jubilee Celebration for Lady Bird Johnson's 75th birthday, honoring her life-long dedication to this country's environment and natural beauty. From this December, through next April 1988, this is an opportunity for the entire nation to say 'thank you' to Mrs. Johnson for her commitment and tireless efforts on behalf of our nation's natural heritage of native flora. Her founding of the National Wildflower Research Center five years ago was a gift to the nation to help protect and perpetuate that beauty. With

DIRECTOR'S R-E-P-O-R-T

the nation's support and investment in securing the Wildflower Center's future, we can continue Mrs. Johnson's dream of seeing our wildflowers and native plants protected and reestablished.

We hope you will join us in this Jubilee Celebration, to endow the Wildflower Center's future. My best wishes to you all over the holidays, and may all our new years be filled with wildflowers!

Mistletoe has Ancient Traditions

Elinor Crank

The tradition of using the mistletoe plant at Christmas for decorating and kissing has ancient roots. The Druids of ancient Britain considered the plant sacred and used it in their winter solstice ceremonies. More recently, in the language of flowers, mistletoe means 'give me a kiss.' Young boys would hang mistletoe over a doorway and kiss any girl who walked under, giving her a berry. This custom of giving the berries is a curious one because the berries, along with all parts of the plant, are extremely poisonous.

Not only is the mistletoe poisonous to humans, but it is also parasitic to many woody plants. The genus *Phoradendron* has many species in many parts of the United States, all of which are parasitic on a variety of trees. Mistletoe can be found on oaks, ash, elm, mesquite, willow,

England's Wildflowers: Join Unique Tour

The second Tour of Wildflowers and Gardens of England is being sponsored by the Wildflower Center from June 7 to June 19, 1988. This is a unique opportunity to view special gardens and meadows, led by wildflower experts. You will have the opportunity to stay in picturesque private homes, enjoying the hospitality of host families and the gentry. When in London you will stay at the Naval and Military Club as a guest of Lt. Colonel Ronnie Adam.

The cost of the tour, London to London, is \$2,788. Advance reservations are recommended as the size of the tour is limited. Please call or write National Wildflower Research Center, attn: Wendy Wood, 2600 FM 973 North, Austin, Texas 78725 (512) 929-3600 for further information.

Cooperative Research Blooms in Southeast

Laura Martin

Botanical research. If the words bring to mind little old men in white coats measuring the rate of photosynthesis in a dusty laboratory, think again. But this time, don't think about little old men, but of vivacious and enthusiastic volunteers, and not of a dusty laboratory, but of a field of wildflowers at the edge of the woodlands at the Atlanta Botanical Gardens.

For the past two years the Atlanta Botanical Gardens has been pleased to be a part of a wildflower research project co-sponsored by the National Wildflower Research Center. This project, begun in the spring of 1986, was initiated to determine which wildflower species will grow best, what kind of soil preparation methods are most efficient, and when is the best time to plant wildflowers from seed in this area.

With increased interest in using wildflowers in home landscapes, as well as in larger landscape projects and along the roadsides, the need for research became essential. Because we wanted to duplicate roadside conditions as closely as possible, we asked to use a corner of the gardens with unimproved soil. Ask and you shall receive. The plot of land we were assigned had hard-packed, red clay from which the top layer of soil had been removed. We decided if wildflowers could grow here, wildflowers could grow just about anywhere. We are pleased to report that, yes, you can grow wildflowers just about anywhere!

During early spring of 1986 we laid out eight test plots, approximately 250 square feet each. In four of these plots, the existing vegetation was

sprayed with a general herbicide. The remainder of the plots were left untouched. In early April the four plots which had been sprayed were then tilled to a depth of 6 to 8 inches. Vegetation in the other four plots was left in place but cut very low and the plots were surface tilled to a depth of 1 to 2 inches.

A total of three different commercial seed mixtures were planted in these plots. The growers' recommended seeding rates were followed for each mixture used. The seeds, mixed with sand, were hand broadcast over each plot and then tamped down. The plots were then watered twice a week for the next several weeks.

One fact about growing wildflowers became distressingly clear in the first phase of our research. **Water is essential**, and water from a hose is not nearly as beneficial as rain water. Coinciding directly with the beginning of our research, was the beginning of the worst drought in our part of the country in over 100 years. The result! Water rationing and dried up wildflowers. Results the first year were disappointing.

In Fall 1986 we added two more plots to the research area, testing the effectiveness of a fall planting as opposed to a spring planting. Spring 1987 we replanted two of the plots which had shown virtually no growth, and added organic matter to the soil to determine what difference this would make.

Results during spring and summer 1987 were decidedly more satisfying than those of the previous summer. There was a relatively good show from the annuals planted in fall 1986 and spring 1987. The greatest display, however, was from the biennials and perennials planted in spring 1986.

After two years of research, there are several conclusions which can be drawn.

- **Sunny conditions are essential** for good blooming from nearly all of the plants included within most of the seed mixtures. One plot which received only partial sunlight produced almost no blooms.
- **Water is necessary** for the seedlings to become established and grow well.
- **Organic matter** added to the soil resulted in an increase of grasses and weeds, but no appreciably

greater number or size of wildflower blooms.

- The wildflower species which grew and bloomed well were almost all native to or naturalized within this area.
- No fall blooming wildflowers were included within the mixes, thus losing several months of color from species such as asters, ironweed, wild ageratum, and goldenrods.
- Several species of wildflowers included within the mixes grew and bloomed well, but were not visible as they could not compete in height with many of the wildflowers.
- **Either a fall or spring planting is viable.** Better results were obtained from our fall plantings due to more rain at that time. One word of caution about fall planting; a few annual species such as *Cosmos sulphureus* will germinate in the fall and will be killed back by the first frost.
- The plots which were tilled to a depth of 6 to 8 inches had fewer weeds and a greater concentration of wildflowers than those only tilled to a depth of 1 to 2 inches.

Based on the wildflowers included within the mixtures tested, we found that the following species performed well and were worthy of inclusion in a mix for the Southeast:

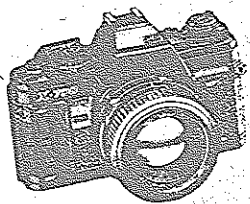
Annuals: Cornflower (*Centaurea cyanus*), calliopsis (*Coreopsis tinctoria*), sulphur cosmos (*Cosmos sulphureus*), annual phlox (*Phlox drummondii*), poor man's weather glass (*Anagallis arvensis*), rocket larkspur (*Delphinium ajacis*), annual gailardia (*Gaillardia pulchella*)

Biennials and perennials: Queen anne's lace (*Daucus carota*), ox-eye daisy (*Chrysanthemum leucanthemum*), butterfly weed (*Asclepias tuberosa*), coreopsis (*Coreopsis lanceolata*), purple coneflower (*Echinacea purpurea*), mexican hat (*Ratibida columnaris*), clasping coneflower (*Rudbeckia amplexicaulis*), Black-eyed Susan (*Rudbeckia hirta*).

During the third year of wildflower research at the Atlanta Botanical Gardens we hope to determine which annual species effectively reseed themselves, which perennial species become well established, and which, if any, species become so invasive that they begin to outgrow their welcome.

Wildflowers can add color and charm to many different areas. In addition, the use of our native plants will result in savings of time and money for both the homeowner and those who maintain very large tracts of land. We hope that the research from the Atlanta Botanical Gardens will initiate an increased use of native plants in our region.

Laura Martin is coordinator of native plant research at the Atlanta Botanical Gardens, author of *The Wildflower Meadow Book*, and a garden columnist for *The Atlanta Journal-Constitution*.



Wildflower Photography - Lighting

Beth Anderson

Wildflowers - those elusive creatures! We plant them. We pick them. We photograph them. But their beauty is ephemeral; their blooms fade; our pictures fail to capture their essence. So often the anticipation of viewing a roll of film turns into disappointment when the photos come back blurred or dark or flat. You might find yourself prefacing a home slide show with the words, "Well, it really looked a lot prettier than that, but..."

Wildflower photography is an art. Like any other medium, it takes years of practice and experimentation to perfect. There is a philosophy to photography that, to me, overrides the mere 'how to's' of film types, lenses, and camera gadgetry. In other words, the camera does not the photographer make. A good photograph should recapture the mood of the moment, evoke the experience of the photographer, or reveal the gestalt of a wildflower.

Eliot Porter, one of great nature photographers of all time, categorizes nature photography as either **centripetal** or **centrifugal**. In centripetal photography, all the elements of a picture converge to a central point of interest, such as a close-up of a blossom. Conversely, a centrifugal picture portrays a more active composition. It leads the eye to the edges and corners, allowing the viewer to speculate or create the

Through the Eye of the Camera

whole scene in their mind. As Porter notes, 'To be a successful work of art, a photograph must be pleasing and convincing; it must not leave the viewer in doubt of the validity of its subject, whether representational or imaginary.' All well and good, you grumble, but where do I begin! With the basics, of course.


One of the most important concepts in photography is lighting. Usually the best light for nature shots occurs in the mornings and evenings, when the light is softer and more diffuse. Contrary to popular belief, hazy or overcast days are especially good for photographing wildflowers. Such lighting enriches the colors of more delicate flowers that would be washed out in bright sunlight. Harsh mid-day sun also creates undesirable contrasts and shadows.

Many beginning photographers have problems with metering light. The exposure for any picture can be controlled by the aperture and shutter speed. Automatic cameras usually have one or the other programmed to adjust itself, simplifying the process. The aperture (or f-stop) controls the amount of light entering the camera when the shutter is open. The shutter speed is the length of time that the film is exposed to light passing through the lens.

Usually for non-action shots, such as scenery or close-ups, the aperture should be set first, to ensure sharp detail and focus. Generally, the smaller the aperture (or higher the f-stop), the more depth of field you'll have. One technique to practice in learning about the exposure of your camera is to 'bracket' your pictures. That is, to take shots one f-stop above and one below the optimum f-stop, as determined by your light meter. Remember: film is inexpensive!

The type of film you use should be selected with regard to your lighting conditions. Slower film is more fine grained and gives better resolution than higher speed film. For low light conditions, however, you must sacrifice some resolution and use higher speed film. Film companies are constantly improving on the wide variety of film types available. Again, try different kinds to see what they offer.

Special lighting can create beautiful effects. By choosing or happening upon the right time of year and season, you can take phenomenal pictures with interesting light combinations. Catching a landscape with unique light and dark contrasts, for instance, such as prior to a storm, can give a surrealistic or ethereal quality to an otherwise ordinary scene. Backlighting is another good technique for emphasizing textures in grasses or highlighting a flower stalk. To backlight a subject, you actually take the picture into the sun, at low light.

Of course lighting touches only one small aspect of the techniques to good photography, too numerous for a short article. There are many well-written, comprehensive books on photography. Do a little more research, then head to the fields in search of that captivating shot. 

For additional reading:

Pfeiffer, C. Boyd, 1986, *The Orvis Guide to Outdoor Photography*, Nick Lyons Press, NY.

Freeman, Michael, 1981, *The Complete Book of Wildlife and Nature Photography*, Adkinson Parrish Unlimited.

Porter, Eliot, *Intimate Landscapes*, 1979, Metropolitan Museum of Art.

Beth Anderson is a resource botanist at the National Wildflower Research Center.

FROM THE MAILBOX

December 11-12, 1987 - *Endangered and Sensitive Species of the San Joaquin Valley, California: A Conference on their Biology, Management and Conservation* at the California State College, Bakersfield, California. Contact: Linda K. Spiegel, California Energy Commission, 1516 Ninth Street, MS-40, Sacramento, CA 95814.

January 13-16, 1988 - *Restoring the Earth Conference 88* at the University of California, Berkeley, California. Conference seeks to make widely known the successful projects which have repaired damaged natural resources and recreated habitats and ecosystems in this country. Contact: Restoring the Earth, 1713C Martin Luther King, Jr. Way, Berkeley, CA 94709 (415) 843-2645.

February 4-5, 1988 - *The International Erosion Control Association Annual Conference* at The Fairmont Hotel, New Orleans, Louisiana. Topics covered include: urban erosion control planning; beach and shore erosion and a landslide symposium on slope stability. Contact: IECA, P.O. Box 195, Pinole, CA 94564 (415) 223-2134.

February 5-6, 1988 - *Wildflowers and Native Plants in our Planned Landscapes* in Denver, Colorado. Co-sponsored by the National Wildflower Research Center and the Denver Botanic Gardens in Denver, Colorado. Targets Rocky Mountain and Western states.

Contact: National Wildflower Research Center, Denver Conference, 2600 FM 973 North, Austin, TX 78725 (512) 929-3600.

August 7-11, 1988 - *Eleventh North American Prairie Conference* at the University of Nebraska, Lincoln, Nebraska. A call for papers. Titles for papers and abstracts are invited and due by March 1, 1988.

Contact: Dr. Thomas Bragg, Department of Biology, University of Nebraska at Omaha, Omaha, NE 68182-0040 (402) 554-3378.

Benefits Honor Lady Bird Johnson and Help Wildflowers Work!

Marilyn Latting

Lady Bird Johnson Honored by Dallas Benefit

A Jubilee Celebration commemorating the 75th birthday of Lady Bird Johnson will commence the evening of December 19, 1987, with a dinner and gala benefiting the National Wildflower Research Center. The celebration will be presented by Rosewood and the Crescent in Dallas, Texas. Lady Bird Johnson's birthday will be celebrated at the Crescent Court throughout December with a wildflower theme and native trees decorated for Christmas by Texas celebrities. These living trees will be a part of a special planting following the event.

Washington Celebrates 75th Jubilee

The blossoming spring flowers and trees of Washington, D. C., will be the setting for the highlight of the 75th Jubilee Celebration for Lady Bird Johnson. Mrs. Johnson will be honored for her lifetime dedication to promoting conservation and beautification throughout this nation. From her efforts in the nation's capital in the mid-1960's, to the establishment of the National Wildflower Research Center in 1982, Lady Bird Johnson has made the public aware of its need to conserve and preserve our natural heritage.

President and Mrs. Reagan, Mr. and Mrs. Richard M. Nixon, Mr. and Mrs. Gerald R. Ford, Mr. and Mrs. Jimmy Carter, Jacqueline Kennedy Onassis, and Mrs. Muriel Humphrey Brown will serve as Honorary Chairmen of the Washington celebration. General Chairmen are Mrs. James A. Baker III, former Trade Ambassador Robert S. Strauss, former Secretary of Labor William Brock,


and Mr. Benno Schmidt.

On Thursday, April 28, Lady Bird Johnson will be presented with a Congressional gold medal in recognition of her humanitarian efforts and outstanding contributions to the improvement and beautification of America. Following the presentation Mrs. Johnson will be honored during several days of activities and exhibits in Washington.

As beneficiary of the funds raised by the Jubilee Celebration, the National Wildflower Research Center extends to you a special invitation to join in the festivities. Make your plans now to be in Washington on April 28-29, 1988.

Wyeth Exhibit Draws Wildflower Enthusiasts

Key members and donors of the National Wildflower Research Center flew in to Dallas on October 8 to view the widely acclaimed exhibit, *An American Vision-Three Generations of Wyeth Art*, at the Dallas Museum of Art.

After a special tour by museum docents they departed for The Pink House, home of Patricia Patterson, for luncheon at her beautiful lakeside residence. Guests then boarded their chartered bus to travel to the Dallas Arboretum to walk through a preview of *Autumn at the Arboretum*, a glorious display of fall chrysanthemums enhanced by the presence of migrating monarch butterflies. An elegant tea was served at the East Oriental Gallery before the party headed back to the airport for home! 

Marilyn Latting is Director of Development at the National Wildflower Research Center.

Executive Director: Dr. David Northington
Editor: Mae Daniller
Art Director: Barry Gore

Wildflower is the newsletter of the National Wildflower Research Center. It is financed through contributions from friends. Material contained herein may be reprinted with the proper written acknowledgement of the editor. Address all correspondence to *Wildflower*, National Wildflower Research Center, 2600 FM 973 North, Austin, TX 78725.

B-O-O-K REVIEW

Annie Paulson

Southwestern Landscaping with Native Plants

by Judith Phillips

Museum of New Mexico Press, 140 pp, 1987.

As landscaping with native plants gains in popularity, so too has the need for landscaping and gardening books in this field. Whenever such a book is published it fills a giant gap, with landscape architects and designers voraciously consuming its contents. Judith Phillips is one of the few to produce an excellent reference for arid-land landscapers and gardeners.

As a transplant to New Mexico, Ms. Phillips quickly learned that trying to grow introduced cultivars in the arid southwest consumed vast resources and was at times impossible. She talks of trying to surround herself with familiar foliage, only to find the plants looked more homesick than she. This motivated her to learn more about southwestern natives and to give up traditional horticulture.

Southwestern Landscaping With Native Plants serves as a practical guide to utilizing southwestern plants. A discussion is included about how plants of arid areas have adapted to survive the harsh desert environment and how placement of plants can minimize the amount of resources used for maintenance. The author points out how important it is to see how plants grow in their native habitat, in order to properly design their placement and recreate an ecosystem within a site.

This book is a comprehensive reference. All aspects of using native plants are addressed such as developing a proper design, taking advantage of seasonal changes of plants, matching a design to certain types of architecture, and the actual planting and maintenance of the site. A section on starting plants by seed or by propagation from cuttings or division is helpful for those enthusiastic gardeners who prefer to start new plants.

The remaining text is devoted to plant profiles, which includes detailed information on sixty trees, shrubs and ground covers, including annuals, perennials, and grasses. Line drawings accompany each individual treatment, supplemented by numerous color photographs.

This book should be well received by both professionals and homeowners throughout the arid southwest.

Annie Paulson is a resource botanist at the National Wildflower Research Center.

Say Happy Holidays with Wildflower Center Gift Memberships

Holidays are a time for sharing. Send a gift to a special person that says you care about them and our nation's wildflower heritage - a National Wildflower Research Center Gift Membership.

A Gift Membership will entitle your recipient to this quarterly newsletter, *Wildflower*, the journal *Wildflower Report*, discounts on unique Center products, special advance notice and discounts to Center seminars, wildflower tours, a membership card and priority handling of your requests at the Center's Clearinghouse of wildflower information.

Please ensure that your application arrives at the Center by December 10; so we can notify your recipient of their gift by Christmas. Thank You.

- ✓ \$25 Supporting Member. All privileges listed above.
- ✓ \$50 Sustaining Member. All the above plus a set of specially commissioned wildflower notecards.
- ✓ \$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.

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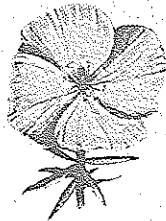
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Wildflowers Work!

Volume 4, Number 4 Winter 1987

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AUSTIN, TEXAS



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