The Newsletter of the National Wildflower Research Center *Volume 8, Number 4 July/August 1991*

WILDFLOWER

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

WANTED: A NATIONAL ENVIRONMENTAL RESEARCH PLAN

A radio interviewer recently asked me, "Why would anyone care about a plant called ashy dogweed?" Ashy dogweed (*Thymophylla tephroleuca*) is one of the endangered species that the Wildflower Center is studying.

My response to her question: because we don't know enough about it and it's telling us something about changing habitats. We don't know enough about most of our native plants, endangered or otherwise, which is why the Wildflower Center and other individuals and organizations are studying them.

Aside from learning more about the ecology of ashy dogweed, the plant may have chemicals that could be important for human use. The potential of our native flora is largely untouched, unstudied. Scientists recently discovered that taxol, a compound found in the bark of the Pacific yew (*Taxus brevifolia*), has potential as an anti-cancer drug (*The Nature Conservancy Magazine*, Jan./Feb. 1991). Yet Pacific yews are rapidly disappearing as old growth forests of the Northwest are logged.

Across the country, ecosystems are threatened by human-caused disturbances — we need a comprehensive management plan based on sound, scientific practices for the environment. Enter the proposed National Institutes for the Environment (NIE).

Modeled after the National Institutes of Health, the NIE would facilitate research aimed at restoring a healthy relationship between humanity and the environment. Advocates of the NIE stress that the health of the environment deserves as much attention and financial support as the health of our citizens. For example, each year the government allots $5.5 billion to health-related research, some 22 times the amount spent on environmental research. Most of the current government funding for the environment is spent on investigating existing or proposed regulations. There is no environmental agency whose primary responsibility is setting national priorities for research and supporting graduate training in the environmental sciences. As a result, there is an insufficient number of qualified scientists to combat the nation's environmental problems.

To assess the need for such an agency, Congress authorized $400,000 last October for the National Academy of Sciences to evaluate the nation's environmental research. A Committee for the NIE, directed by Dr. David Blockstein, has been formed to develop a consensus for the NIE among scientists, business people, and citizens concerned about the environment.

Blockstein says the new agency would lie somewhere between the "pure science" of the National Science Foundation and the regulation-driven research of the Environmental Protection Agency. As such, it would supply the missing link of communication and coordination between existing agencies and institutions involved in environmental research. The NIE's primary mission would be to enhance the environmental sciences and provide a central source of financial support for research directed towards understanding, preventing, and solving environmental problems.

NIE proponents envision the creation of institutes to oversee research on such issues as biodiversity, ecosystem management, sustainable resources, and climatic change.

"Existing agencies are unable to provide the stable long-term funding to look at 'big picture' issues in an integrated way, combining the social, natural, and technical sciences," says Blockstein.

Grants would be awarded on a competitive basis, and a guiding committee would set research goals and policies for each institute. The NIE would link environmental research and public policy to form a basis for improved environmental legislation. The NIE also includes plans for a National Library for the Environment, providing a database of accessible, accurate information.

To many, the National Institutes for the Environment is an idea whose time has come.

(For more information, contact Dr. David Blockstein, Committee for the National Institutes for the Environment, 730 11th Street NW, Washington, D.C. 20001-4521.)

Beth Anderson
Resource Botanist
National Wildflower Research Center

Support local or state native plant initiatives in your community. Call those in charge to voice your encouragement. Participate!

Director's Report

For genuine "global relief," plant a native tree

In a complicated world with complex ecological and environmental problems, there are no easy solutions or quick fixes; we should guard against addressing any single aspect of a complex system without considering how that action might affect the rest of the system.

A very real example of this problem is the large number of usually well-intentioned (but not fully thought-through) tree planting initiatives. "Re"planting trees that have been cleared for urban growth implies that the native trees that were cleared will be replaced with those same native species.

But many of these programs instead recommend planting "exotic" trees that are introduced from other continents. Even if they are "selected" for your hardiness zone, or are "drought-tolerant" or "naturalized," it does *not* mean they will fit into local ecological interactions. This is true even for trees native to North America, or even to your region or state, if they are not native to the area where they are being planted.

Exotic ornamental trees often consume many resources, including water, soil amendments, fertilizers, and pest control. Additionally, they usually do not reproduce, so "replacement" begins anew when the tree dies, which is often in the first few years. If you blindly plant such a tree, you may do so at a huge net ecological resource loss.

Admittedly, some exotics do not require additional watering, fertilizing, spraying, etc.; they are touted as being "naturalized" or "just as good as a native." But ecologically, what do they provide? They do not provide wildlife habitat, soil microbe interaction, or other ecosystem involvement, and they do occupy space that a true native — that *would* contribute to the local ecosystem — could occupy instead. So, while such naturalized exotics may not be a resource drain, they make few, if any, contributions beyond aesthetics, such as flowering or shade. They do not ecologically replace what was once there.

Another argument for "planting a million trees" is the belief that they will absorb carbon dioxide, thus reducing the global warming caused by the greenhouse effect. Although this sounds good in theory, it is not clear how serious the greenhouse effect is, and ecologists do not agree on whether a million trees (or even a billion) will absorb even as much carbon dioxide as was produced by the propagation, delivery, and planting process, let alone provide any measurable mitigation of global warming.

The ecological results of removing native plants, however, is well documented. Native plants provide the base of the food chain for all wildlife, they are sources of oxygen production, and they are the only organisms capable of converting light energy to a form of energy that all life on Earth can use. Removing native wildflowers, grasses, shrubs, and trees has resulted in many ecological problems that planting an exotic tree does not address, and may well make worse.

So if you wish to take action on ecological problems, plant a tree native to your area. You will address problems with a *total resource conservation* approach, not a no-gain or, worse, a net resource loss. Doing something in the name of ecological good is only valid if that good is not offset by negative ecological consequences.

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

Wildflower

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Wildflower Center News

Executive Director David Northington moderated a session on the use and culture of native species at the American Association of Botanical Gardens and Arboreta annual meeting in June in Minnesota. Presenting papers at the conference were John Averett, research director; Bonnie Harper-Lore, Midwest Regional Office program coordinator; Beth Anderson, resource botanist; and Elinor Crank, research horticulturist.

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Staff Community Ecologist Alison Hill presented a paper on seed specifications and testing techniques for wild-harvested seed mixes at the Society for Ecological Restoration annual conference in Orlando, Fla., in May.

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Five thousand people, a record crowd, attended the Wildflower Center's annual Wildflower Days Festival in April.

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The Center's Midwest Regional Office in Minnesota, has offered a proposed new landscaping ordinance to the 140 cities in the Minneapolis/St. Paul metropolitan area. The proposal encourages each city to support a policy that would allow alternative lawns, and offers assistance with the native plant-related issues involved. Bonnie Harper-Lore has written a preface for the biography of Eloise Butler, a turn-of-the-century Minneapolis teacher who created the Eloise Butler Wildflower Garden. The Minneapolis garden, with its unique assortment of native Minnesota plants, is one of the oldest public wildflower gardens in the United States.

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The Wildflower Center and Mrs. Johnson were honored in March during the Dallas Galleria mall's 10-day Primavera Festival. Gump's hosted a High Tea and the Center's products were sold during the event.

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The CNN television network broadcast a story on the Wildflower Center and its Indian paintbrush *(Castilleja indivisa)* research several times in April.

Discover the secrets of the Wildflower Center

If vacation plans bring you to Austin, Texas, visit the Wildflower Center to see our native plant landscaping and research plantings.

In keeping with the Wildflower Center's mission to reestablish our native flora, research plots examine different aspects of the complexities of revegetation. The demonstration plantings use our knowledge of the native flora to create native landscapes.

If you visited the Wildflower Center during our early years, you will notice a big change from the humble beginning of a handful of wildflower seeds scattered in a hay field.

Springtime is our prime season, but there is much to see in the summer and fall. Attractions include a reconstructed prairie, a pollination garden, and a "nativescape." Other areas to see are seed-mix study plots, wildflower specimen beds, a wildflower seed production plot, a wild yard, soil mycorrhizal fungi beds, and native grass plots. We even have some longhorn cattle that are preparing the ground for one phase of a grassland rehabilitation study.

The reconstructed prairie is an ever-changing mix of colors and textures as wildflowers and grasses bloom and go to seed in their own seasons. Though it is most spectacular in the spring when most of the prairie wildflowers are blooming, other wildflowers bloom throughout the summer. In the fall, the prairie grasses show off their seed-heads and the fall-blooming wildflowers take over. The reconstructed prairie is about one-third of an acre, and represents a natural plant community. A grassland rehabilitation is in progress in a larger area of the grounds; this is where you can see the longhorn cattle.

Birds and insects, as well as people, are attracted to various colors and shapes of wildflowers in the pollination garden. Monarch butterflies on the journey from Mexico stop to lay eggs on the butterfly weed (*Asclepias tuberosa*), hummingbirds come and drink nectar from standing cypress (*Ipomopsis rubra*), and bees gather nectar for wildflower honey.

Our spring meadow plantings will be going to seed in July and August. It's not pretty — but it's a necessary phase before mowing.

A more formal area has been named the "nativescape." It displays perennial wildflowers, shrubs, trees, and grasses, many of which bloom in the summer and fall.

The "wild yard" outside the Wildflower Center's front door is a mix of the conventional and naturalistic: it is a lawn of short native grasses interspersed with wildflowers. After the wildflowers go to seed, it is mowed and maintained as a lawn.

In the mycorrhizal fungi study plots, botanists can investigate the relationships of soil microorganisms to plant growth. The seed production plots demonstrate the feasibility of producing seeds from wildflowers that are not now commercially available.

In germination and specimen beds, botanists observe growth and seeding times of different species of wildflowers and native grasses. An endangered plant species, ashy dogweed (*Thymophylla tephroleuca*), was grown in the greenhouse and is being observed in an outside plot.

Many native Texas plants thrive and even bloom in the hot dry Texas summer. If you can stand the heat, there's plenty to see! In the summertime, visiting hours at the Center are weekdays 9 a.m. to 4 p.m.

We hope to see you!

Marcia Hermann
Research Assistant
National Wildflower Research Center

RESPONSIBLE NATIVE PLANT COLLECTING IS A NECESSITY

Spring 1990 produced one of the most profuse and lovely roadside blooms in years along the highways of Pinal and other Arizona counties.

That April a crew of young men with large sacks were reported one morning to be uprooting whole lupine plants along long stretches of U.S. 89. The plants taken were still in full bloom, with few mature seeds, so few or no seeds from the year's prolific bloom were left to ensure similar displays of natural beauty in coming years.

Assuming collecting was illegal, we called the Pinal County Sheriff's Department, which told us that "picking flowers along the road" was not illegal. We went to the site, where we encountered an untrained labor crew apparently being paid by the weight of the vegetation taken. One man said they were working for a major commercial seed dealer in Phoenix.

Later we talked to the Arizona Department of Transportation, which assured us the activity was illegal. Section 28-1870-A.7 of the Arizona Transportation Code defines misuse of a public highway in the following terms: "A person who commits or causes to be committed any of the following acts is guilty of a petty offense: 7. Knowingly removes, damages, or destroys any tree or shrub standing on a highway right-of-way."

We then called the Pinal County sheriff, who agreed to increased enforcement of these statutes.

But we must help. If you should ever see the wholesale, systematic "harvest" of wildflower plants in the right-of-way along our state's highways, please act. Note the milepost and any geographic landmarks and report the activity as soon as possible to either the local sheriff's department or the Department of Public Safety. Be prepared to cite section 28-1870-A.7 of the Arizona Transportation Code.

The movement to use wildflowers in regional landscaping designs is positive, but we should not allow the wholesale destruction of our superb natural stands of roadside wildflowers to create these designs. Instead, let's encourage field production of these wildflower species. When purchasing seeds, please ask how they were produced or obtained.

William R. Feldman
President, Arizona Native Plant Society

Wildflowers are irresistible! What a pleasure to walk out into a field awash with blossoms. And who can resist the urge to pick a few for the vase, or to carefully take a whole plant home for the garden? In our enthusiasm we often don't realize the damage being done — each year a few more picked and few less seeded into that population; a little less seed for the birds and animals who survive on them.

Individuals and organizations across the country are struggling with issues surrounding **collecting ethics**. All agree that wholesale digging from the wild or wiping out an entire season's seed crop is a bad practice, and that herbarium collections are necessary to furthering our knowledge and understanding of plants. But even where it is legal, how much collecting, whether for science or propagation, or on educational field trips, is ethical? Common sense *should* always govern such activities, but even botanists sometimes lack it.

In documenting the process that the Arizona Native Plant Society has struggled through, Barbara Tellman describes some poignant experiences.

"...On a field trip, a prominent local politician, wanting to have someone identify a flower pulled up the entire plant (by mistake), got the name then threw it away. It was the only flower of its kind in the meadow. The next day, an environmentally conscious Nature Conservancy employee led a trip to a new preserve and finished the day with a large plastic sack full of entire plants. He was collecting for the Conservancy herbarium, but neglected to let people know what he was doing. While that was happening, the mushroom folks were not only collecting, but even eating their specimens." On another trip in Mexico, "a new member was severely chastised for taking cactus cuttings while old-timers were seen taking similar cuttings through Customs...The new member got the message that plant cuttings should be taken on the sly."

Most of us have collected plants and picked flowers, relying on the plentiful land to rejuvenate after our intrusion. But our burgeoning human population exerts pressures on native plant communities that are too widespread to allow that comfortable assumption any longer. Gone are the carefree days of indiscriminate use of the land, and much of our heritage of the sort described by John Muir, Aldo Leopold, and others.

Ask others to take the time to think, to consider what and why they are taking, and to ponder the effect of the next ten visiting groups to the land.

In promoting the use of native plants in planned landscapes, the National Wildflower Research Center also has a responsibility to promote the protection of wild plant populations and the ethical taking of plant materials from them. Of course, most of our members are responsible and ethical wildflower admirers. But each of us can make a difference. Always inquire about the origin of the plants you buy. Demand *nursery propagated* plants (see *Wildflower*, July 1990). Avoid collecting whole plants and judiciously collect seed. Be sure to make any observers aware of what, why, and how you are collecting. And speak up! Ask others to take the time to think, to consider what and why they are taking, and to ponder the effect of the next ten groups of visitors to the land.

Bonnie Crozier
Resource Botanist
National Wildflower Research Center

A fact sheet, *Guidelines for Seed Collecting*, is available free to members, who should include a self-adressed mailing label. (Non-members please send a self-addressed, stamped envelope.)

Spend Summer in the Shade with native plant books

Ever wonder how to best photograph your favorite wildflowers? Or how to attract butterflies to your garden? This selection of books answers those questions and more, and provides active or quiet ways to enjoy native plants during the summer months.

To order, please use the form below (or a photocopy). Orders over $50 receive a free copy of *50 Simple Things You Can Do to Save the Earth*, a $4.95 value.

The Wildflower. Betty Castro. NEW! Nature's tapestry celebrated in beautiful poetry and illustrations. An ideal gift. Royalties from this book benefit the Wildflower Center. 48 pages, 25 full-color illustrations. Hardback. $9.95.

Native Plants of America. Richard M. Smith. For day-trippers, campers, and armchair travelers — an exceptional guidebook to wild flora in various U.S. locations. 267 pages. Paperback. $12.95.

The Book of Pressed Flowers. Penny Black. How to preserve your favorite blooms and other projects. (Please gather samples conservatively!) 120 pages. Hardback. $19.95.

Photographing Wildflowers. Craig and Nadine Blacklock. A photography "workshop" for advanced amateurs, presented by two famous nature photographers. 64 pages, 56 color photos. Paperback. $12.95.

Butterfly Gardening. Xerces Society and Smithsonian Institution. NEW! How to attract butterflies with native plants. 184 pages, more than 100 color photos. Paperback. $18.95.

Landscaping with Native Plants of Texas and the Southwest. George Miller. NEW! Landscaping today for a livable tomorrow. Includes Arizona and New Mexico. 128 pages, 240 color photos. Paperback. $19.95.

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Alpine Wildflowers. Dee Strickler. For hikers, travelers, and others — an invaluable guide to wildflowers of alpine and subalpine areas of the northern Rocky Mountain states. 112 pages, color photographs. Paperback. $9.95.

Wildflowers for All Seasons. Anna Vojtech and Ghillean T. Prance. Artist Anna Vojtech has selected 129 of her most beautiful works for this glorious volume of wildflowers that bloom season after season in New England's coastal and inland areas. 208 pages. Hardback. $35.00.

ENJOY THE SUMMER: READ NATIVE PLANT BOOKS!

Use this form (or a copy) to order any of the books above. Make check payable to NWRC and mail with form to: **NWRC BOOK ORDERS**, 2600 FM 973 NORTH, AUSTIN, TX 78725-4201. Or call (512) 929-3600, from 9 a.m. to 4 p.m. Central Time weekdays, for credit card orders only.

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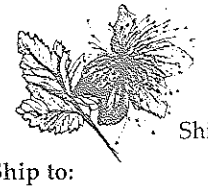

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FROM THE F·I·E·L·D

Crested Butte Wildflower Festival, *July 6-7, Crested Butte, Colo.* **Contact:** Crested Butte Chamber of Commerce, P.O. Box 1288, Crested Butte, Colo. 81224, 1-800-545-4505.

Eastern Native Plant Alliance, *July 21-23, North Carolina Botanical Garden, Chapel Hill.* Co-hosted by North Carolina Botanical Gardens and the North Carolina Wild Flower Preservation Society. **Contact:** ENPA, P.O. Box 6101, McLean, Va. 22106.

Landscaping with Native Plants Conference, *July 25-27, Western Carolina University, Cullowhee, N.C.* **Contact:** North Carolina Botanical Garden, Totten Garden Center 3375, UNC, Chapel Hill, N.C. 27599-3375.

Adirondack Wildflower Festival, *July 27-28, Adirondack Park Visitor Interpretive Center, Paul Smiths, N.Y.* **Contact:** Adirondack Park, Box 3000, Paul Smiths, N.Y. 12970, (518) 327-3000.

Wildflower Photography Workshop, *August 1, 3 and 4, Shaw Arbotetum, Missouri Botanical Garden, Gray Summit, Mo.* **Contact:** Missouri Botanical Garden, (314) 577-5138.

Iowa Operation Wildflower Workshop, *August 2-3, Glenwood, Iowa.* **Contact:** Russell or Ellen Heine, Box 4007, Spencer, Iowa 51301, (712) 262-1180 or (712) 262-3540.

Native Plants in the Landscape, *August 15-17. Millersville State University, Millersville, Penn.* Focusing on the Mid-Atlantic and Northeast regions. **Contact:** Grace Evans, 104 Dilworth Hall, Millersville University, Millersville, Penn. 17661, (717) 872-3030.

1991 Readership Survey

Please help the Wildflower Center improve *your* newsletter by completing this anonymous survey (or a copy!) and returning it to the address listed below. Everyone completing a survey will receive a set of wildflower bookmarks as our thanks for showing interest in the newsletter. (Please enclose your name and address on a separate piece of paper so we can mail your gift to you.) **Thank you!**

1 How often do you read some or all of the six yearly issues of the *Wildflower* newsletter? Please circle your answer.
A. Five to six issues per year
B. Three to four issues per year
C. One to two issues per year
D. Never

2 What types of articles do you most enjoy reading? Please rank all the following items, with 1 being the article you enjoy reading most.
____A. Gardening information
____B. Environmental information
____C. Wildflower Center research
____D. Wildflower Center news items
____E. Calendar information
____F. Native plant news briefs
____G. Other (please specify)

_____

3 What subjects would you like the newsletter to cover in greater detail?
____A. Gardening information
____B. Environmental information
____C. Wildflower Center research
____D. Wildflower Center news items
____E. Calendar information
____F. Native plant news briefs
____G. Other (please specify)

_____

4 How often do you read the Director's Report?
A. Always B. Occasionally C. Never

5 Please rank the following areas of interest in order of importance, with 1 being most important and 5 being least important.
____A. Environment
____B. Restoration ecology
____C. Endangered species and habitats
____D. Gardening with wildflowers
____E. Landscaping designs
____F. Other (Please specify)

_____

6 How many people do you usually share your newsletter with?
A. None B. 1-2 C. 3 or more

7 How could *Wildflower* be improved? Please mention specific columns, layout, artwork, or other areas.

_____

8 How long have you been a member of the Wildflower Center?
A. Less than one year
B. One to three years
C. Four to seven years
D. More than eight years

9 Do you belong to any of these conservation or gardening organizations? Circle all that you belong to.
A. Nature Conservancy
B. World Wildlife Fund
C. American Horticultural Society
D. Audubon
E. Other, please specify

_____

10 Do you belong to a garden club?
A. Yes B. No

11 What is your age group?
A. Under 25 B. 25-34
C. 35-44 D. 45-54
E. 55-64 F. 65 +

12 What is your total household income before taxes?
A. Less than $15,000
B. $15,000 - $24,999
C. $25,000 - $34,999
D. $35,000 - $44,999
E. $45,000 - $54,999
F. $55,000 - $64,999
G. $65,000 or more

13 What is your sex?
A. Female B. Male

14 What is the highest level of formal education you have attained?
A. Grade school
B. High school
C. Some college
D. College graduate
E. Post-graduate study
F. Post-graduate degree
G. Other

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