WILDFLOWER

The Newsletter of the National Wildflower Research Center Volume 4, Number 3 Fall 1987

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

Fall Planting Highlights the Season

Fall promises wildflower enthusiasts diverse activities to maintain their wildflower spirit. Now is the time to plant for most regions of the country and give your wildflowers a headstart for spring (see Fall Planting Tips in *Wildflower* Volume 3, Number 3 Fall 1986.) Fact sheets on "how and which" wildflowers to plant are available through the National Wildflower Research Center's Clearinghouse.

Fall planting will take place at the Wildflower Center through September. If you would like to help sow seed in the Center's research plots, please call Volunteer Coordinator Peggy Budd at (512) 929-3600 to sign up. You will be assured of a day of hard work and camaraderie!

Shade House Protects Containerized Plants

A shade house has been built at the Wildflower Center for the summer housing of mature containerized native plants. The structure consists of an 18-by-36-foot frame, half-covered with a 50 percent shade cloth to screen the intense summer sun. The base of the house is gravel and there is an overhead automatic sprinkler system. The plants that have been photographed for the seedling identification study are housed there, as they prefer the outdoor temperatures to those of a greenhouse. So far fifty of these wildflowers have been photographed at their various stages of growth; with fifty more to be completed in 1988.

Gift Days Planned for Fall

Wildflower Days, two days of unique demonstrations and special wildflower holiday shopping will take place at the Center on November 21 and 22, 1987. Admission is free and the Center will be open from 10 am to 4 pm on both days. Mark it on your calendar today!

Center's Director Reaches Wide Audience

This summer the Center's Executive Director, Dr. David Northington, spoke to two groups in California about the work of the Center and the importance of wildflowers in the environment. His engagements included the **Strybing Arboretum in San Francisco** and the **Friends of Filoli** at the the National Trust house, Filoli, in **Woodside.**

During the fall he will talk at the National Meeting of the National Parks and Recreation Association in New Orleans on September 19, the National Meeting of the American Association of Landscape Architects in Baltimore from October 31 to November 3, and the Texas Annual Xeriscape Conference on November 12 and 13 in Austin. Try to attend one of his presentations if you are able.

Jubilee Celebration Commences December 1987

75

As First Lady and concerned American, Lady Bird Johnson spent considerable time during her years in Washington beautifying the capital and initiating legislation to improve our nation's roadsides. She did more to protect and enhance this country's natural landscapes than any First Lady before her. That fine legacy lives with us today through legislation, parks, and natural areas, which still touch our lives.

The National Wildflower Research Center is asking us all to honor Mrs. Johnson during her jubilee year, beginning with her 75th birthday in December 1987. The focus of the Jubilee Year will be a three day celebration from April 28 to 30, 1988 in Washington DC, to say thank you to Mrs. Johnson through a special award, concerts, art exhibits, and events in her honor. As many of these activities will benefit the National Wildflower Research Center, your participation will help to secure the future of her vision—the preservation and increased use of wildflowers and native plants in this country.

It is expected that friends and admirers from throughout the nation will converge on the capital to thank Mrs. Johnson for raising our awareness for the need for conservation, for the protection of the environment, and for maintaining the legacy of wildflowers that is ours to preserve and protect.

Do circle these days on your calendar, and look for announcements of detailed plans in upcoming editions of *Wildflower.*

Native Plants Add Up!

David Northington, Executive Director

Sometimes the connection between the conservation of our native flora and using these plants in our planned landscapes is easy to make; but sometimes it is not. Assuming we are talking about seeding or planting propagated plants, not digging them from the wild and moving to a new location, the use of natives in our landscape plantings adds to the existing numbers of those species. If we are replanting hundreds or thousands of acres of a native prairie or woodland, the conservation value is clear. If, on the other hand, we are adding only a few individual species to our yard, the connection is more difficult to make.

It is simply a matter of thinking about this in a cumulative rather than an isolated way. The addition of native shrubs, trees or wildflowers to one yard provides hardy, attractive, low maintenance plants to that home owner's landscape, but admittedly does little to expand the total numbers of those species. However, if as many native species were planted each year as are pittosporum, Eleagnus, Euonymus, Japanese honeysuckle, boxwood, ligustrim, cotoneaster, and photinia , think of the difference. Even if only one of every ten of these exotics was replaced by a native, there would be many thousands of indigenous plants added to the existing natural populations.

Dr. David Northington

Ideally, landscaping of natives should be executed as a community, by planting groupings of naturally associated indigenous species. Such naturalistic or ecological landscape designs can be planned for an entire area, used only in a back or side yard, or added to an otherwise formal design composed of traditional exotics. These community groupings need not look unkept or wild. However, imitating a true natural community of trees, shrubs, grasses, and herbaceous wildflowers and allowing such an assemblage to mature with minimal management, would be the best addition to the ecology of the area. Small natural areas of this type can provide new pollen sources and a wildlife habitat of food and resting sites.

The more areas planted as naturalistic landscapes, the greater the cumulative ecological benefits that result. But even planting isolated native individuals in your traditional landscape can add to the overall community structure. The more individuals used, the greater the effect. If you live in a fairly typical single family urban or suburban community, calculate the number of houses in a square mile area. Now count how many native plants would be added to that area if only every other yard added two or three plants, let alone a dozen or more as is typical of exotic landscape plantings.

The point is one of cumulative small changes. If every reader of *Wildflower* would add only five native shrubs or trees to their landscape plan this year, the result would be in the order of a quarter million natives added to our environment. Equally as important, this would be the beginning of a mandate to the nursery industry saying that there is a growing market for these plants. In addition, if each of you convinced two friends who saw these plants, possibly for the first time in "captivity", that these hardy, attractive and probably different yard plants were worth adding to their garden, the cumulative effect would triple at least.

DIRECTOR'S REPORT

The message? Take an active role. You are the most effective agents for change and for public education. Look at the possible gains. By using native plants we can make attractive, low maintenance, hardy, ecological additions to our yards. These natives occur infrequently enough in landscape plantings to be exotics in their own right! We have nothing to lose and everything to gain. Spread the word by taking the initiative. Add natives, they add up.

Wildflowers Parade Across Fabrics and Fancies

With fall and winter approaching, it will soon be time to think about Christmas. With this in mind several new gift items have been added to the Wildflower Center's selection of products available at the Center and through the catalog, *Wildflower Gifts*.

New for fall are a **wildflower Halcyon Days enamel box,** a sturdy **totebag with the meadow design** flowering on each side, several new books to help you with your fall planting, and **wildflower rubber stamps** for creating your own cards, wrapping paper, and personalized gifts.

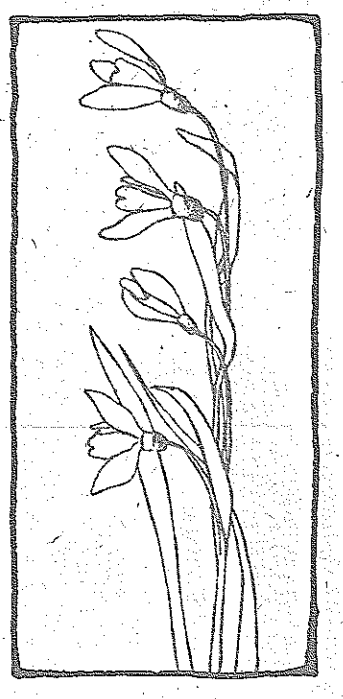
To commemorate the start of the year-long Jubilee Celebration, honoring Lady Bird Johnson's 75th birthday, which will take place in conjunction with the Center's 5th birthday, a unique **Wildflower Christmas Ornament** has been created. The design incorporates a Pink Evening Primrose, centered in a circle of brass. We know this will be a treasured addition to your ornament collection.

This summer Hinson & Company of New York introduced a **new range of fabrics and wallcoverings, "Wildflowers of America."** Inspired by Lady Bird Johnson, the collection draws on the beauty and simplicity of wildflowers, to create a series of graceful designs. Under a licensing agreement, the Wildflower Center receives a royalty on each sale. The collection is available through decorators across the country. For more information on your local distributors, call Hinson and Company at (212) 475-4100.

Wildflowers as Art: Pressing and Mounting

Pam Jones

The natural earth colors of many fall wildflowers make them ideal samples for a pressing project. From the rich yellows of Black-eyed Susan's and Maximillian Sunflowers, to the deep lavender of asters and bonesets, fall wildflowers mounted and pressed could fill that special person's Christmas stocking and give joy all year round. These instructions will help you execute a simple pressing project. As you progress you might attempt pressed wildflower bouquets. If you have any hints or tips of your own, please share them with us!



Materials Required

These materials are essential to have on hand: newspaper; corrugated cardboard, with all channels running the width of the boards to aid ventilation; heavy paper on which to mount plants, such as construction paper, light weight crescent board or cardboard; heavy boxes or books to weight the specimens; white glue; scotch tape; paper towels; toothpicks.

Pressing for Perfect Pictures

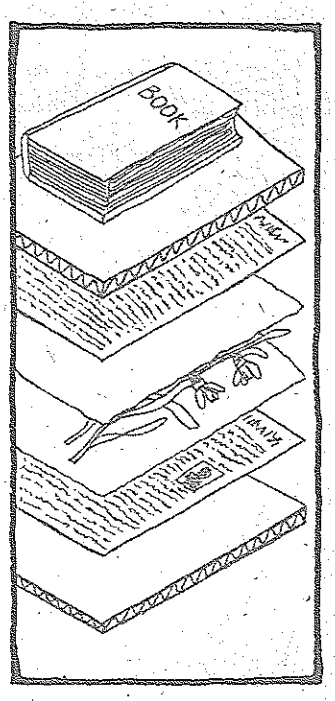
Follow these steps and you should be assured of colorful pressed specimens in just a few days.

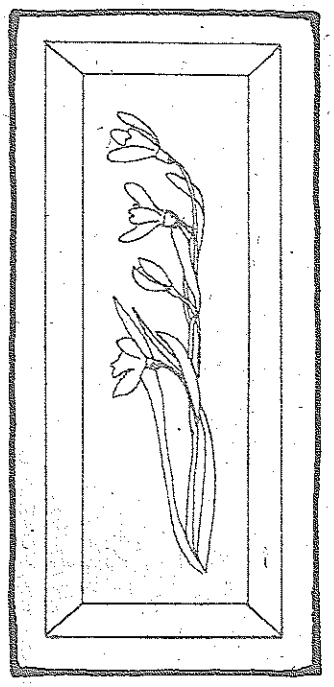
- Always use plant material that is fresh and not wilted or dry.
- Unfold a sheet of newspaper and lay the plant down, arranging the leaves and petals so they lie flat and unwrinkled, removing any that are dead or wilted.
- It may be necessary to secure some plant parts in a desired position. Do this by covering them with strips of paper towel and then securing the towel with tape, being careful not to touch the plant material with tape.
- When arranging the petals of the flower, it may be necessary to pad around thick stems and flower centers with folded layers of paper towel, to ensure that even pressure is applied to all flower parts. Thick sections, such as bulbs and stems, may be cut in half longitudinally or whittled down to reduce bulkiness.
- Fold the newspaper around the plant and sandwich it between two pieces of corrugated cardboard. Additional layers of newspaper may be added above and below the plant to give extra padding and absorbency. If there are several specimens to be pressed, you may continue adding a layer of plant material, then cardboard, forming a stack.
- Press the specimens down with heavy boxes or books. It is important to apply firm, even pressure to prevent the plant parts from curling or wrinkling before they dry.
- Place the specimens in a well ventilated area to dry. It is not recommended to place the plants in an oven, even at low temperatures. Drying them too quickly can cause the plants to lose their natural color, turn brown and become brittle. If the plants are not too thick or high in water content, they should dry in three to four days. More succulent plants, such as lilies and spiderworts, may take longer.

Mounting to Last Forever

Successful mounting will enhance the beauty of your pressed specimen. Finally, framing each creation with a delicate natural wood or rubbed silver or brass frame will complement the wildflowers within.

- When dry, gently remove the pressed plant from the newspaper. To glue it in place, lay it face down on the newspaper. Hold the glue bottle about 12 inches above the plant. Gently squeeze the bottle, producing a thin, even thread of glue. Cover the plant lightly but thoroughly in a fan-like pattern, being careful to wipe up any large drops of glue on the plant, especially on delicate petals. Using too much glue is more often a problem than using too little—go lightly.





- Lay a piece of mounting paper on a sheet of corrugated cardboard. Carefully lift the plant and lay it in the desired position on the mounting paper. Dab away any excess glue with paper towels. Reinforce thick roots or stems with an extra dab of glue and secure any unglued leaves or petals with a toothpick dipped in glue.
- Cover with a sheet of wax paper to prevent the plant from sticking to overlying paper, follow with a layer of folded newspaper for padding, then with a sheet of corrugated cardboard. If there are several specimens to be mounted, you may continue adding a layer of plant material then cardboard, forming a stack. Add a weight to ensure the plants do not curl up before the glue dries. Allow a few hours for drying.

Pressing and mounting your favorite wildflowers will allow you to live with them year round. So pick, press, and place for constant beauty.

Pam Jones is a research botanist at the National Wildflower Research Center.

Plant Materials Centers

Another Link in the Wildflower Chain

Beth Anderson

Having had the opportunity recently to attend several conferences and symposia on native plant related topics, I am continually amazed by the number of organizations and agencies, both public and private, dedicated to the preservation, conservation, research, and use of native plants.

So often each is ignorant of, or isolated from the other, little realizing how closely they could work together. Hence the mood of these symposia can almost be likened to a family reunion, wherein relatives may meet and mingle for the first time, bound nonetheless by close ties.

One set of relatives, within the family of native plant advocates, are the Plant Materials Centers (PMC) scattered across the country. Although most of these 22 Centers are operated jointly by the United States Department of Agriculture (USDA) and Soil Conservation Service (SCS), many have additional affiliations with universities and other agencies. The National Plant Materials Center is located in Beltsville, Maryland. Each field PMC serves several major land areas, with similar climate, topography, soil, and water resources.

Plant Material Centers strive to find suitable plants for conservation uses. The majority of plants tested are native to each area, though some work includes introduced species as well.

Each center works on a combination of regional and national problems. The PMC in Americus, Georgia, for instance, has selected native grasses to use as improved pastureland. In the Midwest, PMC's continue to develop warm season grasses, while in the Southwest efforts concentrate heavily on drought tolerant species for rangelands. Other Plant Materials Centers experiment with natives for mine spoil reclamation, high impact recreation areas, waste disposal sites, wildlife habitat, and roadside and shoreline stabilization.

To see how the process of plant selection unfolds, let us look more closely at one center located in Los Lunas, New Mexico. This Plant Materials Center, combined with the Agricultural Science Center, is operated by New Mexico State University, in conjunction with the USDA and SCS.

Work in progress at the Los Lunas Center includes the development of several varieties of the desert willow and other woody plants for use in landscaping, warm season grass demonstration areas, subsurface irrigation system experimentation, drought tolerance studies of rangeland grasses, and a comparison of commercial wildflower mixes.

> "We could be considered pioneers of species. . ."

The selection process of native plants for specific purposes follows several major steps. **The first step involves initial testing** of native and introduced species for a particular characteristic. To qualify for selection, the species must grow vigorously and show other potentially valuable growth characteristics such as drought or cold tolerance, high yield of fruit or forage, or insect and disease resistance. According to Wendall Oaks, manager of the Los Lunas PMC, "We could be considered pioneers of species; we study species that no one else looks at."

Researchers gather plant materials for testing from a variety of sources: native collections, other PMC's, and state and federal agencies. For grasses, a minimum collection of 25 species is standard, although a greater number will increase the potential for genetic variability. The selected plants are then compared with those already commercially available.

The next step involves advanced testing of the species on site and away from the Center, to discover its potential use in other areas. Less than one percent of the hundreds of plants initially tested reach the advanced stage.

The final testing focuses on large scale field plantings, comparing the newly developed species with commercially available varieties, under the same management techniques and site conditions. If the selected species proves superior to plants already available, the new variety is released for commercial use and production.

The SCS takes responsibility for maintaining the genetic purity of the stock, and providing it to nurseries, which act as a go-between for the public. These newly developed plant materials are not sold directly to the public by the SCS. Consumers can, however, request the named variety from a local nursery. The PMC's provide information to state and private nurseries and seed growers on how and when to plant, prepare beds, fertilize, control pests, irrigate, propagate, harvest, and process seed.

Plant Materials Centers fill an important gap in native plant experimentation by selecting natives for specific conservation purposes, while still maintaining the natural heritage of each region. Such Centers should not be neglected in the scheme of native plant research. Visitors are always welcome to tour the PMC facilities. Just contact the one nearest to your area, as listed in the phone book under USDA or SCS.

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

FROM THE M-A-I-L-B-O-X

September 18-20, 1987—*Virginia Wildflower Preservation Society Annual Meeting at The George Washington Inn, Williamsburg, Virginia.* Includes field trips into marsh communities, valleys, and ravines.
Contact: VWPS, P.O. Box 844, Annandale, VA 22003.

September 25-27, 1987—*Grow Texan Symposium at the Armand Bayou Nature Center, Houston, Texas.* Learn more about landscaping with native Texas plants with horticulturalists and experts from around the state.
Contact: Armond Bayou Nature Center, P.O. Box 58828, Houston, TX 77258 (713) 474-2551.

October 2-4, 1987—*Great Basin Xeriscape: Water Conservation in Semi-Arid High Desert Environment at Wilbur D. May Museum, Reno, Nevada.* Seminar held in conjunction with AABGA Western Regional Meeting.
Contact: Tom Stille, Great Basin Xeriscape, 350 South Wells Avenue, Reno, NV 89502.

October 3, 1987—*Ways with Wildflowers at Bowman's Hill Wildflower Preserve, Washington Crossing, Pennsylvania.* Focus on the wildflower garden in autumn, from planting to collecting seed and propagating plants.
Contact: Greg Edinger, Bowman's Hill Wildflower Preserve, Washington Crossing Historic Park, Washington Crossing, PA 18977 (215) 862-2924.

October 6-8, 1987—*Annual Conference of the National Roadside Vegetation Management Association at Galt House, Louisville, Kentucky.* Sessions include habitat fragmentation, legislation, volunteer stewardship.
Contact: Larry Munzenmaier, 1280 Woodland Drive West, Waco, TX 76710 (817) 785-8774.

Nature's Way to Wildflower Germination

Elinor Crank

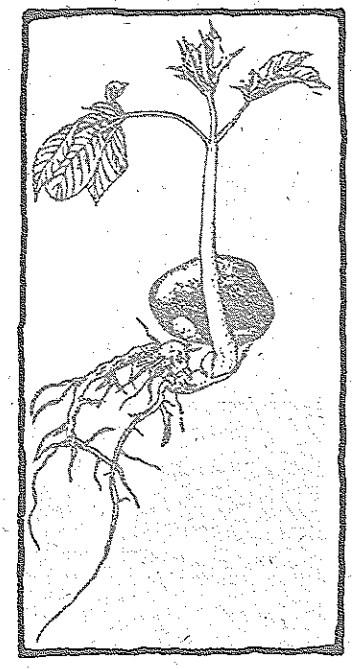
The importance of planting wildflower seeds in the proper place and at the appropriate time can be better understood when one considers the life of a seed. After a plant has flowered and produced fruit, the seeds within can be dispersed in a variety of ways. Some seeds will be carried long distances by the wind, while others will fall to the ground close to the parent plant. Many seeds will be carried by animals, sticking to their fur and falling off some time later, or eaten by animals and subsequently eliminated.

Whichever the dispersal mechanism, seeds end up in a variety of locations and conditions, some of which will promote and others which will prohibit, growth. When a seed lands in an inhospitable environment, it must remain dormant until the conditions are amiable, not only for germination, but for growth of the plant to fruition. Remember that the ultimate goal of the plant is to perpetuate the species, so production and protection of the seed stock is essential.

There are several built-in protection devices that inhibit seed germination until specific environmental and physiological requirements are experienced by the seed.

For example, some desert plants have a chemical inhibitor located just under the seed coat which inhibits seed germination. This technique has been developed by plants that live in arid environments, but have annual rainy seasons. The chemical inhibitor will prevent germination until the seed has been exposed to enough water to leach out, or remove, all of the inhibitor. The inhibitor must be leached out entirely over a specific period of time, indicating that it is the rainy season and not just a sporadic shower. This mechanism protects the plant by inhibiting germination until there is sufficient water to support growth of the entire plant. These chemical inhibitors act like a rain gauge, measuring and monitoring precipitation.

Another protective system is a hard seed coat. Many seeds have such a strong seed coat that scarification is necessary to break it open, allow water to enter and a gas exchange to take place. A seed must be hydrated or imbibed with water before it can germinate. A hard seed coat is impermeable to water, therefore preventing imbibition and germination. Over time, many natural causes begin to break down, or scarify, the hard seed coat. An alternating freeze-thaw will break open some seed coats.



Microbial decay, fire, and digestion by animals are all natural scarification methods. Once the seed coat is scarified, water can enter and germination will follow. This process is beneficial. By preventing all the seeds from germinating simultaneously, that species is protected from perishing in a drought or severe freeze. By spreading out germination over time there is a much greater chance that some will survive.

Seeds are also sensitive to other environmental influences, such as light. Some seeds require a certain amount of light to germinate. Tiny seeds, for example, require light to indicate how deep they are in the soil. Sun loving plants have light sensitive seeds and will not germinate under a heavy shade canopy. Conversely, many seeds must not be exposed to light but must experience darkness to trigger germination.

Temperature is also very influential in seed germination. A seed may have a chilling requirement before it will germinate, requiring a specific low temperature over a specific length of time to sprout. This protects the seed from germinating too early in the spring and being nipped by a late freeze. High temperatures in some seed will prevent germination, while warm temperatures may induce it. This thermodormancy is a calender for the seed, protecting it until the appropriate season arrives, ensuring successful growth of the plant.

These protective mechanisms are only a few of the ways seeds protect themselves from germinating at inopportune times in inhospitable environments. If you have planted a wildflower garden and the results differ from one year to the next, it may be due to the weather and varying rainfall. Some species may be more abundant than others in a particular year, because the climate was more conducive to those seeds and their germination requirements.

If you are planning a wildflower garden, keep in mind the natural conditions in which the seeds grow and choose the wildflowers best suited for your area. Choosing the right seed, planting it in the right place and at the right time will help insure your wildflower garden is a success.

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

B·O·O·K REVIEW

Annie Paulson

A Practical Guide to Edible and Useful Plants

by Delena Tull
Texas Monthly Press, 518 pp, 1987.

In our world of instant products, we no longer think about native plants as a source of food or medicine. On a daily basis, it is unnecessary to know what wild edibles are high in Vitamin A or how to make medicinal tea from yarrow. But we develop a link with the past when we learn which wild plants were important to Native Americans, or what pharmaceutical products have been derived from various plants.

The recent publication of *A Practical Guide to Edible and Useful Plants* proves extremely informative and satisfies the natural curiosity of many amateur and professional botanists.

It is no longer practical to harvest our meals from the wild, but knowledge about plants high in nutritional value may provide answers to problems in the future. Historical events have pointed out the dangers of becoming over dependent on a few food crops. With these lessons learned, we need to increase our crop diversity and select plants better suited to local environments. Many wild plants are highly nutritious and have commercial potential as agricultural products.

The first three chapters of the book comprise the bulk of the text and cover **edible plants; teas and spices;** and **edible and poisonous berries.** This section is well-researched offering us warnings on what parts, if any, may be toxic, plant characteristics to aid in identifying and food preparation tips. The highlights include wonderful recipes such as persimmon bread,

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Summer With England's Wildflowers

Once again the Wildflower Center is planning a summer tour of the Wildflowers and Gardens of England, led by a wildflower expert. This delightful 12 day vacation will take you into exclusive homes and gardens, such as Heaselands, Sherbourne Park, and Newick Park. You will have the opportunity to stay in picturesque homes, while enjoying the hospitality of hostess families and the gentry. The combination of visiting several unusual gardens and nature preserves should make for a memorable trip.

The tour is scheduled for Tuesday June 7 to Sunday June 19, 1988. Advance reservations are recommended. The cost, which has not yet been finalized, will be in the range of $2,500. If you desire more detailed information on this special activity, please call or write Wendy Wood at the Wildflower Center.

The price of the tour includes a tax-deductible donation to the Center, simultaneously affording you an exclusive vacation and supporting the wildflower cause.

continued from page 5

farkleberry jelly, and pesto.

A large chapter is devoted to poisonous and harmful plants and includes information on toxic ornamentals as well as vegetables, spices, and wild plants. The plants are grouped by family names and unique family characteristics are explained and specific toxins identified. This section also identifies plants which cause "rashes and sneezes."

In addition, detailed information is presented in the chapter on how to use plant dyes including 120 recipes for dye plants. Another chapter covers plant fibers appropriate for weaving cloth and making baskets.

The author, Delena Tull, is extremely knowledgeable and obviously spent many hours in the field as well as in the library. The size of the book makes it perfect for field trips. Throw it into your backpack – on one of your botanical excursions!

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.

On Becoming A NWRC Member

Your membership donation is tax deductible to the extent allowed under Federal and State laws. For information concerning the benefits of each level of membership, please contact the Center. Return to: Membership, National Wildflower Research Center, 2600 FM 973 North, Austin, TX 78725.

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Volume 4, Number 3 Fall 1987

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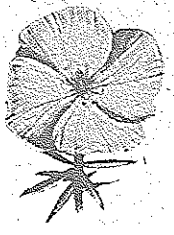

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