

Kristine Uhlman will be on the van presenting geology, hydrology, and other information in transit to Walnut Gulch. Kristine is from the University of Arizona Water Resources Research Center (NEMO).

Kristine Uhlman, RG  
(520) 792-9591 ext. 51  
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Mark Nearing will be guiding us along our trip at Walnut Gulch. Mark is from USDA ARS Southwest Watershed Research Center.

Mark Nearing  
Research Leader  
(520) 670-6481 ext. 152  
mark.nearing@ars.usda.gov

#### Itinerary:

8:00am Leave Tucson  
9:30am Arrive in Tombstone  
12:00pm Lunch on your own  
in Tombstone  
3:00pm Finish up tour  
4:30pm Arrive back in  
Tucson

## Rural Water Association of Arizona

1955 W. Grant Rd. Suite 190  
Tucson, AZ 85745  
Phone: (520) 620-0230  
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# SOURCE WATER ADVENTURES: Walnut Gulch

Date: August 25th, 2009  
Time: 8am-4:30pm  
FREE!!!!!!!!!!!!!!

Please register by August 14, 2009  
(Specify if you will be needing the  
van for transportation or if you will  
be meeting us at Walnut Gulch.)

**Space is limited to 20 for the vans, so  
please RSVP as soon as possible!  
(520) 620-0230**

We will be driving a  
15-passenger van and an 8-passenger  
van from Tucson to Tombstone. Seating  
is on a first-come, first-serve basis. Oth-  
ers are welcome to meet us at the  
destination at Tombstone.

The meeting location for the van pick-  
up at 8:00am in Tucson will be at:  
Southwest Watershed  
Research Center  
2000 E. Allen Rd.  
Tucson, AZ 85719

If you don't need a ride in the van out  
to Tombstone and would like to meet us  
on location at 9:30am at:  
Walnut Gulch Experimental Watershed  
932 Old Bisbee Highway  
Tombstone, AZ 85638  
(520) 457-3321

## RESEARCH PROGRAM AREAS

**Walnut Gulch Experimental Watershed** is the outdoor laboratory which supports SWRC field studies on natural and managed ecosystems to fulfill the research goals and objectives of the scientific program. Research at the Southwest Watershed Research Center is conducted in 5 major program areas.

### 1. Hydrologic Processes

Investigate hydrologic processes and related variability to understand water supply, water quality, and energy fluxes from managed and natural semi-arid watersheds. Integrate interdisciplinary field experiments, simulation models, remote sensing and geographic information systems (GIS) to improve our databases and our understanding of the impacts of natural and managed change on semi-arid watersheds.

### 2. Erosion and Sedimentation

Determine upland and channel erosion and sedimentation processes and their impact on water quality, semi-arid landscape evolution and the health and sustainability of rangeland ecosystems. Determine the rate of soil loss an ecosystem can endure and still remain economically and ecologically sustainable. Improve water erosion prediction technology to preserve and increase land productivity and prevent water degradation.

### 3. Global Climate Change and CO<sub>2</sub> Fluxes

Evaluate rangelands as a source or sink of carbon in the global carbon budget and to develop an understanding of their role in global climate change. Determine carbon dioxide sequestration and plant water use efficiency of grass and shrub communities. Investigate modeling and scaling related to global change issues in semi-arid rangelands.

### 4. Remote Sensing

Employ radiometers mounted on aircraft or satellite platforms to monitor temporal changes in Earth characteristics. Conduct sensor calibration and signal processing. Map biophysical information, such as evaporation, soil moisture and forage production. Develop simulation models driven by remotely sensed data to monitor daily plant and soil conditions for range management.

### 5. Decision Support Systems

Develop computer-aided decision-making tools and systems that incorporate science into the decision making process. Develop integrated information systems that combine decision tools, databases, models and expert opinion for improved management of semi-arid watersheds. Transfer knowledge and technology to stakeholders, decision-makers and the public.

