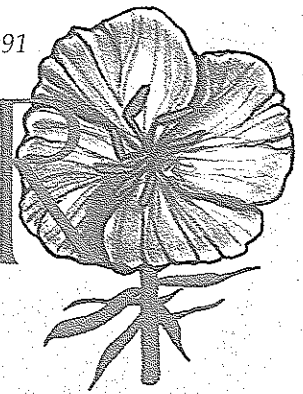


WILDFLOWER



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

Fall is the time to appreciate the beauty of native grasses

Fall is the season to show off the glory of native grasses. Grasses are some of the world's most common plants, but they are often overlooked and under-appreciated, perhaps because they are not as striking as some of our more common showy wildflowers. We often don't even see the true grandeur of grasses because we choose to mow them to a "tolerable" height, generally less than four inches.

Autumn is an ideal time to learn to identify our native grasses because most of them flower and produce mature fruit then. The seedhead and flower are important characteristics to use when identifying grasses. It is better to use reproductive features to help identify grasses because they are less variable than some of the vegetative characteristics, such as hairiness and length of some appendages like the ligule and awn.

Don't let grasses intimidate you. Anyone who is determined to identify grasses can learn with a little practice. If you have problems understanding the terms used to describe the grass parts, keep a good glossary with plenty of diagrams close at hand.

For those who think grasses are too hard to tell apart, look closer. Get a hand lens (10X) and dissecting needles so you can isolate the plant parts and see them in greater detail. Grasses do not all look alike; you don't have to have steady hands and keen eyesight to identify them — all you really need is a taxonomic key and a regional or local source book for

read on, page 5

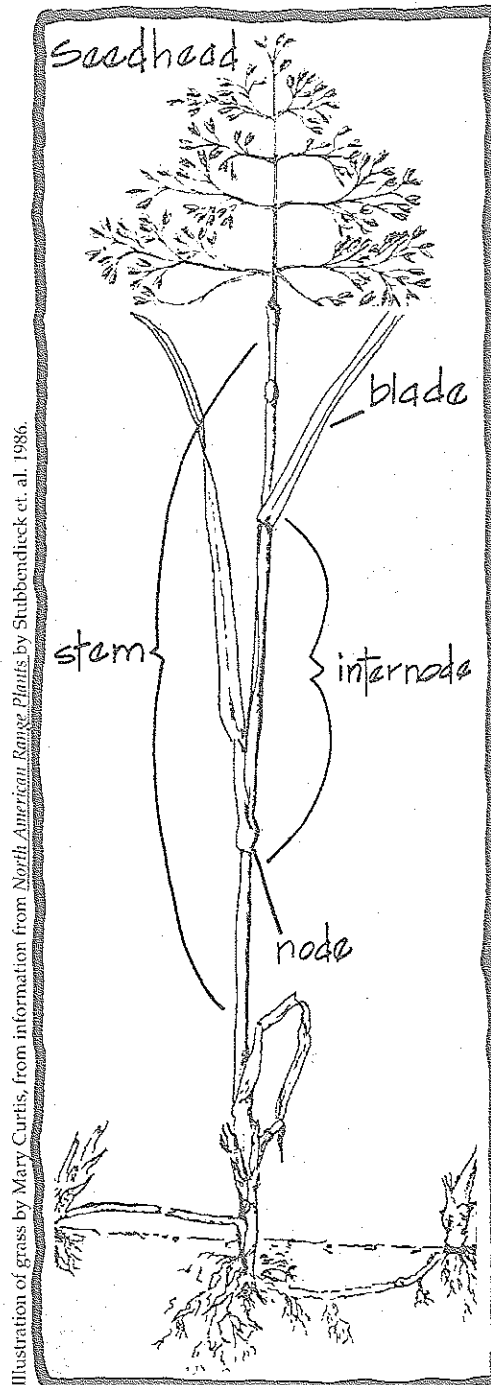


Illustration of grass by Mary Curtis, from information from *North American Range Plants* by Stubbendieck et. al. 1986.

WILDFLOWER CENTER LAUNCHES CAPITAL CAMPAIGN

The trustees of the National Wildflower Research Center have announced plans to embark on an \$8-million building and endowment program to create a new home in Austin for the Wildflower Center.

The new 32,000- to 36,000-square-foot Wildflower Center facility will house educational classrooms, an expanded visitors' gallery, library, laboratories, offices, and support space. The outdoor space will include numerous display gardens, as well as greenhouses, a potting shed, and other buildings necessary to support the Center's field research and public education programs.

"Since our founding in 1982, the Wildflower Center has received national recognition for its special work in the fields of conservation and ecology, and

read on, page 6

Teachers, try teaching about wildflowers and native plants! If possible, include a wildflower planting on school grounds.

GIFTS INSIDE

Director's Report

The Wildflower Center continues growing—thanks to you!

Historically, summer is when the National Wildflower Research Center staff reviews, evaluates, reassesses, and plans. I always look forward to this process, especially this year.

Even with the specter of a national recession and other economic concerns, we have finished eight straight years of continued programmatic and staff growth "in the black," due in large part to the loyal and generous support of our membership — thank you!

During this growth, we have concentrated on developing a sound scientific base. We are pleased with the national credibility we enjoy with other environmentally concerned organizations, agencies, and related for-profit enterprises. Our research continues to place us at the forefront of native plant propagation, establishment, and use, as well as in the crucial area of natural community enhancement

and re-establishment.

Our national visibility as a scientifically based organization is steadily increasing and has led to recognition of the Wildflower Center's contribution of rational solutions to many of our nation's ecological and environmental problems. This recognition will create new opportunities for program growth and outlets for providing environmental solutions.

One of these opportunities is especially exciting. Our Board of Trustees voted at its spring board meeting to initiate a Capital Campaign to build a new facility. In addition to much-needed operational space, this new facility will include a much larger visitors' education area and significantly expanded outdoor educational displays and demonstration plantings.

Although the project is only in the earliest stages, we are especially pleased with the prospect of being able to accommodate many more visitors than we currently can, and

having much more for them to see and do when they visit. By June this year, we already had seen more visitors than in all of 1990 (and last year was much larger than 1989), so we know how important it is to include a major visitors' program for the new facility.

We will keep you, our members, well informed as we move through the planning and into the funding phase of *your* new facility, and we look forward to the day when we have additional room for you to enjoy during your visit.



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

Wildflower

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WILDFLOWER CENTER NEWS

Wildflower has received a 1991 Clarion Award from Women in Communications Inc. The newsletter won the award for its "creative, concise, and effective communications excellence." The award will be presented in October at WICI's national meeting in Atlanta.

Bonnie Harper-Lore, program coordinator for the Center's Midwest Regional Office, will present the paper, "Teaching Teachers to Design Their Own Outdoor Classrooms," at the North American Association for Environmental Educators national conference in St. Paul, Minn., in September.

The Wildflower Center's Board of Trustees will hold its fall meeting in Jackson, Wyo., Sept. 13-15.

The Wildflower Center's Midwest Regional Office will sponsor a conference on the preservation and use of native plants on Saturday, Oct. 5, at Normandale Community College in Bloomingdale, Minn. The conference, "Native Plants: Your

Backyard and Beyond," will cover a wide variety of subjects. For more information, please contact the Midwest Regional Office at 725 Spring Hill Road, Wayzata, Minn. 55391, (612) 475-0045.

The Wildflower Center will hold its annual Membership Open House Oct. 25 in Austin. Watch your mail for details!

The Wildflower Center's annual Bluebonnet Blast! festival will be Saturday, Sept. 28, from 10 a.m. to 4 p.m. The free event, open to the public, will feature wildflower seed planting demonstrations, native plant and seed sales, children's activities, and wildflower gifts.

Wildflower Center botanists are working closely with teachers at W.H. Taft High School in San Antonio, Texas, to design a six-year project to teach students natural history, basic biology, and ecology through experiments with wildflowers and native grasses on the school grounds. The project is funded in part by a GTE grant.

The basics of identifying grasses

Learning to identify grasses can be a baffling experience for a beginner unless you understand the terms used to describe the various parts. To help you develop a vocabulary and to simplify the terminology, we'll use familiar words and put their corresponding scientific terms in parentheses. These technical words are found in most taxonomic keys and source books.

What are grasses? Grasses are herbaceous plants that consist of stems (*culms*), roots, leaves (*blades*), and a seedhead (*inflorescence*) of small flowers (*spikelets*) (see page 1). The structure of a grass is as easy to understand as that of any other plant, if you remember that grasses have both vegetative and reproductive parts.

Grasses have stems that are made up of a series of swollen joints (*nodes*) that produce the leaves, branches, roots, and sections between those nodes, called *internodes*. The leaves are typically long, narrow, stalkless, and flat, but

can be V-shaped, folded, or rounded.

At the intersection of the blade and stem is a tongue-like extension or appendage called the *ligule*. The ligule is either a parchment-like structure or a ring of hairs. The region on the back of the leaf, at the same intersection, is called the *collar*. Occasionally, the collar may have clasping appendages called *auricles*.

In grasses, the flowering part or seedhead can be arranged in one of three general types: as *spikes*, *racemes*, or *panicles* (see below). The differences deal with whether the spikelets are stalked (*pedicelled*) or stalkless (*sessile*) on the main axis and branches of the inflorescence.

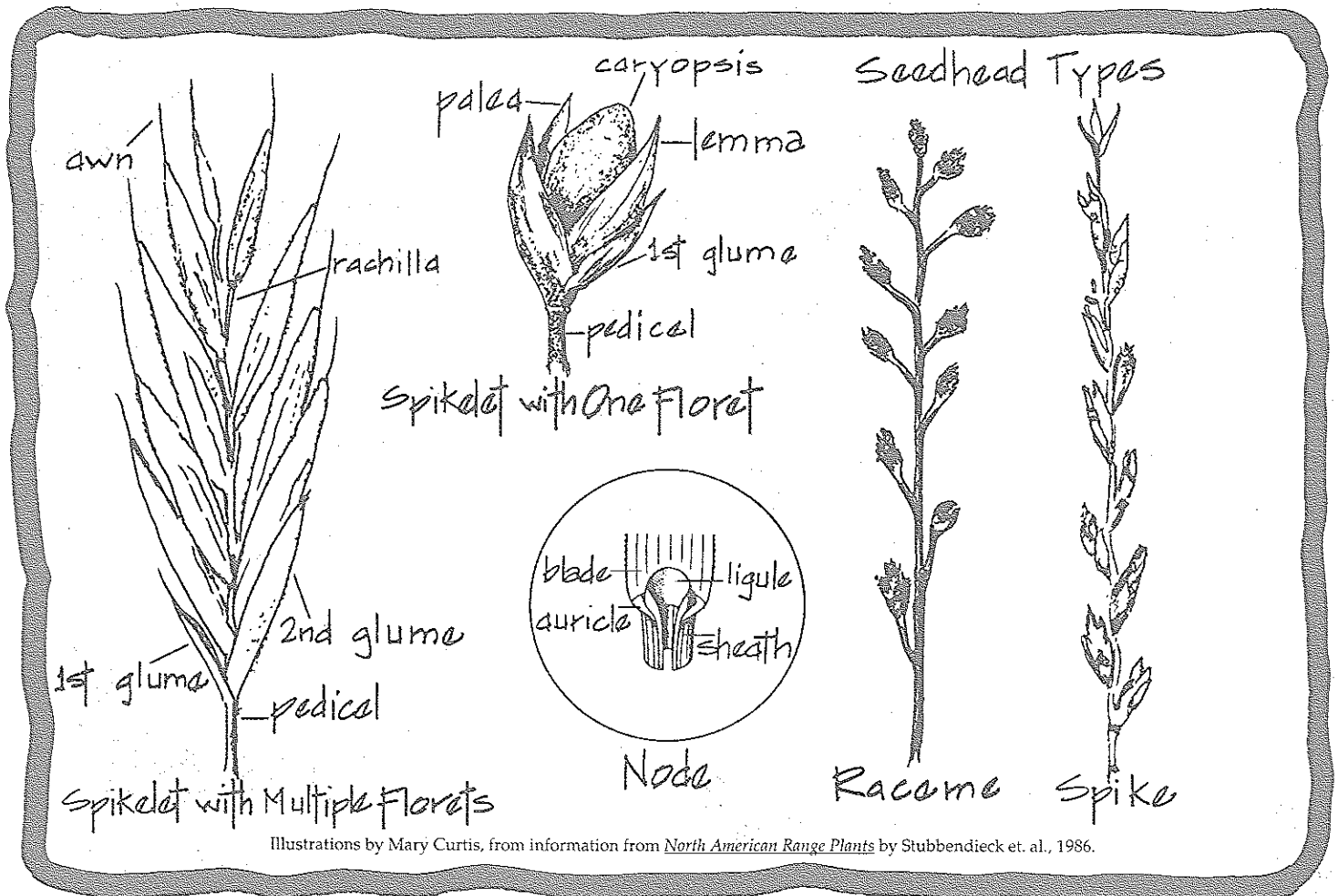
In a spike, all the spikelets arise directly from the main stem. The spikelets on a raceme are either stalked or both stalkless and stalked on an unbranched stem.

The most common type of seedhead, the panicle, has spikelets that are stalkless or stalked on branches off the main stem.

The spikelet, a unit of the seedhead, is really a reduced and modified flowering branch, with two papery bracts (*glumes*) at its base. Above the glumes one or more flowers (*florets*) may develop in the junction (*node*) of the central shaft (*rachilla*).

Each individual flower consists of two bracts (the *lemma* and *palea*), which enclose the flower or seed. The bracts hide a small, modest flower. In most cases the flower consists of a single-celled ovary, or pistil, three male stamens, or two mounds (*lodicules*). This flower produces the fruit or grain (*caryopsis*). In cases with multiple florets it is possible to have seed-bearing (*perfect*) florets and male (*staminate*) florets.

Dr. Alison Hill
Community Ecologist
National Wildflower Research Center



Illustrations by Mary Curtis, from information from *North American Range Plants* by Stubbendieck et. al., 1986.

Native plants help dry California avoid the "lava landscape" look

Earthquakes are not the only natural disaster rocking California. A prolonged drought has hit the state, forcing nearly every community to implement water conservation programs. Although snow and rainfall during the 1990-91 winter/wet season may have brought this year's total rainfall closer to average, the previous five years of below-average rainfall have exerted increasing pressure on limited water resources.

Approximately 75 percent of the state's water supply lies north of Sacramento while 75

percent of the water is consumed south of Sacramento. Southern California (which includes Ventura, Los Angeles, Orange, Riverside, San Bernardino, and San Diego counties) contains approximately 50 percent of the state's population, and is the largest consumer of water.

Statewide, water is used in the following ways: 83 percent goes to agriculture, 11 percent to homes, 2.4 percent to industry, and 2.2 percent to government.

However, in Southern California, 59 percent of water used is for residential purposes. As of March 1991, a typical single-family home in Southern California used 89 percent of its outdoor water for the lawn and garden, 6 percent for swimming pools, and 5 percent for washing cars. (Source: Metropolitan Water District of Southern California.)

Santa Barbara, one of the state's hardest-hit

communities, became California's first city to outlaw watering lawns except with hand-held buckets. Drought officers employed by the city enforce the ordinance. Landscape use of "gray water" from showers, tubs, and washing machines is legal and encouraged in Santa Barbara and San Luis Obispo.

The North Marin Water District in Novato, a city north of San Francisco, developed a prototypical program called "Cash for Grass." Developers and homeowners received rebates for removing turf areas and replacing them with drought-tolerant plants. Rebates for multi-unit dwellings included \$95 off the per-unit hook-up charge. Single-family homes were eligible for \$50 per 100 square feet, up to \$310. The program ran for one year, and the district is evaluating its effectiveness.

Many water districts are concerned that homeowners may turn their yards into "lavaland"

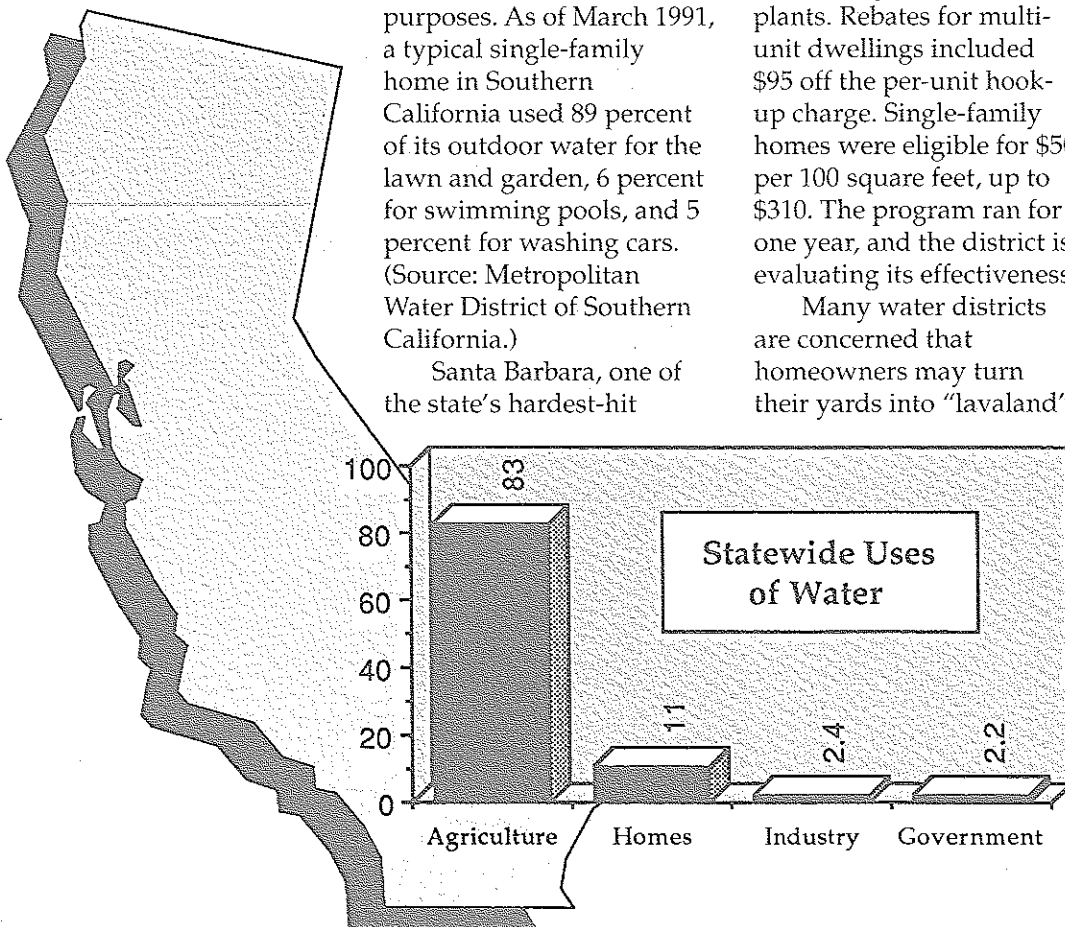
or a concrete slab, so they have produced educational materials with information on good substitute plants. Officials try to stress that water-conservative landscapes actually can be cool and green if you select native trees, shrubs, and flowers.

More than 5,000 species of plants are native to California, which has one of the richest floras in the U.S.; many of these plants grow best with very little water. California lilac, manzanita, coyote brush, and western redbud are only a few of the magnificent, non-thirsty native California shrubs and trees. Most Californians, unfortunately, are not at all familiar with them.

The last severe drought in California occurred in 1976-1977 and the lessons learned were quickly forgotten. This time, city water restrictions and ordinances are encouraging water-conservative landscapes.

Annie Paulson Gillespie
Resource Botanist
National Wildflower Research Center

(For lists of recommended native species for California and information on where you can obtain these plants, members should send a self-addressed mailing label to Clearinghouse, National Wildflower Research Center, 2600 FM 973 North, Austin, Texas 78725. Non-members should include a \$2 donation.)



Appreciate the beauty of grasses (continued from page 1)

grasses in your area.

While you are in the field, many clues can help you with identification. Notice the wide range of colors that grasses display and how well they complement the wildflowers. Also observe the grasses' heights the species they associate with, the type of soil they grow in, their longevity, the type of clump or sod they form, the time of the year they turn color, and the overall appearance of the seedhead and individual seed units. Be attentive to how the mature spikelet shatters to release the grain, how the spikelet is flattened, and to the size, color, and feel of the leaves.

Perhaps you will become good enough at grass identification that next season you can progress to identifying grasses in the field in their vegetative state. After several seasons of study, you might get to the point that you can "feel" the differences between the species.

Dr. Alison Hill
Community Ecologist
National Wildflower Research Center

More information about
identifying grasses can be
found on page 3.

WILDFLOWER OUTLOOK

Kathy Bolin of the Minnesota Dept. of Natural Resources is interested in identifying and determining the potential for designating a National Wildflower Route focusing on existing remnant prairie vegetation.

Ms. Bolin is requesting information pertaining to locations of existing native vegetation, particularly prairie, along roadsides between Minnesota and Texas. The rights-of-way along roads must not have been planted, and must be remnant original vegetation.

Minnesota designated its first statewide Wildflower Route in 1989. Five more routes were designated in 1990.

Contact Ms. Bolin at the Minnesota Dept. of Natural Resources, P.O. Box 6247, Rochester, Minn. 55903, (507) 285-7432.



Kelsey, the newsletter of the Montana Native Plant Society, reports that the Montana state legislature passed a bill directing the Montana Dept. of Agriculture to list plants that threaten native vegetation as noxious weeds. The department also now has the power to regulate the sale and commercial distribution of these species, which include purple loosestrife (*Lythrum salicaria*).



The Missouri Botanical Garden this year will publish the first volume of

the *Flora of North America*, which will be the first reference book to compile information on all of the native plants of North America. The project, which will take 10 years to complete, will produce 13 volumes listing approximately 20,000 plant species.



According to the *New York Times*, local agents of the United States Fish and Wildlife Service are trying to persuade the government to buy 8,000 acres of land in central Florida for a refuge. The main reason the agents cite for buying the land: rare or endangered native plants that populate the area.

The area, which is located in the Lake Wales Ridge in central Florida, is said to contain the best remaining example of ancient scrub land in the area. The area is home to more than 40 species of plants not found anywhere else in the world.

The proposed refuge plan would protect 11 plants that are federally listed as endangered, two that are listed as threatened, and six that are waiting to be listed in one of the two categories. Several animal species also would benefit.

If the plan is approved by the Fish and Wildlife Service, the agency will ask Congress for funds to buy the land and establish the refuge. Other state and private organizations also are trying to save the scrub land.

FROM THE F.I.E.L.D

3rd Occasional New Mexico
Xeriscape Conference, Sept. 20-21,
Santa Fe. Contact: Santa Fe County
Extension Service, P.O. Box 1905,
Santa Fe, N.M. 87504-1905,
(505) 471-4711.

Natural Landscaping Symposium
and Plant Sale, Sept. 27-29, Armand
Bayou Nature Center, Houston.
Contact: Armand Bayou Nature
Center, P.O. Box 58828, Houston,
Texas 77258, (713) 474-2551.

Kansas Wildflower Society Annual
Meeting, Sept. 28, Washburn
University, Topeka, Kansas. Contact:
Kansas Wildflower Society, Mulvane
Art Center, Washburn University,
17th and Jewell, Topeka, Kansas
66621.

North Carolina Wild Flower
Preservation Society Annual
Meeting, Sept. 28-29, The Green
Swamp, Brunswick County, N.C.
Contact: NCWFPS, Totten Garden
Center 3375, UNC, North Carolina
Botanical Garden, Chapel Hill, N.C.
27599-3375.

Native Plants of Virginia: Wild-
flowers and Ferns, Oct. 3, Homestead
Hotel, Hot Springs, Va. Contact: Mrs.
Betsy Fagan, Box 915, Hot
Springs, Va. 24445 (703)839-2813.

Native Plants: Your Backyard and
Beyond, Oct. 5, Bloomington, Minn.
Contact: NWRC Midwest Regional
Office, 725 Spring Hill Road, Way-
zata, Minn. 55391, (612) 475-0045.

Berkeley Bay Day, Oct. 5, North
Waterfront Park, Berkeley, Calif.
Contact: Design Associates Working
with Nature, 1442-A Walnut St., Box
101, Berkeley, Calif. 94709.

Virginia Native Plant Society
Annual Meeting, Oct. 10-12,
Virginia Beach, Va. Contact: VNPS,
P.O. Box 844, Annandale, Va. 22003.

Biological Pollution: The Control
& Impact of Invasive Exotic
Species, Oct. 25-26, Indiana Academy
of Science, Indianapolis. Contact: Bill
N. McKnight, Indiana State
Museum, 202 N. Alabama, Indian-
apolis, Ind. 46204, (317) 232-8178.

WE'VE MOVED...



The National Wildflower Research Center's Midwest Regional Office has a new address and phone number! The Midwest Office can now be reached at:

725 Spring Hill Road
Wayzata, Minn. 55391

(612) 475-0045

Home (continued from page 1)

for its unique use of wildflowers and native plants for the environment," says executive director David K. Northington. "We are at a stage where we cannot continue to grow and provide the public education needed without expanding our physical facilities and staff."

The Wildflower Center and its staff currently are housed in a 6,200-square-foot building on the outskirts of Austin. The new location is expected to be more easily accessible to the public.

Tentative groundbreaking for the new, larger facility is planned for 1992, with an expected grand opening scheduled in 1994.

Help! We need you!

We want to include more national news briefs about wildflower and native plant projects in the newsletter, and we need *your help!*

Please send us clippings about projects in your community. When sending a clipping, please include the name of the publication and the date it appeared.

Also, calendar information for "From the Field" must be submitted at least three months in advance (sooner is even better).

Please send clippings and calendar information to the Newsletter Editor at the address listed below. Thanks!

Fall into membership: Join the National Wildflower Research Center!

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

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

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

Please enter a membership in the category checked at left:

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

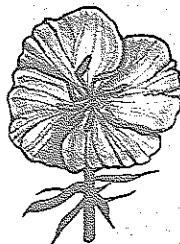
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