



# SWES SOUNDS



The Heartbeat of the Department of Soil, Water & Environmental Science

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Shantz Bldg. 38, Rm. 429

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Tucson, AZ 85721

## TONES FROM THE TOOTH

Soil, water, and environmental sciences (SWES) contain both theoretical and practical areas of study. Today, I would like to focus on applied aspects of these sciences. In my view, applying science to tangible issues and problems is one of the most interesting and challenging aspects of what we do in the SWES Department. We all have the opportunity in the SWES Department to engage in the development of new technology, education, and technology transfer to bring strong scientifically-based programs to bear on real and important issues.

There are always many problems and issues that need attention relative to the broad area of soil, water, and environmental science. Arizona and the desert Southwest is an area where tremendous pressures are being placed on natural resources. The management of our environment, in particular land and water resources, is critical for both the short-term needs we face as well for the preservation of these resources for future generations. With the rapidly increasing population in this region we are going through a transition with respect to management and planning that will have an impact far into the future.

Pinal County, Arizona, one of the fastest growing areas in the US, is an excellent example of where these pressures are coming to bear on the land and water resources. Many of the people that are working in resource management and leadership positions in Pinal County recognize the urgency and the importance of developing good management plans. It is important for the SWES Department to be alert and sensitive to these types of needs that are taking place in our state and region and to make our expertise available for these important decision-making processes.

The mission of the SWES Department is to educate students, conduct viable research programs, and provide extension education programs. This mission is an excellent means of contributing positively and constructively to the needs of our State and region. I encourage the members of the SWES Department to be alert to and engage in the transition process taking place in Arizona.

Jeffrey C. Silvertooth  
Department Head

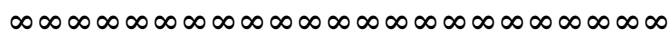
## FEATURED FACULTY

Dr. Edward Glenn

Environmental Research Lab (ERL)



I have worked at the Environmental Research Laboratory since 1978. Over the years, the concept of "environmental science" has changed considerably. Our earlier projects tended to be centered on ways to manipulate the environment to serve human purposes: new crops; new ways to grow crops in extreme environments; and methods to increase water availability, through desalination, cloud-seeding, and direct use of saline water for agriculture. More recently, our projects are more aimed at protecting or restoring natural environments and in reconciling human and ecosystem water requirements in arid regions of the world. Current projects that I am collaborating on include: assessing ecosystem water use through remote sensing and ground methods; revegetation of mine tailings, land fills, and other disturbed sites; invasive plant species; seaweed aquaculture; and phytoremediation and bioremediation of contaminated sites. I am part of a diverse group of collaborators, research associates, post-docs, technicians and grad students working on these projects.

An emerging theme in the field of environmental remediation is to rely more on natural, sustainable remediation strategies and less on engineered strategies, such as pump/treat and excavation/disposal. As an example, our work with the Department of Energy has shown that nitrate contamination of soils and aquifers at former uranium mill sites can be treated through a combination of *in situ* phytoremediation and bioremediation, rather than pumping and treating the aquifer. Similarly, we are working on vegetation-based evapotranspiration caps for mine tailings and landfills, that rely on plants to use up the incoming water to prevent recharge and leaching. Engineered caps that rely on compacted clay layers tend to leak over time, whereas evapotranspiration caps tend to improve as they develop more vegetation. The theme is to work with rather than against nature in designing environmental remedies.







Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						For CALS Events, click on Calendar @ <a href="http://www.ag.arizona.edu/">http://www.ag.arizona.edu/</a>
<h1>September 2006</h1>						
					1	2
3	4 <b>UA Holiday – Labor Day! (University Closed)</b>	5	6	7	8  ETRs Due at noon TODAY	9
10	11  SWES Department Seminar: 3p @ Marley – Rm. 230	12	13  Faculty Workshop - <i>Developing Critical Thinkers</i> <u>Dr. Tom Wilson</u> September 13, 12:00 to 1:30p.m. SU Agave Room (4 <sup>th</sup> floor) <i>Lunch will be provided</i> RSVP by September 5th,	14	15	16
17	18  SWES Department Seminar: 3p @ Marley – Rm. 230	19  Managing Drought and Water Scarcity in Vulnerable Environments: Creating a Roadmap for Change in the United States <b>18–20 September</b> Boulder, Colorado	20	21	22  ETRs Due at noon TODAY	23
24	25  SWES Department Seminar: 3p @ Marley – Rm. 230	26	27	28	29	30

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