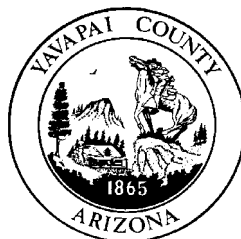


2002 Verde Watershed Field School May 18th – 19th, 2002

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2002 Verde Watershed Field School

Introduction

The Oak Creek watershed is an area with spectacular landscapes, water features, geology and ecology. Oak Creek is a perennial stream that is a principal tributary of the Verde River. Pressures on this watershed exist mainly due to urbanization, both in the headwaters area of the watershed (on the Coconino Plateau) and in the 'mainstem' areas of Sedona, Cornville, and Cottonwood. Runoff from snowmelt and rainfall, springs and base flow provide a continuous supply of water to Oak Creek. This perennial flow also supports a diverse and rich riparian habitat. Presently, the Coconino (C) and Redwall (R) aquifers provide water supplies for many communities on the Coconino Plateau and in the Verde Valley. Smaller wells draw water from alluvial deposits, some of which may be hydraulically-connected to Oak Creek. Pumping of groundwater has led to concerns about possible impacts on Oak Creek and Verde River baseflow and on the regional and local aquifers. The current drought has adversely impacted flow in Oak Creek. Also, impacts on Oak Creek from individual and community wastewater treatment systems have been and remain a concern.

During this Field School we will explore issues pertaining to land use and urbanization; water use, quantity, quality and conservation; surface and ground water hydrology; geology, and riparian ecology, with emphasis on development of curricula and curricular materials suitable for Verde Watershed secondary schools. Individuals who have been and continue to be involved with these issues will lead the trip, and present and exchange information with participants.

Saturday May 18th

- 8:00 Coffee, juice and carbohydrates; Welcome, introductions and orientation at Cliff Castle Conference Center, Middle Verde
- 8:45 Load vehicles, depart
- 9:15 City of Sedona Wastewater Treatment Plant, Wetlands and Sprayfields (2 hr)
- Wastewater Disposal Practices in the Oak Creek Watershed – *Jim Johnson*
Refreshments and bathroom break
- 11:15 Load vehicles, travel
- 11:45 Sedona Area – Red Rock State Park: Urbanization, water rights, water conservation (2.5 hr)
- Distribute Box Lunches; lunch & bathroom break
Water rights and subflow issues in the Oak Creek and Verde watersheds – *Tom Whitmer*
Water Conservation – *Jeff Durbin*
- 2:15 Load vehicles, travel
- 2:45 Oak Creek headwaters area: West Fork of Oak Creek. (1.75 hr)
- Refreshments
Geologic Setting, USGS gauging station, stream discharge measurements – *Abe Springer*
Riparian Setting – *Vanessa Beauchamp*
- 4:30 Load vehicles, travel

- 4:45 Indian Gardens area: this is the end of the gaining reach of Oak Creek. (3/4 hr)
 Bathroom break
 Surface and groundwater interactions – *Abe Springer*
 Riparian Ecology – *Vanessa Beauchamp*
- 5:30 Load vehicles, bathroom stop, travel to Cliff Castle Conference Center, Middle Verde
- 6:00 Arrive Cliff Castle Conference Center; check-in to hotel rooms
- 7:00 Buffet Dinner, Cliff Castle Conference Center
- 8:00 Introduction to Project WET (*Water Education for Teachers*) and GLOBE (*Global Learning and Observation to Benefit the Environment*) – *Mansel Nelson*

Sunday May 19th

- 7:00 Full continental breakfast and checkout from hotel rooms
- 8:00 Orientation at Cliff Castle Conference Center, Middle Verde
- 8:15 Load vehicles, depart
- 8:30 Montezuma's Well (1.5 hr)
 Geologic Setting – *Paul Lindberg*
 Arsenic in groundwater – *Richard Foust*
 Riparian Setting – *Vanessa Beauchamp*
 Refreshments and bathroom break
- 10:00 Load vehicles, travel to next stop
- 10:30 Bubbling Springs & Page Springs Fish Hatchery (3.5 hr)
 Geologic Setting – *Paul Lindberg*
 Spring Hydrology – *Abe Springer*
 Riparian Setting – *Vanessa Beauchamp*
 Distribute box lunches; lunch & bathroom break
 Water Quality, Turbidity & Biocriteria – *Sam Rector, ADEQ*
 Demonstration of GLOBE Protocols – *Mansel Nelson*
- 2:00 Load vehicles, travel to next stop
- 2:30 Devils Sinkhole above Sedona (1.5 hr)
 Sinkholes: Form and Function – *Paul Lindberg*
 Refreshments
- 4:00 Load vehicles, bathroom stop as needed, travel to Cliff Castle Conference Center
- 4:30 Field School closeout at Cliff Castle Conference Center

Presenters

Vanessa Beauchamp, Arizona State University
Abe Springer, Northern Arizona University
Mansel Nelson, Northern Arizona University, Institute for Tribal Environmental Professionals
Jim Johnson, City of Sedona
Jeff Durbin, Town of Payson
Paul Lindberg, Consulting Geologist
Richard Foust, Northern Arizona University
Sam Rector, Arizona Department of Environmental Quality
Tom Whitmer, Arizona Department of Water Resources

Recommended Gear

Small daypack or fanny pack
Layered clothing (cool mornings, warm/hot afternoons)
Long pants (potential for poison ivy and snakes)
Hat (with wide brim)
Sunscreen
Sunglasses
Water bottles (we will provide ice water, as well)
Sturdy foot gear (with likelihood of getting wet/muddy; Tevas or old sneakers work well)
Cameras
Binoculars
Tissues & TP

Drivers of vehicles (NAU personnel)

Dave Ostergren
Charlie Schlinger
Michelle Volk
David Fiss

Provided by VWREP/NAU

Lunch
Snacks
Coolers for box lunches and beverages
Water coolers
Vans
Field trip handouts

Field School Organizers:

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