Alumni have seen a lot of changes over the years in the department now known as Soil, Water and Environmental Science. As we celebrate alumni in this issue, with the first of a new feature called “Alumni Corner” (page 6), it seems worthwhile to take a look back at the evolution of the department over the years.

The SWES department had its origins in 1973, when Agricultural Chemistry merged with Agricultural Engineering to form Soils, Water and Engineering. A dozen years later, when Agricultural Engineering split off, the department retained the name and focus on Soil and Water Science.

In 1987, the idea for an undergraduate degree in Environmental Science emerged. At the next year’s departmental retreat, faculty members agreed to focus more on environmental issues. They began to refine the idea into a major, which became a reality in 1993. In 1995, with the Environmental Science major taking off and a new ally – the Environmental Research Laboratory, or ERL – joining the department. The department took on the name it has held for the last 20 years.

In 1997, the graduate degree program similarly became Soil, Water and Environmental Science. Meanwhile, as ERL closes its doors, a new state-of-the-art WEST Center has its grand opening on Friday (see back page for details). The center focuses on water and wastewater treatment and alternative energy.

Although SWES has been offering degrees in Environmental Science for two decades, its Crop Production degree, renamed in 2009 to Sustainable Plant Systems, continues to grow as well. During these many changes over the years, the department has maintained high standards when awarding degrees, whether as a bachelor’s of science, a minor, a master’s of science or a Ph.D.

While sharing this history of the department, we are also interested in collecting information from alumni about their own trajectories over the years.

Those who would be willing to spend 10 minutes or so giving us an update on their careers since leaving the department are encouraged to do so at this link: https://www.surveymonkey.com/r/swesalumni. These efforts to report history will help us keep current and future students aware of the many uses of a degree from this department, and keep us aware of evolving needs in the field. All of this will prepare us for a future that befits our past.

I have been associated with the SWES department for many years, first as a student (1974-1981) and then as a professional faculty since 1987. I came as an M.S. student here at the department, then called Soils, Water & Engineering, and left in 1981 after completing a Ph.D. and a postdoc. I spent six years as a university laboratory director and a private consultant before returning to the SWES Department as the laboratory director of the Soil, Water & Plant Testing Laboratory (SWPAL), located next the main office. This later became the Water Quality Laboratory (WQL) located at the Environmental Research Laboratory next to the Tucson Airport. The (SWPAL) WQL closed last year after 27 years of operation.

The SWES service unit analyzed soil, water, plant tissue, and waste samples for UA faculty, other universities, and agencies. I was also involved in training and advising graduate students and researchers on chemical and physical analyses methods and data interpretation. Throughout these years I was fortunate to collaborate with laboratory managers such as Drs. Mehdi Ali, Tina Hayden, and Atasi Ray-Maitra, who managed and trained numerous graduate students and part-time laboratory assistants.

My duties also include teaching and co-teaching Advance Analysis of Soils (SWES405/505); two undergraduate Environmental Science program capstone courses: Environmental Monitoring and Characterization (ENVS 430/530) and Summer Camp (ENVS 461/561); the freshman colloquium course ENVS 195A; and more recently the graduate student seminar ENVS 696a, and Reclamation of Salt-affected Soils (ENVS 401/501).

I have conducted research on the impact of biosolids land application to Arizona soils, focusing on the fate of nitrates, carbon, and molybdenum in alkaline soil, how water quality affects carbon in alkaline soils, and the revegetation of flue gas desulfurization waste impoundments. I am also interested in the production, characterization, and use of biochar (charcoal) as a soil amendment in alkaline soils from Arizona. Biochar is produced from any organic residue, including forest, agricultural, animal, and yard wastes. Each type of biochar has unique properties, with varying sizes and complex internal structures and chemistry. Charcoal can exist in soils for hundreds to thousands of years, making this material ideal for long-term storage of carbon. Biochar can benefit alkaline soils by increasing soil moisture capacity and plant resistance to drought and by reducing nutrient losses.

Continued on page 5
PUBLICATIONS


PRESENTATIONS


Gerba, C.P. Communicable disease prevention and management in schools.


Maier, R.M. Challenges to realizing the commercial potential for biosurfactants. 106th American Oil Chemists’ Society Annual Meeting. Orlando, Fla., May 3-6, 2015.


Neilson, J.W. Microbial diversity of the Atacama Desert, Chile. El Centro de Biotecnología, Universidad Católica del Norte, Antofagasta, Chile, Jan. 14, 2015.

Neilson, J.W. Living on the edge; microbial community survival strategies in Kartchner Caverns, AZ, and the Atacama Desert, Chile. Department of Biological Sciences Seminar Series, Northern Arizona University, Ariz., Jan. 29, 2015.

Rachmadi, A.T., M. Kitajima and C.P. Gerba. Virus occurrence and
attenuation in constructed wetlands for additional wastewater treatment in Arizona, United States. Water and Environment Technology Conference, Tokyo, Japan, June 28, 2015.

Ramirez-Andreotta, M.D., Transdisciplinary collaborations to enhance interactions with communities at contaminated sites. U.S. Environmental Protection Agency Community Involvement Conference, Atlanta, Ga., August 2015.


Ramirez-Andreotta, M.D., Citizen science efforts and environmental health risk communication at hazardous sites. NIEHS Partnerships for Environmental Public Health Webinar, March 2015.


Ramirez-Andreotta, M.D. Using a citizen science approach to change the face of environmental public health research. Inaugural Citizen Science Association Conference, San Jose, Calif., February 2015.

Ramirez-Andreotta, M.D. Pathways to more equitable and productive partnerships: Join us in a World Café to discuss how we can overcome barriers to participation in 'citizen’ science. Inaugural Citizen Science Association Conference, San Jose, Calif., February 2015.


GRANTS


Artiola, continued from page 1 Mesquite biochar can remove (sorb) from wastewater organic contaminants such as benzene, atrazine and TCE. However, large scale production of biochar remains a challenge. As an Extension Water Quality Specialist, I have co-authored several UA Extension publications aimed at providing Arizona residents/consumers and private well owners with information on water sources, water quality, and home treatment options.

I regularly co-present workshops for Arizona’s private well owners in various counties. I am also a member of and contributor to the UA-Superfund Research Core Translation team. Throughout this time, I have had the honor and privilege to serve on numerous graduate students committees in SWES and other UA departments. I have also had the privilege to work and collaborate with several outstanding SWES research faculty and staff and to participate in numerous and varied, research and extension projects.
ALUMNI CORNER

In an effort to enlighten current students on post-graduation job options, SWES is collecting information on alumni. Alumni who are willing to take a brief online survey can do so here: https://www.surveymonkey.com/r/swesalumni. Some of the results will be published in SWES Sounds and on the departmental website at: https://swes.cals.arizona.edu/alumni-donors/alumni-news.

Alumnus Lincoln Perino

After receiving a bachelor’s degree from the SWES Department with an emphasis on Sustainable Land and Water, Lincoln Perino started his own business in 2012: Ethos Rainwater Harvesting and Erosion Control. Here are some of Perino’s survey comments.

Current Job Description

Ethos is just starting to grow so I find myself in the field most days of the week and in the office when I’m not. I manage the company and develop new programs and systems. I also teach classes on rainwater harvesting and greywater, primarily for the SmartScape program at the Cooperative Extension and for a program through Tucson Clean and Beautiful called YARDS, for Youth Achieving Resource Development Skills.

Insights Gained from SWES

Well, I may not have found my way to this path without SWES 201 (a course in Residential Rainwater Harvesting taught by James Riley, now retired). Who knew you could do science and play in the “dirt” at the same time? Dr. Riley is the primary reason I am where I am today. Water has always been an interest of mine and having the opportunity to take the rainwater harvesting course opened my eyes to something that was missing from the community’s awareness.

Advice to Current SWES Students

Get involved with clubs and volunteer for things. Though I think I overextended myself constantly, the people that I met through clubs and projects are people who I have worked with professionally or have made connections for me. Don’t pass up free food, there’s almost always some on campus if you look hard enough.

DEPARTMENT NEWS

Melanie Lenart, an adjunct professor who has been teaching courses in SWES since 2009, has taken a position as a full-time instructor with Tohono O’odham Community College. She joins the Arizona tribal college’s Life Sciences faculty with a focus on Agriculture and Natural Resources.

Lenart began working with SWES in 2009, developing a course in Translating Environmental Science (ENVS 415/515). In 2013, she began co-teaching Water Harvesting (ENVS 454/554) with Grant McCormick. She has been editing the departmental newsletter since 2010. For the past two years, Lenart also led a departmental project to harvest campus trees, known as Linking Edible Arizona Forests (LEAF) on the UA Campus. Lenart encourages collaboration; contact her at mlenart@tocc.edu.

CONGRATULATIONS

SWES student Brunno Cerozi received an award for Best Research Presentation during the Institute of the Environment’s Environmental Grad Blitz for his talk on Phosphorus Dynamics Modeling and Mass Balance in Aquaponics Systems. For more on this event and other winners, see http://environment.arizona.azrad-blitz/winners.

Karletta Chief honored to serve as Navajo parade Grand Marshal

Karletta Chief, a SWES assistant professor with an Extension appointment to work with Arizona’s tribes, said she was honored to serve as the grand marshal for the Navajo Nation’s 69th annual fair on Sept. 12. The theme of this year’s fair was “Nihima Nahasdzaan baa’ ahayago naasgoo bee hinii a doo,” which means “Protecting Mother Earth for Future Generations.”

“My overall goal is to bridge science with the needs of indigenous communities to protect their environment and water and to help the community, together, identify the challenges that face them and collaboratively identify potential solutions with the community,” said Chief, a member of the Navajo Nation who holds a Ph.D. in Hydrology and Water Resources from the University of Arizona.

BEST OF WEST

Ian Pepper, Director

We finally started the move into WEST early in October, and the chaos continues as we speak, but we are making progress. We need to complete the move expeditiously because we have two important events coming up. On Nov. 5, congressional staffers of the State Legislature came in for a briefing on WEST and a tour of the facility as well as the new Agua Nueva Wastewater Treatment Plant (Exciting!). On Friday (Nov. 20), we have the official Grand Opening for WEST. The event is being coordinated by the Office for Research and Discovery since WEST is now an Institutional Level Center. In the morning we will convene a Founder Member Industrial Advisory Board Inaugural Meeting. Later that day the official ceremony will occur, with several high-profile guests attending.

From the UA, these include: President Ann Weaver Hart; Vice-President for Research Kimberley Espy; Deans Shane Burgess and Jeffrey Goldberg. Other guests include Tucson Mayor Jonathan Rothschild, Pima County Administrator Chuck Huckleberry, and Pima County Wastewater Director Jackson Jenkins. Senator Jeff Flake has been invited as a guest speaker, and we expect several other congress members to attend as well.