



**CUR BIOLOGY
DIVISION
NEWSLETTER
LATE, LATE, LATE
SUMMER 2016!**



**PROFESSOR TO BEGIN
FIELD STUDIES OF
PORTULACARIA AFRA IN
SOUTH AFRICA**

**SUBMITTED BY LONNIE
GURALNICK, ROGER
WILLIAMS UNIVERSITY**

Dr. Lonnie Guralnick, Professor of Biology at Roger Williams University, will begin a sabbatical in January of 2017 to continue research with *Portulacaria afra*, a plant endemic to the Eastern Cape of South Africa. We will be studying the potential of *P. afra* as use of a plant for carbon sequestration in response to global climate change. *P. afra* is well adapted to

the arid Spekboom thicket and has a high capacity of carbon acquisition even under water limited conditions. The plant utilizes both the C₃ and the Crassulacean acid metabolism (CAM) pathway dependent on water conditions.

Portulacaria afra occurs where the rainfall can range from 250 to 750 mm per year. Previous work has shown *P. afra* populations to have a high degree of variability in the amount of carbon acquired through the CAM pathway. We will be analyzing the physiological attributes for its high water use

efficiency. In addition, we are looking to understand the genetics and the phenotypic variability of *P. afra*. We are looking to determine if there are better adapted ecotypes for restoration. We hope to establish Rhodes University (Grahamstown, South Africa) as a study abroad site for Roger Williams University for students to perform field research. Rhodes University enrolls ~8000 students from undergraduates to Ph.D. students. Our goal would be for undergraduates to perform research on the ecology, physiology and genetics of *P. afra*.

Students will benefit from working in an international setting and learn about the context of environmental and sociological issues in South Africa.



Image: *Portulacaria afra* growing in the Plutosvale region outside of Grahamstown, SA.



Fort Lewis College Students Study White Nose Syndrome in SW Colorado Bats

**Submitted by Sherell
Byrd, Fort Lewis
College**

White nose syndrome is a disease that threatens the future of many bat species nationwide. The invasive fungus (*Pseudogymnoascus destructans*) from Europe kills more than a million bats each year. Thriving in caves and mines, when it grows on bats, it somehow forces them to wake repeatedly during their hibernation period.

Because of their increased metabolism when awake, infected bats use up their fat stores too quickly and eventually starve to death. The fungus has been found in caves and mines throughout the Northeastern US, as far

west as Missouri and into Canada. This is why Fort Lewis College Biology professors Steve Fenster and Erin Lehmer and several Fort Lewis College students spent time at an abandoned mine in the San Luis Valley near Alamosa, Colorado. In partnership with the Colorado Parks and Wildlife Division, faculty and students are trying to determine if the bats found in this roost can carry viable fungal spores to and from migratory locations.



The research group's goal is to determine if Mexican free-tailed bats (also called Brazilian free-tailed bats; *Tadarida brasiliensis*) carry live fungal spores to this mine when they arrive in

the spring and leave in the fall as they migrate south for the winter.

This colony of bats is of particular interest because unlike most large bat colonies, which are associated with maternity roosts, this colony is composed primarily of bachelors. Typically, bachelors do not congregate, but disperse over a large range during and after migrations, making the potential for spread of the fungus higher.

Drs. Fenster and Lehmer, along with a team of biology students, used mist nets to capture bats flying out of the mine. Mist nets are invisible to the bat's echo detection system, allowing the live capture of animals. Once netted, the group collected fungal swabs from various locations on the bats' bodies for culture and identification of fungal spores. Back at Fort Lewis College,

biology students culture from the swabs and use microscopy and PCR to determine if bats are carrying the fungus that causes white nose syndrome.



Thus far, the bats have been found to carry six major types of fungal spores, but fortunately, none of them have been identified as the fungus that causes White Nose syndrome. The students and faculty have presented their work locally, and at national SACNAS and Wildlife conferences. For a fun video that describes the project go to:

<https://www.fortlewis.edu/news/FullStory/ArtMID/23759/ArticleID/1147303/Taking-a-close-look-at-Mexican-free-tailed-bats-VIDEO.aspx>

**DEVELOPMENT FOR
POST DOCS AT ANNUAL
CONFERENCES OF
PROFESSIONAL
SOCIETIES:
*OPPORTUNITIES FOR
BROADENING THE
MEMBER BASE FOR THE
COUNCIL ON
UNDERGRADUATE
RESEARCH***

**SUBMITTED BY: MIKE
PALLADINO, LANCE
BARTON, KAREN
RESENDES, AND JOYCE
FERNANDES**

Outreach and advocacy on behalf of CUR are goals in the 2016-19 Strategic Plan. When attending appropriate conferences, Biology Division Councilors are encouraged to promote CUR by talking about the organization's mission and its benefits. Four members of the Biology Division and current

Councilors, Joyce Fernandes (Miami University), Karen Resendes (Westminster College), Lance Barton (Austin College in Sherman, Texas) Michael Palladino (Monmouth University), who are also members of the American Society for Cell Biology, attended the 2015 annual conference held in San Diego, from December 12-16. In addition to presenting posters on their own research, they also made use of programming opportunities at the conference to publicize CUR and its mission of supporting undergraduate research.

A **poster** was prepared and presented during the Education session.

POSTER TITLE: The Council on Undergraduate Research (CUR): What's in it for Future Faculty?

The poster communicated background about CUR

and its mission, the Biology Division and its outreach activities, and conferences and workshops hosted by CUR to support undergraduate research.

Two **table talks** were presented. These were about an hour long, and allowed 8-10 participants at a time to interact with facilitators in an informal setting at a round table.

TABLE TALK #1: The Council on Undergraduate Research

TABLE TALK #2: Crafting a research statement that is undergraduate research friendly

A two hour workshop, *"Building a successful research program- a road map"* was attended by about 50 participants.

The discussion engaged participants in the logistics of beginning and developing a research program, while having simultaneous responsibilities in

teaching and service. Choosing projects, recruiting and training students, grant writing, integrating research into teaching labs, were some of the topics that were explored.

The Biology Division has a strong interest in CUR advocacy to postdoctoral fellows and helping postdocs become aware of career opportunities as a faculty member at a PUI.

A workshop proposal on "Interviewing for and Landing a Faculty Position at a Primarily Undergraduate Institution (PUI)" was developed and accepted for presentation at the annual meeting of the National Postdoctoral Association (NPA) in Grand Rapids Michigan, in March 2016. The workshop was held as a collaborative effort between Chemistry, Biology and Humanities divisions of CUR.

Michael A. Palladino Ph.D., Vice Provost for Graduate Studies and Professor of Biology, Monmouth University served as organizer and moderator. Jason G. Gillmore, Ph.D., Associate Professor of Chemistry and Schaap Research Fellow, Department of Chemistry, Hope College; Carol Strong, Ph.D., Associate Professor, Political Science, University of Arkansas – Monticello, and Joyce J. Fernandes, Ph.D., Professor, Department of Biology, Miami University were presenters.

Publicity for this workshop included a webinar. During this 90 minute workshop, participants learned about the search process, how to apply, how to craft research and teaching statements, the most desirable qualifications for faculty hires at a PUI, and questions to consider when deciding if a particular PUI is a good fit to support your teaching and research interests. Participants also were provided guidelines about what to expect when

preparing for an interview at a PUI and how to emerge as a competitive candidate when interviewing. Mock interviews were held in which individual “candidates” were interviewed and the audience participated to provide feedback on the interview. 28 participants attended this workshop.

CUR BIOLOGY

DIVISION: CALL FOR NOMINATIONS FOR FACULTY MENTOR

RECOGNITION AWARD

The Biology Division of CUR would like to honor Biology Mentors for their long-term efforts in supervising undergraduate research (UGR) students.

Individuals may be nominated by CUR Institutional or Institutional-Enhanced members, or individual CUR members of the Biology Division. Faculty mentoring

interdisciplinary projects are eligible as long as those projects involve a major biological component. Awards will be made in three categories: Early Career, Mid-Career, and Mature Career.

Information on nomination procedures and requirements, will be forthcoming on the CUR Biology Division website. Applications/Nominations must be submitted in their *entirety* by **5:00 pm (PDT), Monday, October 17, 2016**, by email to Shere Byrd at byrd_s@fortlewis.edu.



MARK YOUR CALENDAR!



**31st National
Conference on
Undergraduate
Research,
University of
Memphis, April
6-8, 2017**

http://www.cur.org/ncur_2017/

**2016 PRE-
CONFERENCE
WORKSHOP AT
ISSOTL
OCTOBER 12, 2016
LOYOLA
UNIVERSITY**

[HTTP://WWW.CUR.ORG/
EVENTS/2016_PRE-
CONFERENCE_WORKSHOP
AT_ISSOTL/](http://www.cur.org/events/2016_pre-conference_workshop_at_issotl/)

SEE YOU AT THE:

**WORLD CONGRESS
ON UNDER-
GRADUATE
RESEARCH
Nov. 13-15, 2016
QATAR UNIVERSITY**

[HTTP://WWW.CUR.ORG/
WORLD_CONGRESS/](http://www.cur.org/world_congress/)

Council on Undergraduate Research Statement on Diversity

The Council on Undergraduate Research is committed to inclusivity and diversity in all of its activities, therefore CUR will increase and nurture participation of individuals and groups that have been traditionally underrepresented in undergraduate research.

Source: <http://www.cur.org/>

NEWSLETTER CONTACTS

The CUR Biology Division Newsletter is published twice annually in most years (Fall/Winter and Spring/Summer). To contribute articles of general interest to the division (announcements and notices are also welcome) contact either of the editors:

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