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.

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**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 disburse 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 qualify-
cations 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” where
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
e-mail to Shere Byrd at
byrd_s@fortlewis.edu.
MARK YOUR CALENDAR!

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

HTTP://WWW.CUR.ORG/EVENTS/2016_PRE-CONFERENCE_WORKSHOP_AT_ISSOTL/

SEE YOU AT THE:
WORLD CONGRESS ON UNDERGRADUATE RESEARCH
NOV. 13-15, 2016
QATAR UNIVERSITY

HTTP://WWW.CUR.ORG/WORLD_CONGRESS/

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

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

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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-or-

Diana Spencer, Tulsa Community College
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**IMAGE CREDITS**

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