

Students work to purify toxic soil in Zambia

Georgia College & State University students are sowing the seeds of change.

Funded through a \$300,000 grant from the National Science Foundation (NSF), an environmental science professor is leading this transformation in the central-southern region of Africa. His students are researching plants that may have the power to renew vast stretches of land poisoned from mining.

The three-year program includes International Research Experiences for Students (IRES) in the summers, plus continuing research during academic years on campus. It builds upon years of study by Dr. Samuel Mutiti, professor of geology and environmental sciences, who has worked tirelessly to clear Zambian soils of toxic metals.

Last summer, Mutiti took the first cohort—three undergraduate students and a graduate to Copperbelt Province and Kabwe, once dubbed the world's most toxic town due to mining. Months of dry season in



Senior Alana Stevens in the field in Zambia with Dr. Samuel Mutiti.

the region are followed by windy months. Children play in dirt fields, breathing in air particles laden with heavy metals like lead, cadmium and zinc.

Lead causes neurological problems, brain damage and lowered IQ in children. In pregnant women, it can cause anemia and miscarriages.

In recent years, Mutiti's team built a concrete wall fence to block wind gusts at a playground at the David Ramushu Combined School in Kabwe. They buried contaminated dirt, encapsulating it with a layer of clean soil. In the future, Mutiti hopes to add plants that are known to pull pollutants from soil into their roots and stems.

"One of things we focused on last summer was the selection of contaminated sites as good candidates for experimental phytoremediation," Mutiti said. "We visited many different sites, collected different plants and soil samples for analysis. Each site has its own suite of

pollutants, challenges and other factors. Which site will be ideal for future research?"

For the IRES project, Georgia College students collaborate with peers at the Colorado School of Mines to study heavy metal pollution and phytoremediation—the use of plants to clean contaminated environments. They're also looking for ways to reuse the plants.

Georgia College's portion of the NSF grant is \$165,000 to send four students for research to Zambia this summer, four next summer and another cohort in summer 2024.

- The first cohort spent six weeks in Zambia working with Mutiti to identify contaminated sites. They networked with students at the University of Zambia, government officials at the Ministry of Mines and various environmental organizations.

- Organizers are in the process of choosing next summer's cohort. Four students will be funded to return to identified sites and grow plants that pull ground toxins into stems and leaves, leaving behind cleaner soil.

- In summer 2024, the last cohort will test plants for accumulation of toxins and determine if any parts are safe to be used for other purposes such as food, medicine or biofuels.

Senior biology major Abby Logan of Dacula, Georgia, was in the first cohort. She has a pre-med concentration and minor in public health but was new to the topic of soil remediation. Even so, Logan felt her input mattered in every conversation.

"I really appreciated the amount of inclusion we were allowed," Logan said. "Almost immediately we were put into situations where we were able to express our thoughts and ideas on things, which was really cool."

"We were able to see where we could make impacts," she said, "and how the science we're learning about and currently researching can make a difference in people's lives."

Senior Alana Stevens of Buford is majoring in environmental science



Alana Stevens and Abby Logan with Dr. Mutiti in the lab at Herby Hall.



with a minor in geology. She also knew little about the research going in. Now, she and Logan are lead researchers in Mutiti's lab on campus.

"I didn't know about phytoremediation or Phyto-mining when I signed up for this. I remember hearing those words for the first time and feeling very intimidated. But now," Stevens said, "I just feel very inspired."

In Zambia, students started their days early, traveled a lot, slept in youth hostels, and enjoyed African foods, like nshima—a thick porridge of white corn eaten with leafy greens and meat.

Mutiti lauded the work of his first cohort. Students learned to adapt, meet challenges head on, change plans at a moment's notice and work with people from all backgrounds at an international site. They developed good work ethics, learned laboratory techniques at other universities and networked with professional scientists.

He's proud of the way students broadened their perspectives and took ownership of the work, while gaining confidence and leadership skills.

'Choral Day' turns singers into believers

Paul McCartney once said: "I love to hear a choir. I love the humanity ... to see the faces of real people devoting themselves to a piece of music. I like the teamwork. It makes me feel optimistic about the human race when I see them cooperating like that."

That about sums up what Georgia College & State University's annual "High School Choral Day" is all about: fellowship, collaboration, good music—and a little recruitment too.

"It started off as an effort to get high school singers on campus and, hopefully, recruit some music majors, minors and ensemble members. We continue it for that same reason," said Dr. Jennifer Flory, director of Choral Activities.

"This performance was quite successful," she said. "I felt super afterwards. I don't always feel this way if we haven't progressed much. This year was great."

Georgia College has hosted Choral Day nearly every fall since 2006. In that time, about 93 high schools have joined in with nearly 1,200



Junior Riley Greer leads games on High School Music Day.

high schoolers experiencing what it's like to be on campus and sing in a college choir.

High schoolers are exposed to songs in advance, then they practice alongside college students only a few times before performing.

The day begins with ice breakers. Several rehearsals are interspersed with games, college

information sessions, lunch in the dining hall and a campus tour. There is also a "master-class," allowing high school students a chance to sing solo and work with voice faculty. The performance was held at First Baptist Church.

"It gives high school students a chance to perform music that each high school might not be able to perform on their own," Flory said. "We've had several students attend High School Choral Day, apply to GCSU, be accepted and enroll—some as music majors, some not."

Of five high schools that attended, four choral directors were Georgia College alumni. They were Joel Singleton from Eastside High School in Covington, Georgia; Greta Thomas of Jackson High School in Jackson, Georgia; Jeremy Rooks from Upson-Lee High School in Thomaston, Georgia; and Aston Bryant from Valdosta High School in Valdosta. Students from Northside High School in Houston County were also present.

High school students were nervous going in but felt proficient by afternoon.

Did you know?

Georgia College & State University's Alumni Weekend is coming up fast!

The 4th Annual "A Night Under the Stars" gala will be held Friday and Saturday, Nov. 4-5.

On Friday, the Peabody Reunion Luncheon will be noon to 1:30 p.m. in Peabody Auditorium. That evening, the 4th Annual "A Night Under the Stars: Bridging the Gap" gala will be from 6:30 to 9 p.m. in Magnolia Ballroom.

Saturday begins with the Honors Alumni Drop-in at 10 a.m. at Humber-White House. The All-Classes Picnic will be noon to 1:30 p.m. on the Russell Library patio. The Creative Writing Program will hold its 20th Anniversary Reunion in the library from 1:30 to 3:30 p.m.

The Alumni Awards Dinner, the pinnacle event of the weekend, will also be Saturday from 6:30 to 9 p.m. in Magnolia Ballroom. The exceptional achievements of fellow alumni will be honored.

For more information, please call Advancement at 478-445-5400.

GCSU awarded grant to measure obesity-reduction

The Georgia Department of Public Health (DPH) asks all counties in Georgia to create programs that promote healthy lifestyles and reduce the risk of chronic diseases like obesity, heart disease and diabetes.

These illnesses cost the state about \$40 billion each year, keeping children out of school and resulting in early loss of lives, according to the DPH website.

Each county is tackling the problem—but separately. Some try to promote physical activity through step challenges, park improvements or health festivals.

To discover what each county has implemented and to measure the success of these efforts—DPH turned to the Georgia College & State

University Center for Health & Social Issues and Dr. Damian Francis, its director. Recently, the center was given a \$65,000 grant to support the evaluation of programs in 17 of the state's health districts and 149 counties.

"It's one of our strategic goals to support people in creating and maintaining healthy communities and to help people in concrete ways," Francis said. "I'm into chronic disease epidemiology. I'd like to see people who are dying prematurely before the age of 70 live beyond 70. That is my goal."

"The average life-expectancy rate in America is close to 80 now," he said. "But a lot of the population, Baldwin County in particular, have people dying before they get to 70. We consider

that to be premature mortality. Projects like this help get us where we want to be."

Junior public health major Madeline Meiser of Roswell and research fellow Ivey Whitworth are working with Francis to identifying similarities and differences in county health plans. They're collecting data on what's being done to reduce obesity and improve physical activity through diet and exercise.

The team will devise a common framework to collect or access secondary data, then analyze and evaluate which programs work and how well they work. Their role is to provide the DPH with technical assistance in conducting this statewide evaluation of chronic disease prevention programs.

"The key to all of this is," Francis said, "is nutrition and physical activity."



Junior Madeline Meiser collects data on obesity programs.

What's going on in Bobcat Territory?

Visit frontpage.gcsu.edu/events

Tuesday

25

6-8 p.m. GCSU Volleyball vs. Augusta live at Centennial Center.

7-8 p.m. Spooky stories will be told at the Literary guild October meeting on Front Campus.

7:30-8:45 p.m. "Tangos, Pirates, Gods and Vivaldi: GCSU Orchestra Concert in Russell Auditorium.

Wednesday

26

5-7 p.m. The International Fest 2022 will be on Front Campus and, in case of rain, in Magnolia Ballroom.

Thursday

27

4:30-5:30 p.m. and 7-8 p.m. Virtual discussions on Flannery O'Connor's "The Lame Shall Enter First." Call 478-445-2645 to register.

6-8 p.m. The 5th Annual Graveyard Reading will be hosted by Romantic-Victorian Affinity at Memory Hill Cemetery.

6:30-8:30 p.m. Bobcat Madness/Trunk or Treat at Centennial Center.

7:30-8:45 p.m. Wind Symphony Concert "U Pluribus Unum" in Russell Auditorium.

Friday

28

Saturday

15

4-6 p.m. GCSU Volleyball vs. Flagler live at Centennial Center..

