

UA - COOPERATIVE EXTENSION

Watershed Resources

JAN-FEB 2002

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WhatAboutWater And.....

- Non-Point Source Pollution?
- TMDL's?
- Septic Systems?
- RV Toilet Chemicals?
- Prescription Drugs in Waste Water?
- Coli-form Bacteria?
- Emergency Water
- Watersheds?

Contact your local UA - Cooperative Extension Office for more information...928-445-6590

Master Watershed Steward Program Sets Mark For 2002

What is 48 hours long and as wide as your imagination will allow? How about the recently presented **Master Watershed Steward Program?**

If you have ever wanted a comprehensive overview and exposure to the complexities of watersheds and water resource issues this is your type of program.

Twenty local residents recently completed education and training as Master Watershed Stewards.

During the five week program participants were presented with information and insights from numerous city, county, state and federal agencies; local and regional water resource experts; faculty and staff from the **U of A CALS, NAU and YCC**. The curriculum and field experiences were presented by Coop-

erative Extension Director Jeff Schalaus and Russ Rad-den, Natural Resources Program Coordinator.

Topics explored were Arizona Climates, Meteorology, Hydrology, Geology, Soils, Ground and Surface Water Resources, Watershed Ecological, Plant/Animal Communities, Wildlife Issues, Watershed Management Impacts and Processes, Water Law and History. Two weekend field trips provided opportuni-

ties to observe real issues in the field.

It was unanimously expressed by all participants, the program was a valuable, rewarding, and productive experience. Upon completion of 40 hours of community volunteer work each Associate MWS Participant will be certified as a Master Watershed Steward.

For more information regarding participation in future MWS Programs, contact your local Cooperative Extension Office.



Michael Byrd of Prescott Creek Preservation Society briefs MWS Participants at Watson Woods Pre-

Private Well Water Testing, 2002 Reserve A Kit Now.

It's almost that time again. The annual, "Almost Free" Private-Owner Well Water Testing Program will be offered, once again, May 6th thru 10th, **National Drinking Water Week**.

As in the past, if you are interested in testing your

own, **private**, well water, kits must be reserved in advance.

The on-site kit will once again be made available for only \$6.00. It will test for pH, Nitrates, Nitrites, Copper, Iron, Hardness and Alkalinity. If results are shared with the

Cooperative Extension, CE Staff will review and make recommendations regarding those results.

Kits may be reserved with a check made payable to the **University of Arizona** and delivered to our Prescott or Cottonwood Cooperative Extension Offices

2002 YEAR OF CLEAN WATER AND OCTOBER 2002, CLEAN WATER MONTH

President Bush recently recognized the 30th Anniversary of the Clean Water Act by declaring 2002 the Year of Clean Water and the month of October, 2002 as Clean Water Month.

President Bush is calling on all Americans to, "take an active role in participating, protecting and promoting Water Resource Programs..... to set an example of environmental stewardship in our daily lives."

In conjunction with these declarations, the Arizona Department of Environmental Quality—Water

Quality Division will offer training workshops/field trips to selected water-bodies to help teach Watershed Partnerships to interested people, including teachers and students, on how to properly sample surface waters.

Their program will teach the use of sampling equipment to determine surface water pH, dissolved oxygen, turbidity, conductivity flow rates, secchi depths and temperature.

Water Partnership groups and others are being asked to choose local, accessible and environmentally meaningful sites.

Training Workshops are being scheduled for March. Please contact:

Kris Randall at ADEQ's Water Quality Management Unit. The phone number is 602- 207- 4509 or E-mail: KR1@ev.state.az.us for more information and/or participation.

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Yavapai County*

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Natural Resources Program Coordinator

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rdradden@ag.arizona.edu*

Everything You wanted to know About Water But were Afraid to Ask—OR Don't take Water for Granted

How is your water I.Q.? What is the most abundant compound on earth? WATER! Right On! How much is the Earth's surface covered by Water? 71%!...your amazing! The Earth's water volume? With a leveled playing field, the earth's water would cover the entire surface to a depth of 1 1/2 miles! Awesome!

A water molecule is composed of two hydrogen atoms and one oxygen atom...looking somewhat like a "Mickey Mouse" face with relative small ears. Hydrogen ions ("ears") have a single positive charge and the Oxygen ion ("face") has two negative charges. In reality, the Hydrogen "ears" tend to be rather loosely attached to the "face", frequently wandering off the "face" creating free OH⁻ ions and H⁺ ions which increase the opportunity of chemical activity.

Pure water, tends to have at least one "loose" ear 0.0000001 of the time, thus it has a pH of 7 (H⁺ = 1X10⁻⁷). The "loose ears" and "earless face" can act as a very weak acid or very weak base, depending on what other molecules are about.

Chemically, it possesses a number of unique qualities and characteristics. Water boils at 100° C. It freezes at 0° C. It expands if heated OR cooled from its freezing point. It has an ability to slowly store or slowly release heat energy (specific heat). Large amounts of energy are required to change it to a solid or gas (latent heat of fusion/evaporation). *Ice cubes and swamp coolers?* It has a high surface tension and is both cohesive (sticks to itself) and adhesive (sticks to other things) as a substance. It is an excellent (universal) solvent and critical to life as we know it. *Ever wonder how water gets to the top of a Ponderosa pine tree?*

The density of water is 1 ...such that an object with a greater density sinks and of a lesser density floats. *How does a submarine do it? Why do whales prefer water? Why do you bob higher in the ocean than a lake? How do fish and other water critters "park" half-way between the top and bottom? Why do ice burrs float? Ponds freeze from the top ..down (fortunately for the "critters").*

Pure water is light transparent (excluding suspended particles) which allows for the penetration of visible light and to lesser degree, infra-red and ultraviolet.

No matter how you look at water it is a unique and necessary part of the Biosphere and all of the plant and animal activities. It is what makes the Earth unique as a planet in our solar system.

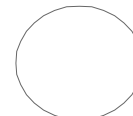
We are all familiar with many of water's phenomena but most likely will never fully appreciate or understand how it became such an important component of life and life's activities, as we know them. The processes are only thinly understood and mainly remain to be answered by humans. Even more a reason why we should dedicate ourselves to preserving and protection such a critical resource... **Water!**

Condensed from an article submitted by Dr. Richard J. Clark, (Cornell University) York College—PA, Ret.

AQUIFER:

A mysterious, magical and poorly defined area beneath the surface of the earth that either yields or withholds vast or lesser quantities of standing/flowing water, the quantity and/or quality of which is dependent on who is describing it...or how much money may be at stake.

R D RADDEN



Water Molecule Model

Roof Rats? What about Yavapai County?

Looks like Rattus rattus, a.k.a. Black Rat, Fruit Rat or Pet??? Rat has made a noticeable, recent, presence in the Phoenix metropolitan area.

Although the historical presence of such "critters" is not unheard of...it, it's cousin the Norwegian (Barn) Rat, Rattus norvegicus, and the common House Mouse (Mus musculus) were introduced by humans and have been found throughout the more "urban" areas of Arizona for years. They don't really do well in the arid SW ecosystem and are dependent and closely associated with human activity / popula-

tions They also tend to be less competitive with native fauna.... lacking the water conservation ability possessed by animals that are associated with desert living.

Do we have them in Yavapai County....possibly, but rather doubtful... possibly as a feral or "hybrid", pet rat or mouse. Pretty hard and harsh place for them to live and be successful.

Well, what do we have? I would suggest we have SHED-rats/mice, AUTO-rats/mice, or AT-TIC-rats/mice. Lots and lots of alternative, wild rats and mice.

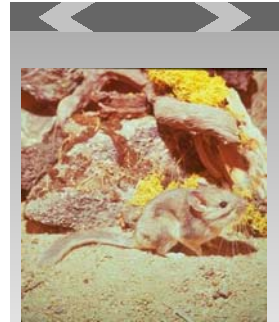
Dozens of native species!

Using prefixes like rock-,

pocket-, wood-, musk-, brush-, deer-, grasshopper-, red-, brown-, gray-, pygmy-, pinyon-, bushy-tailed-, white-footed-, harvest- (on and on) we have dozens of wild-type, native, RATS, MICE and SQUIRRELS that may find your home a suitable place to live.

Don't leave food or water in, around or near your home and keep outside accesses plugged or screened and don't leave your vehicle or home vacated for extended periods of time.

Roof Rats? Roof Mice?
Good LuckPhoenix!



Wood Rats have hairy (not scaly) tails

Cooperative Extension Offers Environmental / Outdoor Education Workshops for Teachers in Yavapai County

Ever feel a need to bring yourself "up to speed"?

Maybe a few hours of your time and a challenging exposure to new and different materials would help.

The University of Arizona and your local Cooperative Extension Office is prepared to provide such an

experience.....for little, if any cost, to you.

Currently, three nationally recognized environmental/outdoor education programs are available through our office: Project **WET**, Project **Learning Tree** and Project **Atmosphere**. Individual programs can be customized

to better meet the needs of your group or school.

Curriculum materials are topic-centered or broad-based, inclusive units that are classroom ready, designed to provide highly motivational hands-on activities to students.

Contact Russ Radden at 928-445-6590 or E-mail: rdradden@ag.arizona.edu

Water Resources Education Resources, Services, and Materials

Your Cooperative Extension Office can provide assistance and resources for any age level, individual or special interest groups.

- **Project "WET"**
- **Project "Learning Tree"**
- **Project "Natural Resource Wonders"**
- **Project Atmosphere**
- Speakers and Displays
- Resource Information / Materials
- Classroom / Public Presentations
- Groundwater Models
- Watershed Modeling
- Lessons and Activities
- Teacher Training
- Developing Curricula and Projects
- Septic System Model
- Field Trip Facilitation

Call your CE Office to schedule a special activity or program to meet your individual or group needs.

Phone: 928-445-6590



Wells Provide Vital Ground Water to Yavapai County Residents

We Can't Spare A Drop!

**A
N
H2O
Z
I
R
A**

Water Resources Newsletter

Arizona Cooperative Extension
U.S. Department of Agriculture
Yavapai County
PO Box 388
Prescott Arizona 86302
Penalty for Private Use \$300

**PRSR STD
POSTAGE & FEES PAID
USDA
PERMIT NO. G-268**

Cut along fold and return this portion to: **Well Water Testing, Cooperative Extension, PO Box 388, Prescott, AZ 86302**

Well Water Testing Kit Reservation Form

Urgent! Time Sensitive! Urgent!

Yes ! I plan to test my private well during the first week in May and want to reserve a kit(s). I have enclosed a \$6.00 check (cost recovery only) , for each kit, made payable to: *The University of Arizona*. I understand that the kit will be mailed to me during National Drinking Water Week, May 6-10, 2002. If I chose, as a participant in this program, to share the results with the UA- Cooperative Extension, I will receive a confidential, review of my private well test result. I understand that these kits and it's results may not be used for commercial or legal uses and is part of the UA Cooperative Extension Outreach Program as a Public Service Only to Private Well Owners.

Name: _____

Mailing Address: _____

City: _____, AZ ZIP Code _____

Contact Phone _____ H _____ W

Number of Kits Reserved: _____ Check # _____



Where's the next watering hole?

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