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3-30-2018

The Fierce Green Fire: Vol. 8 Issue 20

Wofford College Environmental Studies Program

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Recommended Citation

Wofford College Environmental Studies Program, "The Fierce Green Fire: Vol. 8 Issue 20" (2018). *The Fierce Green Fire*. 209.

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The Fierce Green Fire

A Newsletter of the Wofford College Environmental Studies Program



Dr. Clara Chan's talk this week featured how microorganisms affect environmental chemistry.



Volume 8, Issue 20



We concluded our 6th Annual Tyson Family Lecture on Friday evening at the Goodall Center with a dinner hosted by George '72 and Anne Tyson, featuring our guest speaker, Dr. David Shields, and the local culinary cuisine of Cribb's Catering.



Perspectives on Red by Dr. Kaye Savage

We've all seen the glorious deep red earth of Piedmont soils, and most know that the color is sourced in oxidized iron in the soil minerals. The past weeks have brought two very different perspectives on this striking color to our attention. First, artist Judith Kruger visited from Connecticut to share her expertise on using natural minerals as pigments in paint. She gave a mini-workshop to the senior seminar (see the 3/16 issue), presented a public lecture, held a gallery talk about her show *Mingled Terrain* (on display in the Rosalind Sallenger Richardson Center for the Arts), and led a 5-day workshop at the Goodall Center that brought artists from Florida, Tennessee, North Carolina, Atlanta and beyond to explore this rich topic. Participants had the experience of transforming red, orange and yellow ochre soils (as well as other natural materials such as volcanic ash, oyster shells, silver leaf, soot ink, and beetle secretions) into rich and beautiful artworks. Her visit was co-sponsored by ENVS and the Art & Art History Department, as well as the Cultural Affairs committee.

Yesterday, Dr. Clara Chan, from the University of Delaware, took us into the microbial world that mediates iron oxidation reactions in all kinds of environments from groundwater seeps to

hydrothermal vents, producing those lovely mineral rusts. Dr. Chan, a 2018 Mineralogical Society of America Distinguished Lecturer, was co-hosted by the ENVS, Chemistry, and Biology departments. Her subject matter crosses the boundaries of geology, chemistry, biology, and environmental studies, as she and her colleagues aim to learn how microbial actions can generate large-scale mineral structures that may be preserved in Earth's rock record. In her talk, *The Tiniest Architects: how microbes make minerals*, Dr. Chan shared stunning images and videos of minerals produced by both sulfur-oxidizing and iron-oxidizing bacteria. The sulfur oxidizers produce elemental sulfur solids that can take the form of highly reactive nanocrystals assembled into globules, or larger, tougher rhombs. Some iron oxidizers produce trailing stalks of brilliant orange filaments that twist and branch as the single-celled organisms move and divide; others produce elongated "dreads" as they drift in water.

Taken together, these two inspiring visitors highlight what we in environmental studies love best – engaging a subject from multiple points of view that span disparate disciplines. In this case, the results were delightfully colorful.

The old iron bridge at Glendale Shoals is almost complete! Carolina Bridge Co. projects the end of May for completion. The bridge will be open to foot traffic and bicyclists and will connect them to Emma Cudd Road and Glendale Shoals across the dam. Eventually the bridge will help connect to a wider network of trails that will be managed by Spartanburg Area Conservancy.



Upcoming Events and Opportunities

Ongoing *Urban Seas Aquaculture Internship*: See the [attached letter](#) for more information on this opportunity. Start date: ASAP. Flexible hours up to 20 per week – some weekends.

Ongoing
Until spots are full *Ecosystem Field Studies (EcoFS) Summer Courses*: 3-credit, field science courses in either the Caribbean (June 7-27) or Colorado (July 25-August 14). For all course information and how to apply visit EcoFS.org.

Ongoing
Until position is filled *Summer Internship with The Trust for Public Land*: 10-week, paid internship in Atlanta, GA to coordinate with partners as an ambassador for the master planning process in a project to create a 100-mile long park with trails along the Chattahoochee River from Buford Dam to Chattahoochee Bend State Park. See the [attached letter](#) and contact Walt Ray (walt.ray@tpl.org), Chattahoochee Program Director to apply.

March 31st
8:00am-noon
498 Howard Street *Hub City Farmer's Market Opening Day*: A new season begins at the Hub City Farmer's Market located on Howard Street in the Northside community.

April 2nd – 6th

Spring Break

April 13th
8:00am-5:30pm *14th Annual SC Upstate Research Symposium*: The symposium includes a keynote address, *Hope in a Time of Transformation*, by Janisse Ray, poster sessions, breakout sessions and awards ceremony. Lunch provided. To register, go to [USC Upstate website](#). Registration closes April 4th. For question about the program, contact Melissa Pilgrim, mpilgrim@uscupstate.edu.

April 19th
3:00pm
Anna Todd Wofford *ENVS Capstone Presentations*: Join us for presentations and poster sessions with our seniors. Schedule of presentations TBD. Light refreshments served.

PROFILE OF THE WEEK:

Texas Christian University – School of Geology, Energy & the Environment

Texas Christian University offers a MS in Geology, a MA or MS in Environmental Science, and a MEM in Environmental Management through its School of Geology, Energy and Environment.

In Geology students can focus on structural geology and tectonics, sedimentary or petroleum geology, igneous and metamorphic petrology, geomorphology, meteoritics and planetary geology, paleontology and GIS. Most student projects are completed locally or regionally, while some are completed internationally.

In Environmental Science, specific fields of study include environmental compliance and law, aquatic

and terrestrial ecosystems, conservation biology, and habitat and wildlife management. All include coursework, research, and fieldwork.

Environmental Management is offered in conjunction with the MJ Neeley School of Business and gives students skills in science, business, NGOs, and government.

These programs are part of TCU's larger [Institute for Environmental Studies](#), which is a collaboration between departments, institutions, government, and private businesses to create solutions to environmental issues.

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