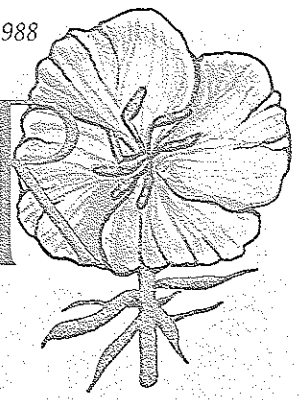


# WILDFLOWER



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

## Controlling Oak Wilt Through United Efforts

Oak wilt, a fungal disease closely related to Dutch elm disease, is spreading at an estimated rate of one-half block per year in urban areas, and 25 to 50 feet per year in rural areas. In communities with large populations of oak trees, the loss of these trees significantly alters the quality of life. As early as 1912, disease survey records describe mortality in oak stands in Minnesota and Wisconsin. Those descriptions are similar to what is now known as oak wilt. The disease was not described until 1941 in Wisconsin. By 1951, it was found in 18 states, north from Minnesota to Pennsylva-

nia and south from Arkansas to South Carolina. It was first discovered in Texas in 1961; its southern limit now extends into Central Texas.

Oak wilt is caused by the fungus *Ceratocystis fagacearum*. The disease spreads by a sap beetle in the Nitidulidae family. Although all species of oak tested have been found susceptible to oak wilt, red oaks and white oaks react differently to the fungus. Whereas red oaks often die within one to four weeks after infestation, white oaks will either perish quickly or last many years. A variety of foliar symptoms, such as browning

leaves and specific patterns of chlorosis (yellowing) and veinal necroses (leaf veins turning brown), indicate infection.

Fungal growth occurs in the xylem, which are the vessels that conduct water and nutrients from the roots to the leaves. In an attempt to protect itself from the fungus, the tree produces gums and other secretions that block its water supply and cause wilting. By the time symptoms of the disease appear, the fungus has probably spread throughout the

(Continued on page 5)

## Jubilee Celebration Expands Endowment



President Reagan awards Lady Bird Johnson a gold Congressional medal at a White House Ceremony.

The Jubilee Celebration, held in honor of Lady Bird Johnson's 75th birthday during April of this year, raised over \$1 million from friends and supporters of the National Wildflower Research Center across the nation. The majority of this amount will be added to the Wildflower Center's endowment, known as the Lady Bird Johnson Endowment Fund. Mrs. Johnson is founder and co-chair of the Wildflower Center.

The two days of celebrations in Washington D.C. were successfully co-chaired under the leadership of Dorothy McSweeney and Walter Washington. Mr. Washington was Mayor of Washington D.C. while

Mrs. Johnson served as First Lady. During that time she spearheaded the nation's efforts on behalf of beautification and conservation, which she has continued. Honorary chairmen of the event were President and Mrs. Reagan, Mr. and Mrs. Richard M. Nixon, Mr. and Mrs. Gerald R. Ford, Mr. and Mrs. Jimmy Carter, Jacqueline Kennedy Onassis, Mrs. Muriel Humphrey Brown, and the Speaker and Mrs. Jim Wright.

One of the highlights during those two days was the presentation of a Congressional gold medal to Mrs. Johnson by President Reagan in the White House. The medal is inscribed with the words "Dedicated to the Beautification of America".

# Director's Report: Research

It is a pleasure to introduce in this issue of *Wildflower* our research staff and our Research Director, Dr. John Averett. Thanks to a grant from the Meadows Foundation, the Wildflower Center was able to initiate a search for a Research Director last January. That search concluded this summer with the hiring of Dr. Averett who will officially join the staff September 1.

Dr. Averett comes to the Center from the University of Missouri - St. Louis where he was the Chairman of the Department of Biology. He was a faculty member of that department since 1970. With over 40 technical publications in the area of plant systematics and secondary compound analysis and over \$200,000 in total research funding, Dr. Averett brings exceptional credentials to the Center.

In addition to his position with the University of Missouri - St. Louis, Dr. Averett has also been a Research Associate with the Missouri Botanical Garden since 1970. The Missouri Botanical Garden is widely known as one of the foremost research gardens in the world and over 40 mem-

bers of the professional staff hold doctoral degrees.

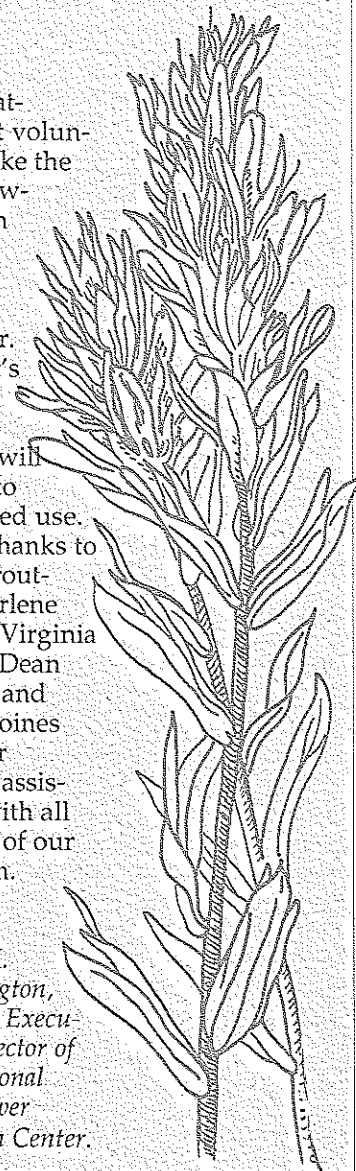
One of Dr. Averett's first goals is to work with the research staff of the Center to identify which existing programs merit continuation or expansion. In addition, he will evaluate several new projects and explore potential cooperative studies in several regions of the country. These evaluations will be made easier as Dr. Averett will be joining an excellent research staff.

Katy Kramer McKinney has been with the Center since 1985 and is responsible for all the field plots and planting trials. Katy has her master's degree in botany from the University of Texas at Austin and her bachelor's in biology from the University of California, Riverside. Elinor Crank joined Katy in 1987, as our Research Horticulturist. Elinor received her bachelor's degree in botany from the University of Texas at Austin and her master's degree in horticulture from Texas A&M University. Nine years experience in the nursery industry has given Elinor an outstanding background for her greenhouse, shadehouse propagation, and landscape planting responsibilities.

Making it possible for Katy and Elinor to pursue their numerous concurrent projects are some of our most dedicated

and heat-tolerant volunteers (like the wildflowers with which they work). With Dr. Averett's arrival, their talents will be put to expanded use. Many thanks to Walt Troutman, Arlene Carter, Virginia Ehrler, Dean Patton, and Verna Joines for their willing assistance with all aspects of our research.

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



## Wildflower

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## Fall Wildflower Activities

The National Wildflower Research Center's annual **Fall Seminar** will be on Thursday, September 15. Entitled *Restoring Nature in the Urban Environment*, the session will include a presentation on natural landscape restoration, by David Mahler of Environmental Survey Consulting; using native plants, by Agnes Hubbard of Lone Star Growers; creating natural areas, by Chuck Sexton of the City of Austin; and wildflower establishment, by Beth Anderson of the Wildflower Center.

The seminar will be held from 6:15 to 9:30 P.M. only at the LBJ School of Public Affairs in Austin, Texas.

Register by mail or at the door prior to the session. Tickets are \$10 for members, students, and retired people, and \$15 for non-members. For more information call Elinor Crank at (512) 929-3600.

Mark down the weekend of November 12 and 13 as **Wildflower Days**, the Wildflower Center's special shopping days for Christmas. This is your chance to stock up on hard-to-find wildflower gift items, see artists at work, and enjoy the welcoming warmth of the Center's staff and volunteers conducting demonstrations and tours. Watch for further information in the next newsletter.

# Bransfords Photos Aid Wildflower Work

There are those of us who dream dreams. Then there are the lucky ones whose lives reflect their dreams. Bill and Dolphia Bransford are two of that rare breed. Tucked away in a tiny Texas town, this gracious, unassuming couple might well be two of the foremost wildflower experts in the country. For the past 25 years they have traversed the United States and Canada, stalking wildflowers in bloom, armed with cameras and a burning desire to learn. Their devotion to wildflowers is evident in every picture in every room of their house, in the worn botanical volumes on their bookshelves, and in the sparkle in their eyes as they relate their stories.

Born and raised in rural Texas, Bill and Dolphia met on a blind date in Coleman, Texas. After a year's courtship, they joined in a partnership that has spanned almost half a century. Appropriately, they celebrated their 49th wedding anniversary this year on Texas Wildflower Day, April 23.

Bill and Dolphia have always been attuned to the outdoors, having grown up on a ranch and farm, respectively. During the early years of their marriage, they spent many summers fishing for salmon in British Columbia, or hunting big game in the Rocky Mountains. Wildlife became the logical subject for Bill's earliest photographic attempts. Dolphia had more of an interest in wildflowers. Thirsting to learn their names, she encouraged Bill to take close-ups of the flowers, for identification purposes. Dolphia also pressed many wildflowers for future reference.

Twenty-six years ago, wildflower identification books were scarce. Although the Bransfords began their identification by trial and error, with occasional help from National Park or Forest Service botanists, many of their specimens were put on hold until more detailed books were published. The scope and detail of their photographs reflect hours of patient attention to the life cycle of each flower. "A lot of the wildflower books are written by people who never really see the flowers, and watch them grow," muses Bill, with a



Bill and Dolphia Bransford, founders of the Highland Lakes Wildflower Club in Central Texas, at a recent wildflower identification seminar.

shake of his head. "You've got to get out there and dig to study them. When you really look at a flower, you get attached to it; but you have to really look at it." "You don't learn wildflowers, 'til you see them in the wild," adds Dolphia.

Although originally employed as a welder, Bill later bought a fishing resort and marine business at Inks Lake in Texas, which the couple managed for the next 18 years. In 1963 Bill retired and the couple began their nomadic lifestyle. Often on the road for six to eight months at a time, the Bransfords alternated between their camper and trailer as temporary homes. Though they cataloged most of their slides during the winter, Dolphia often spent hours in the trailer, identifying. Far from being a burden, the task had its own rewards. "It's such a joy to know their names," she explains.

Their joyful quest unveiled more than just the beauty of wildflowers. On their travels, they met many dedicated botanists, both professionals and amateurs. They frequently tracked down, or recorded locations of endangered species for park botanists.

The Bransfords returned to favorite spots, sometimes eight or ten times.

"Bill is gifted," notes Dolphia. "He can remember every place he took pictures." Sometimes they would return to find meadows, once grazed by sheep; or fields of California wildflowers replaced with vineyards. In their thirty-some years of trekking, they have found dramatic changes, which both sadden and alarm them. Major ecological changes have taken place in flora and fauna. Take grackles, for instance. "You never used to see them," says Bill. "And wildflowers are being overtaken by exotics and invasive weeds. There's vegetation all around that wasn't here when I was growing up."

Thousands of slides later, the National Wildflower Research Center entered the picture. Shortly after the Center's conception, the Bransfords wrote to Lady Bird Johnson, founder of the Center, inquiring of the need for slides. With drawers overflowing with valuable slides, they were extremely concerned with where to house them safely. Never ones to blow their own horns, the Bransfords wrote the letter at the urging of Dolphia's sister-in-law, Mary Lindley. "Mary always thought Bill hung the moon with his wildflower pictures," laughs Dolphia. So what

*(Continued on page 4)*

# Conserving Natural Resources

The need to conserve our natural resources has concerned many in the United States for over 100 years. Today this need is even more apparent as many of these precious resources risk disappearance. With continued development as a modern society, conservation efforts must increase. The definition of conservation according to Webster's Dictionary is "a careful preservation or protection of something; planned management of a natural resource to prevent exploitation, destruction or neglect." When one conserves natural resources, their loss or destruction is prevented.

Many organizations in the United States, including the National Wildflower Research Center, are dedicated to conservation. Some, such as the Soil Conservation Service, seek to conserve the life-supporting soil necessary to grow crops and vegetation. Others are dedicated to the conservation of precious water. The Wilderness Society and the Nature Conservancy are devoted to the conservation of plants and animals. Although the direction and emphasis of these organizations vary, they share as a common goal the conservation of natural resources. These natural resources are interdependent; each one relies upon the existence of another.

Animal conservation is dependent upon plant conservation, which is

dependent upon soil conservation. Soil conservation is in turn dependent upon vegetation for stability and vegetation is dependent upon animals for pollination and seed dispersal. This interdependency becomes more evident when one attempts to protect endangered plants and animals. Both habitat (the area where a plant grows naturally) and ecosystem (the community of animals, plants, and bacteria) conservation are essential.

Some conservation organizations create preserves where land is set aside and managed judiciously. In wilderness areas the rights of the land are pre-eminent. The concepts of conservation and preservation unite in a partnership to prevent disturbance of an area by humans.

How does one achieve the conservation of an ecosystem that has already been severely modified or even destroyed? How can one replace those plants and animals that have been removed through development and site disturbance? Here conservation assumes a more active role, becoming a creative force rather than just a protective one. This variety of conservation seeks to prevent the total loss of a species from a particular site. Most organizations working in this area propagate a species outside the natural region and repatriate it when it has grown to a

transplantable size. Propagation of native plants and wildflowers, and the breeding of wildlife give nature aid in replacing what has been removed. When a natural system has been destroyed, it is difficult for the native species to return unaided. Invader species have usually entered the area and attempt to out-compete the fledgling native species. In addition, the soil chemistry may change when a habitat is destroyed. Through propagation and reestablishment, one can replace the native species which, once established, can usually survive. It is important to ensure that the species propagated and reestablished are indigenous to the site and that no artificial selection has occurred that might have changed the natural and beneficial characteristics needed by the species to survive in the wild.

One can assist in the conservation of this country's natural resources and insure their existence in the future in numerous ways. Through protection of the environment, that which exists can be maintained. Through proper propagation and reestablishment of native species, that which has been destroyed can be replaced for future generations.

*Elinor Crank is a research horticulturist at the National Wildflower Research Center.*

## Bransfords...

*(Continued from page 3)*

better place to send them than a Center created for wildflower research?

The Bransfords turned to the growing Wildflower Center slide library, adding hundreds of slides to the over 6,000, of both individual species and landscapes, that reside at the facility. These slides are used by teachers, highway departments, landscape architects, and botanists. Since affiliating themselves with the Center, their road trips have taken on an additional task, that of wildflower ambassadors. With the National

Wildflower Research Center sign affixed to their truck, they often return from a hike to find a crowd of eager folks filled with questions, waiting for them. "We've even had people chase us down the road, to ask us about wildflowers," smiles Bill.

Now in their mid-seventies, the Bransfords are ready to stop crisscrossing the nation, and concentrate on their home state. They had purposely neglected Texas, saving it for a time when they would curtail their extensive trips. That day has arrived. They are ready to really "work" Texas, by taking short trips throughout the year. In addition to their strong support of the Wild-

flower Center, the Bransfords have organized a Wildflower Club for their own Highland Lakes area in Central Texas, which boasts a devoted membership. They also present programs for local groups, and donate any proceeds to the Wildflower Center. "Let's face it," says Bill, realistically. "Someone has to carry it on when we're gone." With that kind of support and dedication, the Wildflower Center can only go forward, with experience, knowledge, and remembrance at its back.

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

# Fall Planting Reminders

Fall is the season, in many areas of the country, to plan for spring wildflowers. Here are a few tips and ideas to take into consideration for planting a small-scale wildflower garden of your own.

**When to plant.** While planting times vary according to species and particular regions of the country, fall months are the ideal time for sowing most species of wildflowers. In the southern states, many annuals overwinter as seedlings to develop hardy root systems for the spring. Other species need cold wet winters to induce germination.

**Ordering seed.** If you order seeds by mail, now is the time to obtain catalogs and plant lists. Do you want species for a sunny area, or does your garden only receive dappled shade? Do you want plants of a specific height or color, or a mixture of each? Native species will thrive and reseed themselves more successfully than non-natives and are recommended. Seeding rates should be listed on the seed packages. Using the recommended rates, you can calculate the amount of seed you will need.

**Preparing the beds.** The main objective when preparing the seed bed is to provide good seed/soil contact.

Remove weeds by either tilling repeatedly or applying a herbicide. Be sure to use one that is non-residual. Rake the soil to create a smooth surface for planting.

**Sowing the seed.** A small amount of wildflower seed goes a long way! When hand broadcasting the seed, mix it with damp sand to ensure even distribution. Rake the seed in lightly and do not bury it too deeply. Tamp down the seed bed after sowing.

**Maintaining the garden.** Keep the area moist during the first few weeks after planting if the rainfall is lower than average for that period. Supplemental watering during later growth stages will ensure healthy plants and prolonged blooming. In general, wildflowers do not need fertilizing as that may encourage excessive foliage, at the expense of flowering.

**Reseeding.** Do not cut your wildflower area until the seed has matured. Be patient, as wildflowers can look unkempt in the seed stage.

For more details on recommended species, seed sources, and good references for native plant landscaping, write to: Clearinghouse, National Wildflower Research Center, 2600 FM 973 North, Austin, Texas 78725-4201.

# From the Field

**September 15, 1988** *Restoring Nature in the Urban Environment*; LBJ School of Public Affairs, Austin, Texas. Includes how to restore natural landscapes, creating natural areas, and wildflower establishment. **Contact:** Elinor Crank, National Wildflower Research Center, 2600 FM 973 North, Austin, TX 78725 (512) 929-3600.

**September 24 and October 15, 1988** *Knowing Native Plants*; Bowman's Hill Wildflower Preserve, Washington Crossing, Pennsylvania. Classes cover wildflower and tree identification. **Contact:** Bowman's Hill Wildflower Preserve, P.O. Box 103, Washington Crossing, PA 18977 (215) 862-2924.

**October 28 - 29, 1988** *Mid-South Native Plant Conference*; Memphis State University, Memphis, Tennessee. Focus on what native plants are best for the local area. **Contact:** Larry Wilson, Lichterman Nature Center, 5992 Quince Road, Memphis, TN 381119.

## Oak Wilt...

(continued from page 1)

conducting tissues of the tree. Pin oaks and shumard oaks were heavily affected in the Midwest.

Fungal mats occur only in red oaks and form immediately under the bark, often causing it to split open. Cool, wet weather in spring or fall initiates fungal mat formation and beetle activity. The sweet odor of these mats attract insects that later transfer spores to healthy trees. The beetles must enter through a wounded area, such as a newly trimmed branch. The occurrence of fungal mat production, insect activity, and pruning make for a deadly combination. Many of the suggested controls address this combination. Although fungal mats do not form on white oaks (live oaks fall into this

category), insects can carry spores to either red or white oaks.

Root grafting, a common occurrence in live oaks, can play a role in transmitting the disease when roots of an infected tree unite with a healthy tree. The fungus then spreads from the roots of diseased trees to healthy ones.

Control strategies include both simple and drastic measures. General recommendations are:

- Do not wound trees (this means pruning) in spring or fall. If it is necessary to prune during these cool, moist months, dress the wounded areas.
- Burn wood from diseased red oaks immediately. Burning destroys spores.
- Firewood from unknown origins

should be burned during one winter and should not be stored for later use because of the danger that insects will spread the fungus.

- Remove infected trees immediately.
- Clearcut diseased trees on large acreages along with a buffer zone. Digging a trench in rural settings prevents root grafts in live oak groves and discourages the establishment of "oak wilt centers".

In areas where oak wilt is a threat, county extension agencies and the Forest Service produce publications to further educate the public on how to diagnose the disease and prevent further losses. With current knowledge and unified efforts, it is possible to reduce the incidence of the disease.

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



## Houston Planning and Planting Demonstration

The National Wildflower Research Center is co-sponsoring a wildflower seminar and demonstration day on October 21, 1988 in Houston, Texas. A morning session at the Harris County Extension Service Auditorium in Bear Creek Park will feature speakers who will cover wildflower planting as well as ground preparation techniques.

Following a barbecue lunch, participants will see demonstrations of hand seeding techniques and the most sophisticated equipment available for larger planting projects. Tickets cost \$25 per person. For more

information write to the National Wildflower Research Center, 2600 FM 973 North, Austin, Texas 78725-4201.

## Preference Service

The National Wildflower Research Center exchanges the names of its members and donors on a limited basis with similar organizations in order to broaden its membership base. If you would prefer that your name not be exchanged, please cut out your mailing label from this newsletter and attach it to a note requesting this service addressed to: Preference Service, National Wildflower Research Center, 2600 FM 973 North, Austin, Texas 78725-4201.

## Tour of O'Keefe Exhibit Planned

On Thursday, October 6, a group of Wildflower Center friends will spend a special day in Dallas. The activities will include a guided tour of the Georgia O'Keefe exhibit at the Dallas Fine Art Museum, a tour of a private art collection, and luncheon at a lakeside home. A similar excursion last year was over-subscribed. If you wish to make a reservation, please call Christina Allday-Bondy at (512) 929-3600. Tickets are \$250 each and include airplane fare from Austin, Houston, or San Antonio as well as a tax-deductible contribution to the Center. Special airfare arrangements can be made for other cities.

## Gift Membership Application: Send a gift membership to someone special!

Members of the National Wildflower Research Center support wildflower work across the nation. Benefits include *Wildflower*, the newsletter and *Wildflower, Journal of the National Wildflower Research Center*, 10% discount on unique Center products, special advance notice of and discounts to Center seminars, wildflower tours, a membership card and priority handling of requests to the Center's Clearinghouse of wildflower information.

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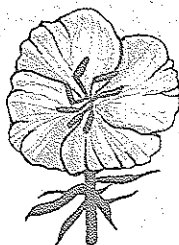
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