

NATIONAL WILDFLOWER RESEARCH CENTER

wildflower

November/December 1995

Volume 12, Number 6

A Center with a Mission

This year has been one of tremendous change for the National Wildflower Research Center. Aside from moving into a state-of-the-art facility designed to showcase the world of native plants, we have hosted two national conferences at our facility and increased our membership to more than 20,000 dedicated and concerned individuals across North America.

Unlike the "for profit" world of business -- which relies on profits for continued existence -- nonprofit organizations exist to address a problem, provide a service, or support a cause, nonprofit organizations have a mission.

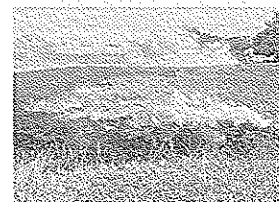
Although the Wildflower Center's home has changed, our mission has not. We remain committed to addressing "the ecological imbalance caused by the loss of native flora" and "to encourage a legacy of natural beauty and ecological stability, and...create a desirable environment for future generations." Within this larger mission, our purpose is to encourage the preservation of the remaining native flora of North America and to promote the use of native wildflowers, grasses, shrubs, vines, and trees in planned landscapes.

The Wildflower Center's new *read on page 2*

FIRE: The Life of the Grasslands

J. C. Blumenfeld
Editor/Writer

Fire, like humans, buffalo, and other complex inhabitants of the prairie, breathes oxygen and consumes vegetation. Deprive fire of oxygen and combustible vegetative food, and it dies. But while it lives, fire is an integral part of this natural community. Without periodic fires sweeping through them, the open to sparsely wooded grasslands of prairie and savanna quickly become woodland.



Grasses are designed to burn, and keep most of their vegetative parts at or



below ground level. While a grass stem may project two to three feet above ground,

the extensive root system may extend more than 15 feet below the surface. In addition, tissue responsible for growth

read on page 5

Winning Combinations!

A variety of exciting educational programs have been launched since the Wildflower Center opened its new facility. Many of these programs would not be possible without the support of generous funding partners.

In the Center's Visitors Gallery, you will discover engaging exhibits made possible by the Houston Endowment Inc. and The Meadows Foundation. These exhibits are designed to convey the importance of native plants through text, photographs, artwork, plant models, artifacts, and interactive components (including a talking lawn mower!), and were developed by Center staff and Deaton Museum Services of Minneapolis, Minnesota.

3M has stepped forward with a three-year commitment to the Center's site-specific Curriculum Project. This project incorporates teachers focus groups, the development and implementation of teachers training workshops, guides for field

read on page 5

Mission *continued from page 1*

facility is our chance to turn rhetoric into reality. In planning, constructing, and operating the Center's new facility, we sought ways to demonstrate our mission, live by our stated goals, and do so with minimal impact to the environment. We stressed overall natural resource conservation by collecting and reusing top soil and stone in our planted landscapes; designed rainwater collection systems to irrigate our gardens; installed garden beds in natural community plant groupings for best tolerance to shade, sun, and moisture differences; selected species to provide color and insect habitat in all seasons; and employed architectural design techniques to maximize energy efficiency.

The result of this attention to mission and purpose, together with environmentally sound construction techniques, has more than exceeded our expectations and those of the more than 50,000 visitors who have enjoyed our buildings, gardens, and grounds since April, 1995. This spring, the first anniversary of the new Center facility, promises to be the most magnificent in the history of the Center.

The specific goals of providing habitat for wildlife, conserving crucial natural resources for human needs, preventing soil erosion, and protecting the color and beauty of natural areas all serve our mission. Used in small and large planned landscapes, plants native to each region of the country also save water and landscape maintenance time and costs, reduce the use of chemicals (indirectly reducing some sources of pollution), and attract butterflies, bees, birds, and other animals that maintain the natural world.

With our purpose and mission always guiding us, the Center will continue to be the foremost national resource of practical suggestions, techniques, and information about native plants. Our number one goal is for everyone to share our mission, a mission in which both the natural community and residents of the natural community benefit. Judging from the growing numbers of members and the wonderful visitor response to our new facility, we know ours is an important, timely, and realistic mission.

On behalf of the volunteers and staff of the Wildflower Center, happy holidays, happy new year, and my sincere thanks for your membership, your support, and, most importantly, your work sharing the Wildflower Center's purpose and mission through your actions, words, and deeds.

David K. Northington, Ph.D.
Executive Director

The National Wildflower Research Center is a nonprofit research and educational organization committed to the preservation and reestablishment of native wildflowers, grasses, shrubs, and trees.

Founder
Lady Bird Johnson
Executive Director
David K. Northington, Ph.D.

Editor
Joshua C. Blumenfeld

Designer
Elaine Brown

Copy Editors
Joseph Hammer, F. M. Oxley

Contributing Authors
Kirsten Guillory, Joseph Hammer,
Julie Barrett Heffington, Jenny Teaford

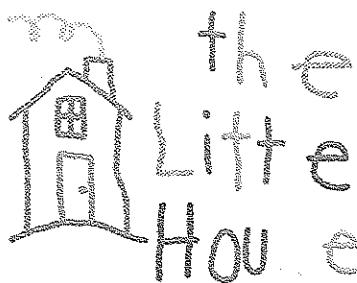
Illustrations
Michael Wall

Wildflower (ISSN 0898-8803) Published bi-monthly. A portion of your \$25 membership dues pays for your annual subscription to *Wildflower*. National Wildflower Research Center, 4801 La Crosse Ave., Austin, TX 78739. Phone: (512) 292-4200. Material may be reprinted only with permission of the editor. Second class postage paid at Austin, TX.

POSTMASTER: Send address changes to:
Wildflower, NWRC, 4801 La Crosse Ave., Austin, TX 78739 (512) 292-4200

© 1995

Printed on recycled paper.



If you're little (or just young at heart), stop by the Little House on a Saturday afternoon with your children and study the world of plants. *STUDY?* Yep! Hands-on nature study, songs, puppetry, storytelling, crafts, discovery, and fun are just a few of the great events planned. Studying plants at the Little House is cool!

The Little House is open every Saturday from 1 p.m. - 4 p.m.

GREEN MANSIONS

F. M. Oxley
Education Programs Manager/
Senior Botanist

One of my fondest memories is camping with my family in Washington state. The sound of the wind through the trees at night lulled me to sleep, and the smell of coffee and bacon woke me in the morning. During the day, I liked to explore: sometimes a pioneer, sometimes a Native American, seeing the forest for the very first time.

As I grew older, opportunities to camp with my family became increasingly scarce. The libraries of high school and college became my tent, and the sounds of rustling pages in numerous books lulled me to sleep at night. But I never lost my interest in the woods and, somehow, I've always found time to keep learning about these wonderful places.

And, oh, the things I've learned!

Most people don't realize that the boreal, or **northern coniferous**, forest is actually an incredibly old ecosystem. Millions of years ago, all the land on Earth was one super continent called Pangaea. As the land masses that would eventually become known as North America and Eurasia broke away and drifted northward into temperate, subarctic regions, members of the

Coniferophyta began to evolve, and the coniferous forest was born.

While coniferous species can be found throughout North America, the northern coniferous forest occurs in northern Europe and Siberia and extends from Canada and Alaska to the Great Lakes, the Maritime Provinces, and New England. Forming a zone approximately 500 miles wide, the coniferous forest separates northern arctic tundra from southern temperate steppe, scrub, and mixed or broadleaf woodlands.

Living in regions where

in the late fall, early spring, and, sometimes, even in mid-winter. And, because they don't have to grow a new set of leaves each spring, their growing season is longer than that of deciduous species.

The needle-shaped leaves of conifers also play a critical role in their survival. Conifer needles have a thick waxy covering (*cuticle*), which helps them maintain low internal temperatures. A thick cuticle also insulates needles against extremes of heat and cold. The thin round shape of the needles reduces the amount of surface area exposed to the sun.

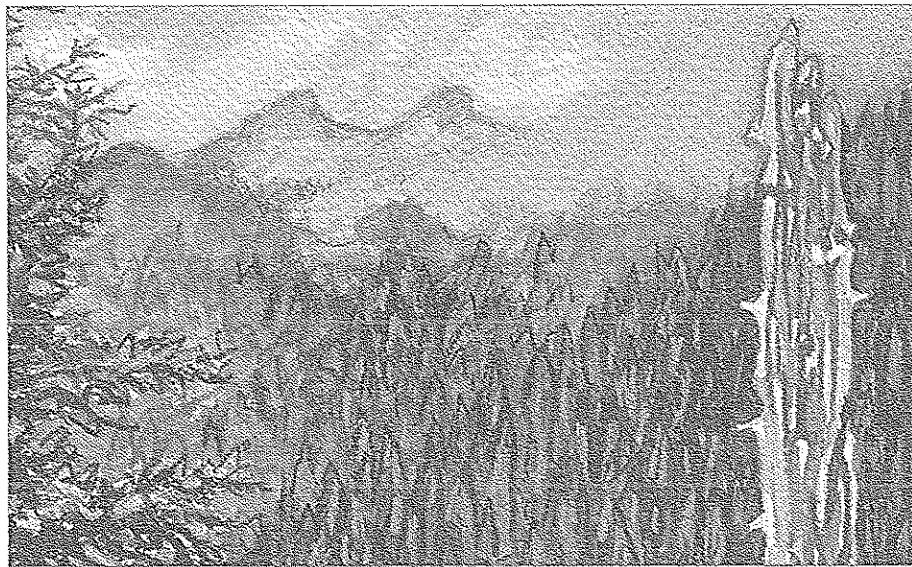
grow. Providing stability and absorbing water and dissolved nutrients from the soil, conifer root systems allow trees to absorb the sometimes scant rainfall, especially during periods of summer drought.

Research has shown the roots of many coniferous species form symbiotic associations with soil fungi called *mycorrhizae*. These partnerships protect the roots from pathogens and allow the tree to absorb more water and minerals, while providing the fungal partner with a source of food.

Conifers growing where snowfall is heavy have flexible branches and slender, spirelike crowns. This architecture and flexibility allows the trees to deal with heavy loads of snow without being damaged. In fact, many subalpine conifer seedlings can be pressed flat by heavy snowfall and pop right back when the snow melts!

These days, I rarely get the chance to go camping. But, when I do get out into the woods, I

still feel a little like an early pioneer, exploring the forest for the very first time. No matter how much I learn about the coniferous forest, there will always be a sense of mystery. And, like William Henry Hudson, I will always "thank the Author of my being for the gift of that wild forest, those green mansions where I had found so great a happiness!"



the winters are long, cold, and harsh, and summers often dry, conifers have evolved a number of interesting and unique strategies to deal with the range of extremes in their environment.

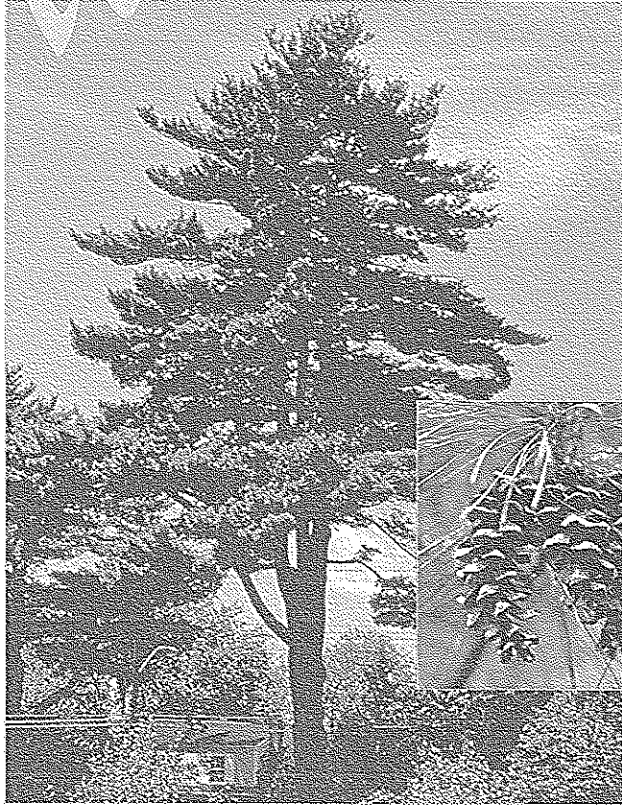
Conifers, unlike their broad-leaved, deciduous cousins, are almost exclusively evergreen. This trait allows them to take photosynthetic advantage of brief warm spells

By reducing the available surface area, the amount of water lost to surface evaporation is minimized. The large number of needles produced by a tree maximizes the surface area for photosynthesis, yet reduces the potential damage done by the loss of any one leaf.

The root systems of conifers are well designed for the often rocky, shallow soils in which they commonly

Wildflowers

NOTEBOOK



Botanical Name: *Pinus strobus*
Pronunciation: PIE-nus STRO-bus
Common Name: White pine
Family Name: Pinaceae (Pine Family)
Range: Eastern North America
Habitat: Woods at low altitudes

The magnificent stands of white pine that once blanketed the New England countryside were the first victims of the exploitation ushered in by European settlers to the New World.

Mercilessly cut for its straight trunk and extremely light wood, white pine became the saving grace for the Royal Navy in its continual search for shipbuilding materials. In 1761, by royal decree, spies were handsomely rewarded for turning in fellow settlers who cut down one of the Crown's trees. So important was this tree to the commerce of the new republic that a white pine graced the first flag of the colonial forces.

The straight trunk of the white pine can climb to more than 50 m (164 ft) with horizontal branches protruding in distinct whorls. The characteristic slender, soft gray-green to gray-white needles are held in bundles of five and project from nearly smooth, olive-brown shoots. The light reddish-brown cones are 10-20 mm (4-8 in) long, with thin, flexible scales without prickles.

It is the wood that truly sets white pine apart from other tall, straight-trunk trees. Very soft, close-grained, and light, the reddish heartwood is perfect for items requiring flexibility and light weight -- such as masts, shingles, matches, house framing, and windows. Today, the only virgin white pine in the United States exists in the southern Appalachians, however the quality of this wood is nowhere near the quality of the legendary New England white pine of 200 years ago.

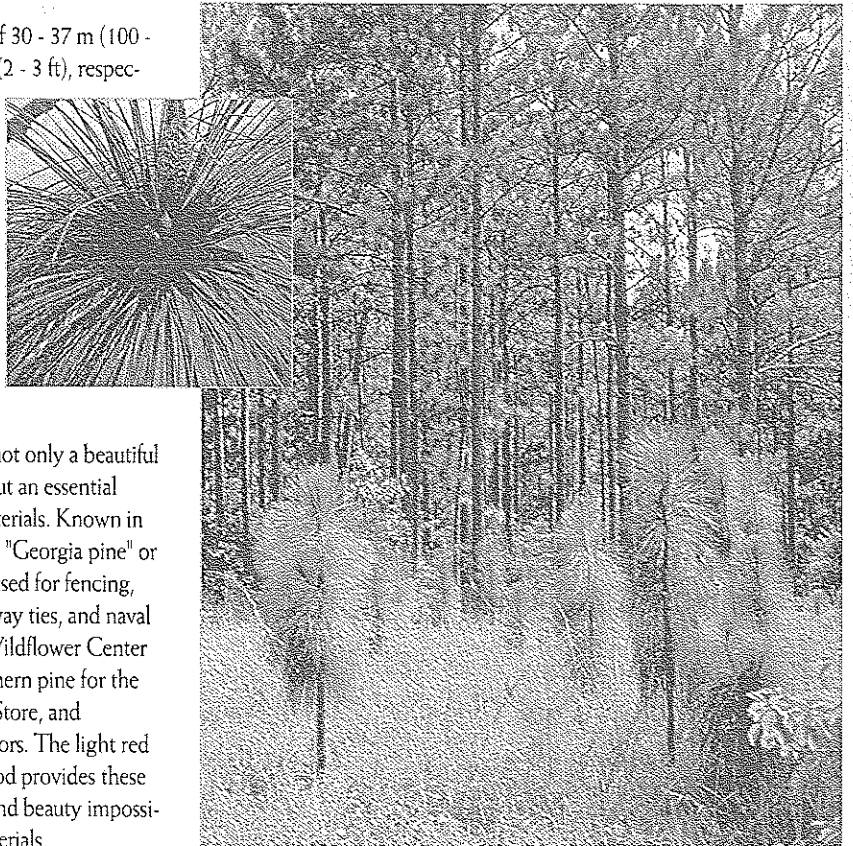
Botanical Name: *Pinus palustris*
Pronunciation: PIE-nus pa-LUS-tris
Common Name: Long leafed pine, Southern pine
Family Name: Pinaceae (Pine Family)
Range: Southeastern forests
Habitat: Dry, sterile, sandy sites

The large (3 - 4 cm, 1 - 2 in) and lustrous silvery, white winter buds of *Pinus palustris* visually distinguish it from the other trees of the Southeastern forests. Thanks to the fringe scales covering the buds, they are as resistant to fire as they are beautiful. Providing the tree with its common name, the 21 - 46 cm (8 - 18 in), dark green leaves cluster at the end of stout branches forming dense tufts. Measuring 15 - 26 cm (6 - 10 in), its spine tipped cones rank as the longest among Southern pines.

From a distance, this conifer's appearance is dominated by its irregular crown made up of heavy, gnarled branches. A slow grower, the long leafed pine takes 150 - 300 years to reach its mature

height and diameter of 30 - 37 m (100 - 120 ft) and .6 - .75 m (2 - 3 ft), respectively. For its first three to six years, it displays no above ground growth as it establishes its deep taproot system. This root system keeps *Pinus palustris* standing tall in the face of Southeastern coastal storm winds.

Pinus palustris is not only a beautiful and durable conifer, but an essential source of building materials. Known in the lumber industry as "Georgia pine" or "Southern pine," it is used for fencing, flooring, bridges, railway ties, and naval stores. Notably, the Wildflower Center chose reclaimed Southern pine for the Visitors Gallery, Gift Store, and Auditorium foyer's floors. The light red to orange colored wood provides these areas with a warmth and beauty impossible to find in new materials.



FIRE

continued from page 1

and cell division, located at the tip of the leaf or shoot on most plants, is located at the base of the grass leaf or shoot -- further protection from the ravages of heat and flame (not to mention grazing animals and lawn mowers).

In the absence of towns, cities, and fenced-in domestic livestock, a natural grassland fire could burn unchecked across a tremendous area until rain, woodland, or a natural barrier stopped its progress. Today, fire is used as a management tool only under tightly controlled conditions, and natural fires are quickly suppressed (except inside some national parks) to prevent harm to people and property.

At the Wildflower Center facility, periodic controlled burns will be used to help restore the Wildflower Meadow behind the Visitors Gallery to pre-settlement Central Texas Hill Country savanna. The first burn is scheduled for the end of November or early December. However, conducting a controlled burn is not as easy as setting a date, checking the wind direction, and striking a match.

Weather is the key to a successful burn, particularly relative humidity, temperature, and wind. Generally, the best day for a controlled burn is one with a relative humidity between 45 and 60 percent, an air temperature between 40°F and 60°F, and a wind speed less than 10 miles per hour. To cope with the unpredictability of the Central Texas weather, the burn crew will be ready the moment conditions are right.

What will the Center's burn accomplish? The burn will increase productivity by removing excess litter. By removing litter, the soil warms faster in the early spring so prairie species that germinate in the spring will emerge sooner. In addition, the burn will remove small woody plants and brush, keeping the burned area open and unshaded. While deciduous trees and saplings can resprout from their roots, junipers and other conifers are killed by fire. The

benefit of all this burned vegetative material will be an increase in microbial activity in the soil which, in turn, will release more nutrients earlier in the growing season.

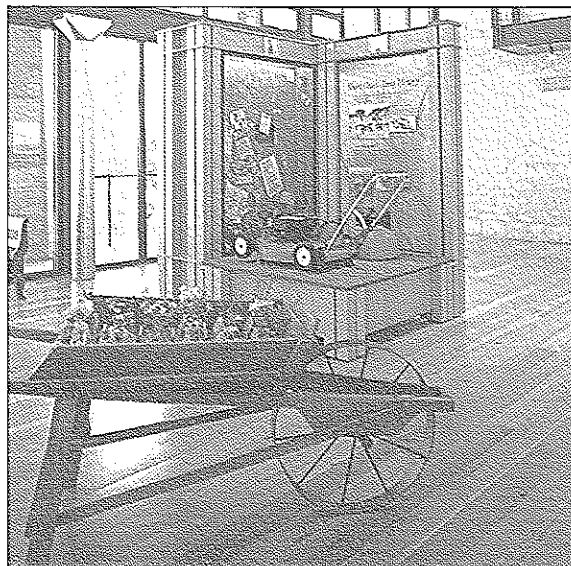
Assuming the weather cooperates, the Center's burn should create the conditions necessary for a spectacular spring. After all, where there's smoke, there's fire -- and fire is life.

Winning

study visits, activity kits, and materials for classroom use before and after visits to the Center that help students learn about native plants and basic ecological and botanical concepts.

This summer the Center hosted two week-long day camps for under served youth. *Camp Wildflower* was funded and facilitated through the University of Texas Outreach Center Hispanic Mother/Daughter Program, while *Green Camp* was

funded by the Junior League of Austin and recruited through a partnership with the City of Austin's Youth Services Program. Activities included creating native plant dyes, recycled paper making, and plant propagation. These activities helped campers build a solid appreciation for the native plant world.



continued from page 1

When in Texas, keep your eyes and ears open for the Center's new series of television and radio public service announcements. Tocquigny Design of Austin donated its time and expertise to produce these colorful and clever spots, and the Rockwell Fund, Inc., and the Howard H. Callaway Foundation made generous commitments to cover direct costs. These announcements will ensure that public awareness about the Center continues to rise -- and the Center

will continue to attract visitors in the months ahead.

Many thanks to these funding partners and the many others space does not allow us to mention here. We will fill you in on additional Wildflower Center "winning combinations" throughout next year.

F From the E L D

SOUTHEAST

Atlanta, GA: *Use of Native Plants in the Cultivated Landscape*, January 10, Contact: Georgia Native Plant Society, P.O. Box 422085, Roswell, GA 30342, (404) 876-5859.

Pine Mountain, GA: *Southern Gardening Symposium*, January 26-28, Contact: Education Department, Calloway Gardens, Pine Mountain, GA 31822, (706) 663-5153.

OKLAHOMA/TEXAS

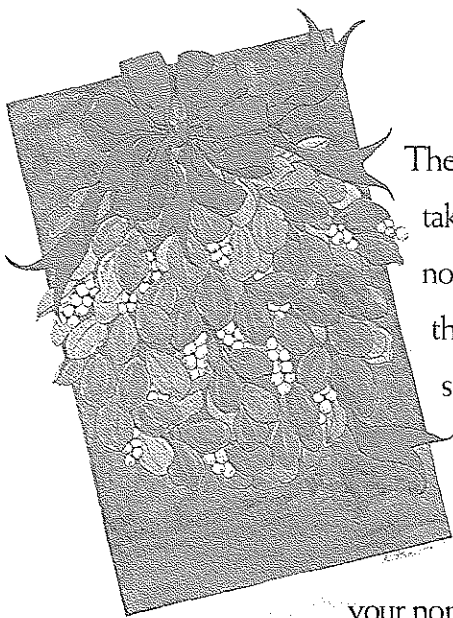
Houston, TX: *Using Compost and Other Organic Products*, December 11-12, Contact: American Society for Horticultural Science, 113 S. West St., Ste. 400, Alexandria, VA 22314-2824, (703) 836-4606.

CALIFORNIA

San Marino, CA: *Holiday Decorations from your Garden*, December 7, Contact: The Huntington, 1151 Oxford Road, San Marino, CA 91108, (818) 405-2140.

Wild Ideas

DECEMBER 1 - 3



The annual Wild Ideas holiday shopping event will take place December 1 - 3 during the Center's normal hours of operation. Unique native plant-themed gifts, live music, and door prizes are just some of the fun in store. Plus, because the Center is a 501(c)(3) nonprofit, you can shop tax-free Friday, December 1! Best of all, admission to the Center is free all three days, so be sure to bring your non-member friends to share the fun.

CORRECTION:
The Entry Cistern and Tower Cistern capacities are greater than indicated in last month's newsletter. The Entry Cistern holds about 6,000 gallons of water and the Tower Cistern holds almost 10,000 gallons. Taking into account the 1,000 gallons in underground lines, the storage capacity of the cisterns and storage tanks is 70,000 gallons.



Give The Perfect Gift: National Wildflower Research Center Membership!

The ecologic, economic, and aesthetic benefits of native plants can be enjoyed year 'round, making Wildflower Center membership the perfect gift. Special multiple membership discounts are available; call the Membership Office at (512) 292-4200 for more information.

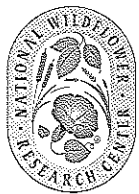
Please enter a Supporting Membership for:
Name: _____
Address: _____
City/State/ZIP: _____
Phone: _____

Gift Membership: If you are giving this membership as a gift, please enter your name and address below.

Donor Name: _____
Address: _____
City/State/ZIP: _____
Phone: _____

- Make your check payable to: NWRC
- Mail to: Membership, National Wildflower Research Center, P. O. Box 550, Austin, TX 78767-9778

12/6



NATIONAL WILDFLOWER RESEARCH CENTER
4801 LA CROSSE AVENUE, AUSTIN, TEXAS 78739

Second Class
Postage Paid at
Austin, Texas

- ❁ Controlled Burns, page 1
- ❁ Coniferous Forests, page 3
- ❁ Wild Ideas Holiday Event, page 6

Wildflowers Work!

Volume 12, Number 6 November/December 1995