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Water Current Newsletter

Water Center, The

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## Water Center, Volume 30, No. 1, February 1998

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# Water Current

Starting Our 30th Year!

## Resource Institute Working to Restore Native Prairies and Wetlands

By Steve Ress

Bill and Jan Whitney have dedicated their lives to help restore Nebraska's native prairies and wetlands, educating the state's youth to these natural wonders in the process.

"Things are better now than they were 15 to 20 years ago, but there is still too little being done to integrate the processes of ecological restoration, education and land management into the agrarian system of south-central Nebraska," Aurora native and Prairie Plains Resource Institute (PPRI) co-director Bill Whitney said. The Whitneys founded PPRI in 1980 with the goals of "Planting prairie, managing land and becoming more involved with nature education in our community."

Eighteen years later PPRI has realized those goals and more. Institute objectives are to preserve and restore native prairies, wetlands and other unique habitats; use them for research and education about regional



An early attempt at sowing native prairie seeds in a farm field near Wood River. Members of the Aurora-based Prairie Plains Resource Institute are dedicated to the preservation and restoration of native prairies, wetlands and other unique Nebraska habitats (photo: Bill Whitney).

natural and cultural history; promote greenways; and develop a center for conservation research and education.

Whitney became interested in doing prairie restoration work after he and Jan completed a prairie interpretation project at Grand Island's Stuhr Museum of the Prairie Pioneer in 1978.

"At that time, it struck me how little was being

done in the state in regard to environmental education and natural history of the region," he said.

The two collected seeds from native plants wherever they could find them and began growing them in a small greenhouse at their Aurora home.

Slowly they developed projects along a watershed and other locales near their home, such as prairie restoration along Aurora's Lincoln Creek and an interpretative prairie management project at Bader Me-

(Continued on page 8)

### INSIDE

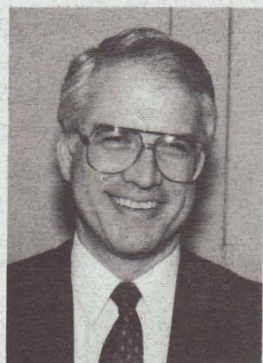
- 3 ..... CWA RESTROSPECTIVE  
4 ..... NEBRASKA WATER 2000

- 5 ..... INVESTIGATING DISINFECTION  
8 ..... GROUNDWATER UNIVERSITY



# Water Conference, Seminar Series, USGS Grants

## from the DIRECTOR



**Bob G. Volk**

An outstanding group of speakers has been assembled for this year's Nebraska Water Conference. The conference will take place at the Regency Inn (formerly the Holiday Inn) in Kearney March 10 and 11 with an opening reception Monday evening March 9th. This year's conference title of "Nebraska Water 2000 — Information for the Future" is the first of three annual water conferences that will establish a firm understanding and record of the history of Nebraska water and its many uses as we prepare to enter the new millennium.

Presentations will focus on the physical, biological and cultural information of Nebraska water and information uses at the basin level, e.g. the Niobrara, Central Platte and Republican River basins. Each of Nebraska's major river basins will be examined in the course of the three-year conference.

At 12:45 p.m. Wednesday, March 11, the Nebraska League of Women Voters will join Water Conference sponsors in holding a forum on water issues for Nebraska's gubernatorial candidates. Candidates will receive letters of invitation to the forum after declaration.

Several post conference tours in the Kearney area are being offered, including The Funk Waterfowl Man-

agement Area, Cottonmill Park and the NPPD hydropower plant restoration project, near the University of Nebraska-Kearney campus.

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The Water Center has again been asked by the U.S. Geological Survey (USGS) to sponsor the North Central Regional grants competition. The request for proposals has been mailed to faculty. Approximately \$805,000 is available.

Nebraska faculty have been very successful in this competition the past two years. Please contact us here at the Water Center if you need additional information or a copy of the RFPs.

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The annual Water Resources Seminar Series is off to a great start under the leadership of Bob Kuzelka. Attendance and enrollment in the series is the highest ever.

The public is encouraged to attend the Wednesday afternoon seminars at 3:00 p.m. in Room 116, L.W. Chase Hall on the UNL East Campus. The series is also available on video tape for those who cannot attend. Please contact us for details (402-472-3305).

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## *Water Current*

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# The Clean Water Act: A Twenty-Five Year Retrospective

by J. David Aiken, UNL Water & Ag Law Specialist

In October 1972 Congress enacted the Federal Water Pollution Control Act (now called the Clean Water Act). The CWA has been one of the more successful federal pollution control programs, although the act does not regulate ground water pollution or nonpoint water pollution sources.

## Background

Before the CWA was adopted in 1972, water pollution control was a state option. State water pollution control efforts varied widely, and few states had effective water pollution control programs. Most cities discharged raw sewage directly into rivers, while industries dumped untreated wastes into streams. Scientists declared that Lake Erie was biologically dead, due to industrial pollution, and Americans watched on the evening news as industrial wastes polluting the Cuyahoga River near Cleveland literally ignited and burned when a lit match was thrown from a barge into the river. Clearly something needed to be done.

Part of the reason for the CWA's effectiveness is its tough legal framework. Under the CWA, all waste discharges into streams are regulated, and all waste discharges were to be stopped by 1983 (a goal that has not been and probably never will be met). The U.S. Environmental Protection Agency establishes discharge standards for hundreds of categories of waste dischargers, and most states adopted EPA regulations in order to receive federal water pollution control funding.

## NPDES program

The fundamental regulatory feature of the CWA is the "National Pollution Discharge Elimination System" permit, or NPDES. Any person or entity discharging waste into a stream must obtain an NPDES

permit. All waste discharges into streams must meet relatively stringent EPA waste treatment requirements. The NPDES program has been largely successful in reducing these "point" or direct waste discharges into streams.

However, several problems remain. Toxic discharges have been difficult for EPA to deal with, although they are slowly coming under control. Nonpoint sources, such as soil erosion and agricultural chemical runoff, are managed through cost-sharing assistance rather than regulation, as is ground water contamination from nonpoint sources. Wetland protection under the §404 program has been and continues to be controversial.

In Nebraska, the CWA program is administered by the Nebraska Department of Environmental Quality (NDEQ). NDEQ has authorized 879 active NPDES permits: 334 municipal, 212 livestock, 199 industrial, and 74 industrial pretreatment. Nebraska has 42 major municipal dischargers and 26 major industrial dischargers, which together account for two-thirds of total waste discharges. Waste discharges must be treated in order to maintain water quality standards for the stream receiving the wastes.

## Groundwater protection and nonpoint sources

While the CWA focuses on surface water protection, it also addresses ground water quality protection, but not through regulation. EPA provides cost-sharing assistance for state programs to encourage farmers to use best management practices to reduce sediment and agricultural chemical runoff into streams and agricultural chemical contamination of ground water supplies.

Nebraska goes beyond what the CWA requires for both sediment runoff and agricultural chemical controls. Natural Resource Districts (NRDs) may

(Continued on page 7)

## CWA Has Positive Effects, But Future Cloudy

1997 marked the 25th anniversary of the Clean Water Act (CWA), one of the nation's most sweeping environmental laws.

At the time of its passage, the nation was horrified as rivers caught fire and headlines read of some lakes being declared dead as a result of industrial discharges and untreated sewage. At the time, it was considered one of the most successful components of the federal government's 1970s environmental activism. Today, two-thirds of the nation's waters meet the CWA's "swimmable,

fishable" goal.

With point source pollution discharges largely remedied thanks to CWA passage, the focus today has shifted to nonpoint source pollution and how the law should be reshaped to address this problem. CWA was amended in 1977, 79, 80, 81, 83 and 87, the first time nonpoint water pollution programs were addressed.

A congressional debate in 1995 over a proposed amendment (H.R.961) failed to generate an agreed-upon reauthorization of the CWA. House subcommittee hearings were held in

April, 1997, but no CWA reauthorization bills have been introduced.

Nonpoint source pollution is defined as "water pollution caused by diffuse sources with no discernible distinct point of source and is often referred to as "polluted runoff."

Point source pollution is defined as "water pollution with a distinct, identifiable source point, such as from a pipe or channel."

(Editor's Note: Taken in part from the Water Education Foundation's "Western Water," November/December 1997).



# Still Time to Register for "Nebraska Water 2000"

There is still time to register for the 27th Annual Nebraska Water Conference, but time is fleeting.

The conference begins a three-year look at the future of Nebraska water resources under the title of "Nebraska Water 2000." This year's conference will be at Kearney's Regency Inn (formerly the Holiday Inn) Mar. 9-11. Registration deadline is March 3.

The conference will focus on "Information for the Future" while 1999 and 2000 installments will examine "Planning for the Future" and "Management for the Future."

The 1998 conference concludes with a forum on water issues for Nebraska's gubernatorial candidates, sponsored by the League of Women

Voters, on Wednesday, Mar. 11.

## Registration Options

A variety of registration options are available. Full registration (all meals and break services) is \$90 per



person (\$110 after March 3).

Options are tailored to suit just about any level of conference involvement. Information on conference scholarships is available by calling Karen Stork at (402) 472-7530 or

emailing sress@unl.edu.

Deadline for room reservations at the Regency Inn at the conference rate of \$45 is Feb. 23rd. Phone 1-800-652-1909 or (308)237-3141.

For more information, or a copy of the conference registration brochure, phone UNL Water Center/Environmental Programs at (402)472-3305.

The conference is sponsored by the Nebraska Water Conference Council, Nebraska Department of Water Resources, University of Nebraska-Kearney, Conservation and Survey Division, Water Center/Environmental Programs, School of Natural Resource Sciences, Institute of Agriculture and Natural Resources and the University of Nebraska-Lincoln.

## Study Shows Risks of Animal Waste

Animal waste produced on American farms often pollutes water, and the risk is growing as more large-scale livestock operations take hold, according to a new U.S. Senate study.

The study found that the amount of animal manure produced in the United States is 130 times greater than the amount of human waste,

and there are no national standards for dealing with the animal waste.

For example, a single 50,000-acre hog farm being built in Utah could potentially put out more waste than the city of Los Angeles, the study said.

Sen. Tom Harkin, D-Iowa called it "the first comprehensive report to illustrate the magnitude of environmental problems caused by animal waste."

The study was compiled by the Democratic staff of the Senate Agriculture Committee. Harkin is the ranking Democrat on that committee.

The study said the nation's agricultural officials consider 60 percent of rivers and streams "impaired," with agricultural

runoff the largest contributor to that pollution.

Last year alone, more than 40 animal waste spills killed 670,000 fish in Iowa, Minnesota and Missouri, the study said. That was up from 20 spills in 1992.

Harkin used the study to support his push for national environmental standards for livestock producers. He and other supporters want Congress to impose national standards so states won't undercut each other in an effort to lure the livestock industry.

Farm groups have been leery of new regulations.

The report notes the rise of large-scale livestock operations - a growing trend among meat producers - has greatly increased the risk of waste spills, because the large farms produce more waste than can be spread over nearby cropland.

Over the last 15 years, the number of hog farms nationally has dropped to 157,000 from about 600,000, but the overall output of hogs has increased.

(Editor's Note: From an article by AP newswriter Mike Glover, Des Moines, IA).

### *"Interrelationship of Water, Native Grasslands and Wetlands"*

*The 1998 University of Nebraska Water Resources Seminar*

*Weekly public lectures from Jan. 14 through April 22 (except March 11 and 25)*

*Wednesdays at 3 p.m., Rm 116, L.W. Chase Hall, UNL East Campus, Lincoln*

*For a schedule of seminar topics and speakers, phone: (402)472-3305*

*Also available on VCR tapes for UNL Continuing Education credit, phone: 1-800-755-7765*



# Investigators Focus Attention on Community Drinking Water Disinfection

by Steve Ress

Most small Nebraska communities that rely on groundwater to supply their drinking water haven't had to worry about treating it, but a new rule could change that. Two University of Nebraska researchers are working to find the best options to help these communities if disinfection becomes law.

"The incidence of disease related to consuming untreated groundwater isn't clear, but it appears to be high enough that the U.S. Environmental Protection Agency is concerned," said Jennifer Miller.

She and fellow environmental engineer Bruce Dvorak of UNL's Department of Civil Engineering, are researching the most likely and cost effective disinfection options for small community groundwater systems if the proposed Ground Water Disinfection Rule (GWDR) is enacted. The rule is proposed as an amendment to the Safe Drinking Water Act and could become law in the next one to three years. It could require disinfection of groundwater, along with wells and distribution systems, to help prevent the outbreak of waterborne diseases.

"Nebraska currently has 425 small communities (less than 10,000 population) using groundwater systems. Less than 50 of these currently disinfect or otherwise treat their water prior to distribution," Miller said.

## Planning Grant

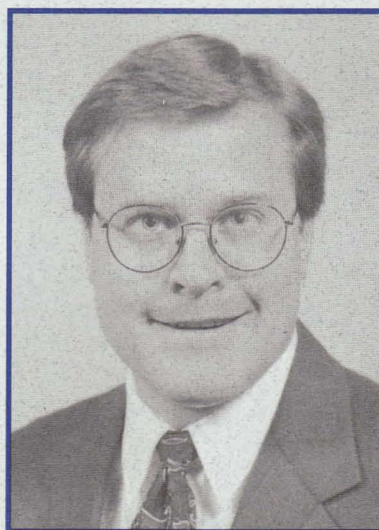
The "Drinking Water Disinfection Planning Grant" that she and Dvorak are co-principle investigators for is investigating disinfection options and requirements for the state's small communities. An advisory panel of drinking water professionals will be formed to help ensure their

research addresses the right questions.

"The idea of the GWDR is to protect drinking water from the source to the user. If small systems have to treat their water, we want to be able



Jennifer A. Miller



Bruce I. Dvorak

to provide them with disinfection options, information about possible disinfection by-products and related issues," Miller said. Alternatives to disinfecting the water will also be

investigated, along with the potential costs of complying with proposed GWDR requirements and technical support.

"Many systems that disinfect their water use chlorine, but chlorine can increase well and pipe corrosion and isn't always the appropriate solution. Small drinking water systems face different problems than larger systems," she added.

The research is being funded by the Nebraska Mandates Management Initiative and NU Water Center/Environmental Programs unit.

## New Faculty

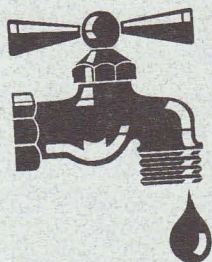
Miller joined the faculty at NU in June 1996. She earned MS (1992) and Ph.D. (1996) degrees in environmental engineering in civil engineering from the University of Illinois at Urbana-Champaign. She earned a BS Summa Cum Laude (1986) in civil engineering from Michigan Technological University, Houghton, Michigan.

Her research interests focus primarily on water chemistry and chemical/physical water treatment processes, source water quality, small water system processes, electrochemical analysis of corrosion and water distribution system corrosion.

Dvorak joined NU faculty in August 1994. He earned a Ph.D. (1994) in civil engineering from the University of Texas at Austin, where he also earned an MS (1990) in environmental health engineering. He graduated with a BS (1987) in civil engineering from UNL.

His research interests are in drinking water, wastewater and hazardous waste treatment processes, mathematical modeling of treatment processes, experimental verification and mathematical modeling of mass transfer and pollution prevention.





# Water News Briefs

## GW Foundation's "Festival Expedition"

The Groundwater Foundation is again sponsoring a "Festival Expedition" in conjunction with the annual Children's Groundwater Festival in Grand Island, March 23-25, 1998.

The expedition gives a behind-the-scenes tour of festival set-up for those interested in planning a water festival in their community or state. Participants will experience the 10th annual Children's Groundwater Festival, Anniversary Celebration and International Children's Groundwater Summit. Included is a trip to nearby Crane Meadows Nature Center, luncheon and tour of Grand Island's Stuhr Museum of the Prairie Pioneer.

For registration information, call the Groundwater Foundation at 1-800-858-4844.

## Nominations for Haverstick Award

The search is on for the 1998 Vern Haverstick Groundwater Hero award.

The award thanks an individual for groundwater service. A key is that the winner be someone who's work has not been widely recognized through traditional organizational awards.

"We are especially interested in learning about the extraordinary efforts of ordinary people that too often go unrecognized," said foundation president Susan Seacrest.

Nomination deadline is March 1 and the winner will be announced June 1.

For a nomination form, contact the foundation at 1-800-858-4844 or email [info@groundwater.org](mailto:info@groundwater.org).

## EPA Publications on Line

The U.S. Environmental Protection Agency (EPA) now has over 6,000 publications available to Internet users.

From the National Environmental Publication Information Site (NEPI), you can search and view these full-image scanned publications and OCR text from the EPA's public access server at <http://www.epa.gov/cincl/>.

Questions should be directed to Shannon McFarland at (513)569-7762 or email [wright.ed@epamail.epa.gov](mailto:wright.ed@epamail.epa.gov).

## Source Water Assessment Program

Congressional amendments to the Safe Drinking Water Act in 1996 directed each state to develop and implement a "Source Water Assessment Program (or SWAP).

Legislation passed by the Nebraska Unicameral last year gave responsibility for SWAP development and implementation to the Nebraska Department of Environmental Quality (NDEQ).

Each state's SWAP must be sent to the U.S. Environmental Protection Agency (EPA) for approval by February 1999. Federal requirements in a state's SWAP are:

- Delineation of sources of public drinking water - either Wellhead Protection Areas (for groundwater systems) or Watershed Protection Areas (for systems using surface water).
- Inventory of potential contamination sources.
- A susceptibility analysis of the system to contamination.

- Making the source water assessment available to the public.
- Additionally, the program must be developed with "Stakeholder" involvement from across the state.

Once the program is approved, the state will have three and a half years to complete a Source Water Assessment for each public water supply system.

NDEQ has held small focus groups to get public input regarding the direction of SWAP at two Natural Resource District (NRD) offices to date. Three more have been set for other NRDs.

If you would like to attend one of these meetings, contact your local NRD or the NDEQ. Questions should be directed to Marty Link or Stephanie Vap at NDEQ at (402)471-0096.

## E-Answers

The U.S. Department of Agriculture's CSREES has a one-stop searchable database called "E-Answers," an electronic library of extension service publications from 21 states.

The list can be searched by simple key words and will help consumers access information on a wide variety of topics that land grant universities cover, including agriculture, forestry, fishing, family/consumer, lawn and garden, child development, environment, public policy, economics and water quality.

Publications are listed from: Kansas State, Michigan State, Mississippi State, Montana State, Ohio State, Oklahoma State, Oregon State, Penn State, Rutgers, Texas A&M, University of Alaska Fairbanks, University of California, University of Florida, University of Illinois Urbana-Champaign, University of Maryland, University of Minnesota, University of Missouri, University of Nebraska, University of Wisconsin-Extension, Washington State and West Virginia University.

Internet address is <http://www.e-answers.org>.



## FEBRUARY

**12-13:** 101st Annual Convention and Industry Show, Nebraska Grain and Feed Association, Mid-Town Holiday Inn, Grand Island. Contact Ron Ziggafoos (402)476-6174.

**18:** Water Resources Seminar, "The Ecology of the Colorado Bursage," Jim Locklear, Rm 116, L.W. Chase Hall, UNL East Campus (402)472-3305.

**26:** North Platte Basin Water Policy Conference, Scottsbluff. Contact C. Dean Yonts (308)632-1246.

**24-25:** 1998 Platte River Basin Ecosystem Symposium, Regency Inn, Kearney. Contact Tom at (402)472-9872.

**26-27:** "Supercritical Water Oxidation and Related Systems Design," Engineering Solutions to Effective Wastewater Treatment and Sludge Management, The University of Texas at Austin, J.J. Pickle Research Campus, Austin, TX. To register, phone (512)471-3506 or email gparson@mail.utexas.edu.

## MARCH

**1-4:** Water Environment Federation 1998 Industrial Wastes Technical Conference, Nashville, TN. Discovering future directions of industrial wastes treatment. For details, call 1-800-666-0206 or (703)684-2452 (outside the U.S. and Canada), or email confinfo@wef.org.

**4:** Water Resources Seminar, "Plant Germplasm Resources of the North American Tallgrass Prairie," Ken Vogel, Rm 116, L.W. Chase Hall, UNL East Campus (402)472-3305.

**9-11:** 27th Annual Nebraska Water Conference, "Nebraska Water 2000 - Information for the Future," Regency Inn, Kearney. Contact Bob Kuzelka or Tricia Liedle for advance registration information at (402)472-3305.

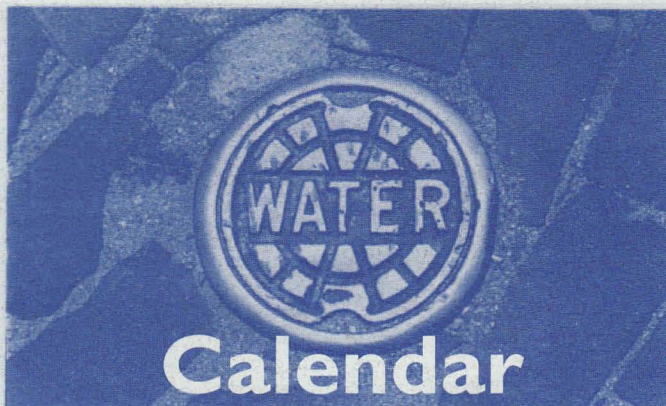
**10-12:** The Great Plains Foundation conference, "The Value of Water," Lubbock, TX. For additional information, contact Lori L. Triplett at (913) 385-7775.

**11-17:** Xth World Water Congress, Melbourne Convention Centre, Melbourne, Australia. "Sharing the Waters of the Earth," and "Sustainable Water Management in a New Millennium." Contact Lisa McAught, ICMS Pty Ltd, 84 Queensbridge Street, Southbank, Victoria, Australia 3006. Phone +61 3 9682 0244 or email [worldwater@icms.com.au](mailto:worldwater@icms.com.au)

**18:** Water Resources Seminar, "Hydrology of the Sand Hills," Ed Harvey, Rm 116, L.W. Chase Hall, UNL East Campus (402)472-3305.

**21-24:** International Children's Groundwater Summit, Grand Island. Sponsored by The Groundwater Foundation. Contact the telephone numbers below for information.

**22-25:** Second Annual Conference on Natural Resources of the Missouri River Basin, Lied Conference Center, Nebraska City, NE. For information, contact Pam Haverland, at (573)876-1841 or email [pamela\\_haverland@usgs.gov](mailto:pamela_haverland@usgs.gov).



**23-25:** Groundwater Festival Expedition, Grand Island. Sponsored by The Groundwater Foundation. Experience the 10th annual Groundwater Festival Anniversary Celebration and International Children's Groundwater Summit. For information, phone 1-800-858-4844, or (in Lincoln) (402)434-2740.

**27:** Earth Wellness Festival, Southeast Community College, Lincoln. Contact Soni Ericksen (402)441-7180.

## APRIL

**1:** Water Resources Seminar, "Wetlands Assessment Methods," Jon Kusler, Rm 116, L.W. Chase Hall, UNL East Campus (402)472-3305.

**8:** Water Resources Seminar, "Sub-irrigated Meadow Management Practices," Jerry Volesky, Rm 116, L.W. Chase Hall, UNL East Campus (402)472-3305.

**15:** Water Resources Seminar, "Sand Hills Wetland Coalition," Gene Mack or Nebraska Game and Parks Commission wetlands research, Gerry Steinauer, Rm 116, L.W. Chase Hall, UNL East Campus, (402)472-3305.

**15-17:** "Team Wetlands-101 Ways To Win For Wetlands." Knowledge and tools for community-based wetlands conservation, Arlington, VA. Contact the Terrene Institute at (703)548-5473 or email [terrinst@aol.com](mailto:terrinst@aol.com).

**22:** Water Resources Seminar, "Electromagnetic Remote Sensing of the Wetlands," Ezekiel Bahar, Rm 116, L.W. Chase Hall, UNL East Campus (402)472-3305.

**28-30:** The Source Water Protection International 98 Conference, DoubleTree Hotel, Campbell Centre, Dallas, TX. Contact the National Water Research Institute, Source Water Protection International 98, 10500 Ellis Ave., P.O. Box 20865, Fountain Valley, CA 92728-0865 or email [NWRI-1@worldnet.att.net](mailto:NWRI-1@worldnet.att.net).

## MAY

**3-6:** National Conference on Environmental Decision Making, University of Tennessee, Knoxville. Direct inquiries to UT Conferences, Attn: NCEDR Conference, P.O. Box 2648, 600 Henley St., Suite 212, Knoxville, TN 37901-2648 or call (423) 974-0280 or email [Conferences@gateway.ce.utk.edu](mailto:Conferences@gateway.ce.utk.edu).

**17-22:** Third Annual Short Course on Constructed Wetlands for Water Quality Improvement. Humboldt State University, Arcata, CA. Addressing wastewater, stormwater and other

non-point sources. Register by March 31 by contacting Barbara Smith at (707)826-3619 or email [smithb@laurel.humboldt.edu](mailto:smithb@laurel.humboldt.edu)

## JUNE

**8-11:** The Ninth Global Warming International Conference and Expo. Advanced registration due by January 25, 1998. Registration deadline March 1, 1998. Hong Kong University of Science and Technology. Conference FAX hotline is +1 630-910-1561. Exhibitors welcome.

**10-13:** The Groundwater Foundation's Groundwater University, Jeffrey Lodge, Brady. For junior and senior high students. For more information, call 1-800-858-4844 or (in Lincoln) 434-2740.

**14-17:** "NETC98, Connect with the Future," St. Louis, MO. Where extension educators can learn to put technology to work. For information phone Dave Klostermann, University of Missouri-St. Louis (314)516-5958 or email [dave\\_klostermann@cmail.umsl.edu](mailto:dave_klostermann@cmail.umsl.edu).

## The Clean Water Act: A Twenty-Five Year Retrospective (continued from page 3)

require farmers to control soil erosion, and may also limit agricultural chemical use to control ground water contamination. Several NRDs limit or prohibit winter fertilizer application to control nitrate contamination of ground water. The Nebraska Department of Agriculture is developing a program to regulate (with NRDs) pesticide use to protect ground water quality. NDEQ can also regulate agricultural chemical use to protect ground water quality. With some perseverance we can resolve the nonpoint water quality issues in Nebraska in the next 25 years, just as we have largely resolved point source problems under the CWA.

(References NDEQ, 1996 *Nebraska Water Quality Report*; NDEQ, *Annual Report to the Legislature*, 1997).



# Groundwater University and Groundwater Grad School

The Groundwater Foundation is accepting applications for Groundwater University and Groundwater Grad School.

GU is a summer residential program for junior high and high school students interested in groundwater and the environment. About 25 will be accepted based on knowledge, interest and experience in groundwater studies.

The annual program gives students a chance to learn about groundwater and natural resources

topics, while exploring careers in related fields.

Activities include water quality testing, community wellhead protection, fossil collecting and exploring connections between water and endangered and threatened species.

Cost is \$95 (\$120 after February 1). Scholarships may be available. Enrollment deadline is March 27.

Students who have successfully completed GU may also participate in Groundwater Grad School, a summer mentoring program in their

own hometown. Groundwater Foundation staff match students with a groundwater professional, which allows students to shadow them at their job. Mentors also serve as advisors as students develop groundwater research projects.

Enrollment deadline is June 19.

For information on either program, contact the Groundwater Foundation at 1-800-858-4844 or (in Lincoln) 434-2740.

## Resource Institute Focuses on Restoring Native Prairies and Wetlands (continued from page 1)

monial Park Natural Area on the Platte River.

"Through memberships, contract work and small grants and donations, we moved slowly ahead, but the largest gifts came in the form of land," said Whitney.

In addition to a Lincoln Creek parcel, 320 acres near Kearney have been donated, along with 30 acres of virgin prairie southeast of Aurora known as the Marie Ratzlaff Prairie Preserve.

In 1993 a 5,000 acre ranch on the upper Niobrara River was donated to PPRI. Two years later, PPRI accepted 77 acres in Boone County, now called the Olson Nature

Preserve.

Whitney views these lands as "Community preserves...places that will become increasingly important as focal points for community education." Such educational pursuits may hold the promise of retaining more of the area's youth after they're grown.

"The foundation of rural economic development may have less to do with the processes of planning, zoning and business growth than it has to do with what local people know about the area they live in," he said.

One of these educational efforts is 'SOAR,' or Summer Orientation

About Rivers. The two-week nature discovery day camp began in 1992 and is held on PPRI land and surrounding private and public lands and waterways.

Activities and documentation from the program are available as guides for natural history educators.

The institute currently has about 200 members. Membership is available by contacting: *Prairie Plains Resource Institute, 1307 L St., Aurora, NE 68818-2126, or phoning (402)694-5535.*

### WATER CENTER/ENVIRONMENTAL PROGRAMS

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