



Water Conservation Tips

• Support efforts and programs to create concern for water conservation among tourists and visitors to our state. Make sure visitors understand the need and benefits of water conservation.

• Conserve water because it is the right thing to do. Avoid wasting water just because someone else is paying for it—such as when staying at a hotel.

Water Fact

• The human brain is composed of 95% water; blood is 82% water; and the lungs are nearly 90% water.



Verde Watershed
Association
P.O. Box 4595
Camp Verde, AZ 86322

Web site: <http://vwa.southwest-water.org>

Causes and Consequences of Drought Analyzed at Southwest Drought Summit

A Southwest Drought Summit held at Northern Arizona University in Flagstaff, Ariz. brought more than 200 regional experts and decision makers together to assess drought impacts, integrate knowledge about the causes and consequences of drought in the Southwest, and propose sustainable strategies for the future.

Consensus was reached on a variety of issues raised during the summit. Five recurring themes/issues emerged in both presentations and working groups.

DROUGHTS ARE NORMAL. We need to incorporate this reality into management and policy plans. An important impediment to communities incorporating this concept in planning efforts is the tendency to dismiss droughts as regular events that may last years or decades.

WET PERIODS CAN OCCUR WITHIN A DROUGHT. These periods of normal to elevated precipitation can span weeks to years,

and are typical of multi-year drought periods. These “wet” breaks in a longer-term pattern hinder appropriate planning because they provide the false assurance that a drought has subsided.

INCREASED POPULATION GROWTH. The Southwest is experiencing unprecedented population growth that will not only exacerbate drought effects but will create serious problems in the future even in the absence of droughts.

LONG-TERM PERSPECTIVE. For all of the themes addressed in the summit, there is a lack of long-term drought data needed to develop predictions necessary for responsible long-term plans for managers, policy experts, and the public. Viable long-term plans are critical to ensure sustainability.

DROUGHT EDUCATION. One of the most repeated statements made during the conference was a need to better educate researchers, managers, policy experts, and the public about drought. This includes formal kindergarten through college education as well as informal education programs.

Held in May 2003, the Summit was designed to bring scientists and decision makers together with the common goal of providing a synthesis of current scientific and policy information on the issue of drought in the Southwest. Often, the scientific community views science as undervalued in policy-making, whereas policy makers find scientific information complex and inaccessible. The Summit sought to incorporate science into the decision-making process by giving participants the opportunity to provide input to the Arizona Governor’s Drought Task Force.

Neil S. Cobb @ (928) 523-5528
or e-mail neil.cobb@nau.edu
Full Report: http://www.mpcer.nau.edu/megadrought/drought_summit_report/index.htm

Update on the Governor’s Drought Task Force:
<http://www.water.az.gov/gdtf/>



Charles M. Schlinger, Ph.D. collaborated with Neil Cobb and David Ostergren in planning the drought summit. All are Northern Arizona University professors.

VWA Officers

Robert B. Hardy
Chairman

Loyd Barnett
Vice Chair

John Munderloh
Vice Chair

VWA Honors State Rep. Tom O'Halleran

Robert Hardy and Loyd Barnett Recognized for Years of Dedicated Service

The Verde Watershed Association honored Rep. Tom O'Halleran (R-VOC), VWA Chairman Robert Hardy and Natural Resources Committee Chair Loyd Barnett for their leadership and service to the organization at their October meeting. Rep. O'Halleran, past chairman, commended Hardy and Barnett for their efforts on behalf of the VWA. All three were recognized for their contributions toward the principle that wise and sustainable use of water resources is best accomplished by a voluntary association of members of the watershed communities, working together to understand both the watershed and each other. Members of VWA believe this type of understanding will be the basis for resolving conflicts and promoting cooperative use of the water resources.

"VWA helps bring people and science together," Barnett says. The organization's recent accomplishments include the installation of two low flow stream gauges on the Verde River to increase the accuracy of measurement. One is at Black Bridge in Camp Verde and the other near Verde Falls below Camp Verde. Barnett says, "More accurate information will help better determine whether continued development in the watershed or changes in climate affect the flow of the river in critical periods."

The group also provided technical presentations at Verde River Days, the Arizona Rural Watershed Conference and the Northern Arizona University Drought Symposium. VWA also arranges educational programs and disseminates information at Natural Resource Committee meetings. The VWA cosponsored the Verde Cooperative River Basin Study. That study determined that public participation is an essential component of developing a good, common information base; developing alternative future scenarios and possible strategies for managing water resources in the Verde Watershed; and agreeing on a long term water resources management plan.

At the Arizona State Legislature Rep. O'Halleran chairs the Committee on Natural Resources, Agriculture, Water and Native American Affairs.

Barnett spent 31 years with the U.S. Forest Service in Arizona and New Mexico. The majority of his assignments were in hydrology and watershed management, land management planning including the

administration of the National Environmental Policy Act, range management and recreation and land uses. Most of his assignments were in the Coconino National Forest. He also served as a District Ranger.

A member of the Technical Advisory Committee of the Yavapai County Water Advisory Committee, Barnett also serves as vice chair of the Big Park Wastewater Improvement District. He recently coauthored the Reconnaissance Watershed Analysis - Upper and Middle Verde study.

An avid backcountry hiker and Sedona resident, Hardy has been involved with surface and subsurface water issues much of his professional career. He is employed by the city of Cottonwood and an active member of the Verde Watershed Association, Yavapai County Water Advisory Committee, Yavapai County Technical Advisory Committee and the Northern Arizona Municipal Water Users Association. He is a member of the American Meteorological Society and Arizona Hydrological Society.

Under the leadership of Hardy and Barnett, a group of VWA members has worked to revive the VWA newsletter. Formerly the *Confluence*, the newsletter is now called the *Verde Currents*.



Loyd Barnett and Rep. Tom O'Halleran



Robert Hardy and Rep. Tom O'Halleran

The Verde Watershed Association manages the distribution and reprinting of the Verde River Almanac community project. To order a copy of the book e-mail dianej@sedona.net or contact any VWA officer.

To submit an article, photo or calendar event for the *Verde Currents*, e-mail Diane Joens at dianej@sedona.net or mail to 312 W. Mesquite Dr., Cottonwood, AZ 86326 or call 928-634-4112.

Verde Watershed Association Currents

Highlights of the Verde River Watershed

Citizens Water Advocacy Group (CWAG) announces a banner first year. They featured a series of excellent speakers and topics including —Jim Holt on the Prescott Active Management Area. —Mindy Schlimgen-Wilson on The Nature Conservancy Verde Program and the proposed Cost of Community Services Study. —Steve Sams, Prescott National Forest, on the proposed Yavapai Ranch land exchange. —Abe Springer, professor (hydrology) at Northern Arizona University, on the results of Luis Navarro's thesis on groundwater modeling in the Mint Wash and Williamson Valley areas. —Brad Huza on the city of Prescott's proposal to purchase the CV Ranch and develop a major water source in Big Chino Valley for the city of Prescott and neighboring municipalities. —Phil Foster, water consultant for the town of Chino Valley, on Chino Valley's water budget and development plans. —Carol Erwin, manager of the Phoenix office of the Bureau of Reclamation, on water management in the Southwest and some of the difficult water issues faced in Arizona and the Southwest. —Howard Mechanic, executive vice president of the Arizona Advocacy Network, on water-conservation policies that could be implemented (or enforced) by the city of Prescott. CWAG's banner event was the Tri-City Water Forum 2003 organized by the Citizens Water Advocacy Group and cosponsored by the Verde Watershed Association and League of Women Voters of Central Yavapai County. The all day Nov. 15 forum at Prescott's Embry-Riddle Aeronautical University featured speakers from government, academia, industry, and the area's citizenry who gave excellent talks about hydrology, drought, law, water management, and environmental concerns as they relate to the Upper Verde Watershed. More than 200 attentive people attended! State Rep. Tom O'Halleran addressed Arizona water management legislative plans. A field trip the next day provided the opportunity for about 40 hardy souls to become acquainted with the geology and hydrology of the Upper Verde Watershed. **Kay Lauster @ 928-636-1622, or e-mail water@commspeed.net**



CWAG's Ed Wolfe, Kay Lauster and George Price at the Tri-Cities Water Forum

YAVAPAI COUNTY & COTTONWOOD ADDRESS VERDE RIVER BRIDGE ENVIRONMENTAL IMPACTS - The Mingus Avenue Extension Project is a joint Yavapai County/city of Cottonwood project extending Mingus Avenue at Main Street in Cottonwood to the intersection of State Route 89A and Cornville Road. The new two lane roadway is approximately two miles in length and will provide another bridge across the Verde River and reduce traffic at the SR 89A and SR 260 intersection. During the design of the project, the county's environmental consultant produced a biological opinion as required by the U.S. Fish and Wildlife Service to address the impact and provide mitigation measures for several endangered species identified within the roadway corridor. The biological opinion was approved by the U.S. Fish and Wildlife Services as part of the Corps of Engineers permit Yavapai County received for the project. The biological opinion identified three endangered species that were impacted by the project; the Arizona Cliffrose (a plant); the Southwestern Willow Flycatcher (a bird); and the Razorback Sucker (a fish). The following are a few of the many restrictions or mitigation measures that were included in the biological opinion because of these endangered species:

- Yavapai County purchased 369 acres of State Land (Section 36 west of State Route 89) for the preservation of the Arizona Cliffrose, an endangered species. This cost approximately \$2.3 million dollars.
- Yavapai County has funded \$75,000 to the Arboretum at Flagstaff for the purpose of collecting and preserving Arizona Cliffrose from the project site and replanting the endangered species in areas outside of the right of way.
- Retention basins are included as part of the project construction to eliminate any direct discharge into the Verde River from storm water runoff.
- Yavapai County made a \$100,000 payment to The Nature Conservancy for the purpose of replacing Southwestern Willow Flycatcher habitat that was removed by the construction of the bridge.

There are many additional restrictions the county and contractor are having to work around such as an annual shutdown of construction at the bridge site from May 1 to September 1 for the Southwestern Willow Flycatcher breeding season, restricting equipment and construction activity from the Verde River, and providing a fish monitor at the bridge site during the breeding season of the Razorback Sucker. The Mingus Avenue Project began construction in the summer of 2003 and the contractor has been moving forward at a steady pace. The contractor has completed the majority of the roadway and drainage work and is paving between Main Street and the Cottonwood Ditch, and between Rocking Chair Road and State Route 89A. The bridge foundations, piers, and abutments are completed leaving the contractor to complete the bridge roadway approaches, the steel bridge construction, and concrete deck of the bridge. The steel beams for the bridge are currently being constructed and should begin to be delivered to the site. Additionally, there are traffic signal and intersection improvements being constructed at the Main Street and State Route 89A intersections. **Yavapai County Supervisor Chip Davis @ 928-639-8110, or e-mail chip.davis@co.yavapai.az.us**

RECONNAISSANCE WATERSHED ANALYSIS ON THE UPPER AND MIDDLE VERDE WATERSHED- New report available: Reconnaissance Watershed Analysis on the Upper and Middle Verde Watershed by Loyd O. Barnett and Richard H. Hawkins for the School of Renewable Natural Resources at the University of Arizona. The Rural Watershed Initiative funded this project. Barnett is a member of the Technical Subcommittee. The report provides an assessment of the watershed's condition and explores watershed treatment alternatives for yielding additional water. **Loyd Barnett @ 928-284-0161, or email loyd@sedona.net.** Report can be viewed at Arizona Department of Water Resources Web site: http://www.water.az.gov/watershed/content/map/documents/ReconnaissanceVerdeWS_Analysis.pdf

Verde Watershed Association Currents

Highlights of the Verde River Watershed

ACTIVITIES PLANNED FOR MARCH WATER AWARENESS MONTH

The League of Women Voters Sedona-Verde Valley Water Committee has designated March 2004 as WATER AWARENESS MONTH: *A Call to Action*. Informational and fun activities are planned throughout the month to heighten public education about water as our most precious resource in northern Arizona.

The League of Women Voters Sedona—Verde Valley Water Committee is a leader in public education and advocacy about water issues. In May 2002, the LWV and the Verde River Citizens Alliance joined forces to host an education water forum for citizens in the Verde Watershed area. Two hundred concerned citizens attended to learn more about water issues, to question existing policies and laws and to offer ideas and recommendations to ensure a sustainable water supply for today, and for generations to come.

In January 2003, the LWV hosted a conference of 26 citizens' water groups that have been formed in the Verde Watershed and adjacent watershed areas. The groups discussed the issues, obstacles and activities related to their water concerns. From this meeting the North Central Arizona Regional Watershed Consortium was founded. A presentation was made to the Natural Resources Committee of the State Legislature in March 2003. The group is dedicated to protecting the rivers, streams and wetlands in the north central Arizona.

March 2004 highlighted events and activities include:

- **February 25:** A Water Awareness Month Preview special section in the *Sedona Red Rock News*, *The Cottonwood Journal Extra* and the *Camp Verde Journal*.
- **March 13:** March for Water Awareness in the Sedona St. Patrick's Day Parade
- **March 14:** A 10K Race and 2K Fun Run
- **March 20:** A full day water education forum at Cliff Castle Casino cosponsored with the Bureau of Reclamation
- **March 21:** A creek side water awareness festival and concert at the Ecotourism Institute at Los Abogados Resort
- **March 27:** Water Education for Teachers workshop and Native American Plants workshop hosted by Keep Sedona Beautiful

Other events are also planned during the month, including a children's poster contest, water-themed art exhibits at local libraries, and programs planned by organizations including the Solar Club of Arizona and Sustainable Arizona. For more information about planning programs for your group, sponsoring planned programs or to volunteer to help, please contact **Barbara Litrell at 649-0135 or blitrell@aol.com**. Volunteers' time and talents are needed! --by *Barbara Litrell*

COTTONWOOD DEVELOPS STORMWATER MANAGEMENT PLAN

In response to being selected for regulation by Environmental Protection Agency (EPA) and Arizona Department of Environmental Quality (ADEQ), the city of Cottonwood has filed for coverage under a "general permit" to allow the city to discharge stormwater. The proximity of the community to the Verde River and the rapid growth of the community were the driving forces behind Cottonwood being selected. The intent of the permitting process is to minimize the quantity and improve the quality of stormwater entering the Verde River. Some of the common pollutants in stormwater runoff are litter, household hazardous waste, silt from construction sites, yard waste, petroleum residue from streets and parking lots, and pet waste.

The city has developed a Stormwater Management Plan and will gradually implement the plan over the next 5 years. The Plan addresses six key areas:

- Public Education and Outreach
- Public Participation and Involvement
- Illicit Discharges and Improper Disposal
- Construction Site Stormwater Runoff
- Post-Construction Stormwater Management
- Pollution Prevention and Good Housekeeping

In the early years of the implementation plan, existing ordinances will have to be examined and likely changed to satisfy the Stormwater Management Plan. Public education will be the key to voluntary compliance with these new ordinances. Look for a continuous focus on stormwater issues from Cottonwood in the coming years as the implementation plan evolves. The Stormwater Management Plan will be posted to the city's Web site at www.ci.cottonwood.az.us. For more information contact **Tim Costello, Cottonwood Public Works at (928) 634-8033, or e-mail tcostello@ci.cottonwood.az.us**.

--by *Tim Costello*

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• Editor's Note: Issues of the *Verde Currents* will feature
• articles from the *Verde River Almanac*, space permit-
• ting. To get your own copy of the *Almanac*, see Page 5.
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U.S. GEOLOGICAL SURVEY - Established 1879

The U.S. Geological Survey provides the Nation with reliable, impartial information to describe and understand the earth. This information is used to minimize loss of life and property from natural disasters; manage water, biological, energy, and mineral resources; enhance and protect the quality of life; and contribute to wise economic and physical development.

The Verde River and its tributaries are part of the regional hydrologic system in central Arizona. Flow in the Verde River is maintained by groundwater discharge from the

Continued on Page 5

USGS Continued from Page 4

regional system. Municipal, agricultural, and industrial water demands are met primarily by groundwater resources. Changes in water use ultimately will result in changes in discharge to the Verde River. Improving the understanding of how groundwater, surface water and water uses are related in the Verde basin will better enable planners and resource managers to sustainably develop and use basin water resources. The Verde basin encompasses a scenic part of Arizona that is attractive to both residents and visitors. It comprises natural resources and environmental settings that are of increasing value to the state, counties, and municipalities. The basin population is growing faster than most, if not all, rural parts of the state. Municipal growth and continuity of basin lifestyles will depend substantially on the sustainability of basin water resources. The Verde River provides insight into how the regional groundwater system is related to the river, and what effects water users have on the entire system with regard to where the water comes from, where it goes, and how it gets there.

Understanding how the regional groundwater system behaves will help contribute to

the wise economic and physical development of the resource.

The U.S. Geological Survey, in cooperation with the Arizona Department of Water Resources and the Yavapai County Water Advisory Committee, including cities and towns, is conducting a regional hydrogeologic investigation of the Verde River Watershed. This investigation is collecting geologic, geophysical, hydrologic, and chemical data and information to describe the groundwater flow system. These data will greatly improve our understanding of how the groundwater system is related to the river and how the river will be affected by future water uses. Information about the ongoing study can be found on the Web at: <http://az.water.usgs.gov/rwi-ii/>, and by contacting John Hoffmann at (520) 670-6671, extension 265. The U.S. Geological Survey is headquartered in Reston, Virginia and has offices in four Arizona locations—Tucson, Tempe, Flagstaff and Yuma.

Nick Melcher, USGS District Chief
Phone: (520) 670-6671x221
E-mail: nmelcher@usgs.gov
Web page: <http://az.water.usgs.gov>



The *Verde River Almanac* is available at the Clemenceau Museum in Cottonwood, Cottonwood Library (Bookmarks), Verde Canyon Railroad, Cottonwood Chamber of Commerce, Jerome Mine Museum and Camp Verde Chamber of Commerce, or from Russ Radden, Robert Hardy, Beverly Emerson, Brenda Hauser, Charlie Ester, Valerie Trammell or Kay Lauster. Or, contact Diane Joens, dianej@sedona.net or (928) 634-4112 to find out how to order your very own copy of this one-of-a-kind book. In future issues, *Verde Currents* will highlight the exceptional businesses and organizations assisting the VWA with the distribution and collection of donations that will be used for reprinting the *Almanac*.

To help with the publication costs of the *Verde Currents* newsletter and other services, please join the Verde Watershed Association.

Government units	\$ 100 per year	Make check payable and mail to: Verde Watershed Association P.O. Box 4595 Camp Verde, AZ 86322
Business for profit	100 per year	
Civic groups and non-profits	50 per year	
Individuals	25 per year	

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- I want to receive *Verde Currents* by e-mail.
- Please mail the *Verde Currents*.

**About
 Verde Currents
 and VWA**

The VWA Currents is published bimonthly by the Verde Watershed Association (VWA), a 501(c)(3) non-profit organization. This document is also available on the VWA Web site at <http://vwa.southwestwater.org>.

The Verde Watershed Association was founded in 1993 with the mission of its members to develop cooperation, communication and consensus to ensure sufficient water supplies to maintain a healthy river ecosystem. The Association membership is a coalition of towns, cities, counties, organizations and individuals working toward these common goals. Individuals are encouraged to attend and participate in all VWA functions.

Welcome New VWA Members!

- Edessa Carr
- Ed Wolfe
- David Kirchner of Basin & Range Hydrogeologists, Inc.
- Herbert H. Schumann
- Beatrice Richmond
- Northern Arizona University

Water Facts

A healthy adult needs two quarts of water a day. Most people drink less.

Tomatoes are 95% water.

Verde Watershed Association

P.O. Box 4595
Camp Verde, AZ 86322



Verde Currents

We're back in print after 3 years. Help us update our mailing list! E-mail corrections to dianej@sedona.net, call 928-634-4112 or mail to P.O. Box 4595, Camp Verde, AZ 86322

Verde Currents

Calendar of Events

We're on the Web!

<http://vwa.southwest-water.org>
Robert B. Hardy, Webmaster
verdewatershed@yahoo.com

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CITIZENS WATER ADVISORY GROUP - The featured speaker will be Professor Bernardo Aguilar, Prescott College, speaking on sustainable development. The meeting starts at 10 a.m. Saturday, Jan. 10, 2004, at the Granite Peak Universalist Unitarian Congregation Building, 882 Sunset Ave, Prescott, AZ 86305. Everyone welcome. **Kay Lauster @ (928) 636-1622 or water@commspeed.net.**

THE ARIZONA RIPARIAN COUNCIL will hold the 18th annual meeting March 12-13 at Estrella Mountain College in Avondale, Ariz. **Cindy D. Zisner @ Cindy.Zisner@asu.edu**

THE FUTURE OF AGRICULTURAL WATER USE IN ARIZONA. April 28, Casa Grande, AZ. University of Arizona Water Resources Research Center and Department of Agricultural Economics.
www.ag.arizona.edu/AZWATER/

VERDE WATERSHED ASSOCIATION - VWA will host a meeting to discuss arsenic in Verde Watershed drinking water Thursday, Feb. 12 at 6:30 p.m. Details to be announced. Cottonwood Public Safety Building, 199 S. 6th Street. VWA will meet Wednesday, Jan. 21, 10 a.m. at the Keep Sedona Beautiful building, 360 Brewer Road, Sedona. **Loyd Barnett @ (928) 284-0161 or loyd@sedona.net.**

COCOPAÍ RESOURCE CONSERVATION & DEVELOPMENT - Cocopai RC&D will meet Jan. 12 at 10 a.m. in Chino Valley at the Town Health Care Facility. **Robert Arambula @ (928) 774-2401, ext. 231**

YAVAPAI COUNTY WATER ADVISORY COMMITTEE - WAC will meet Jan. 21 at 2 p.m. at the Sedona Council Chambers, 104 Roadrunner Dr. Information about WAC meetings is available at **www.co.yavapai.az.us** or from **John Munderloh @ (928) 771-3200 or 639-8100 ext. 3200 or john.munderloh@co.yavapai.az.us.**

MARCH IS WATER AWARENESS MONTH- See Page 4 for a list of activities.

