



## Innovative Research and Discovery for a Sustainable Future

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AUSTIN HALL

## New Directions



In September of 2008, Dr. **William I. Lutterschmidt** (Associate Professor of Biology) was appointed Director of the Texas Research Institute for Environmental Studies.

His international reputation for research in Physiological Ecology was recognized through one of the highest University awards, the Sam Houston State's Excellence in Research Awards which Dr. Lutterschmidt received in 2006. His research contributions include over 50 publications and more than a million dollars in grant money since joining Sam Houston State University in Fall of 1998. Dr. Lutterschmidt's research experience now leads TRIES in new directions for increasing scholarship and the visibility of TRIES as a major research institute in the southeastern United States. Under Dr. Lutterschmidt's direction, there has been a six-fold increase in peer-reviewed scholarship resulting in increased research visibility for Sam Houston State

## TRIES-NEWS

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University (see *Pages 9 & 10* of *TRIES-NEWS*). Four new programs include graduate research assistantships, a research program in aquatic and wetland ecology, a graduate AES research fellowship, and a invertebrate toxicology laboratory. These new programs are further introduced within this issue of *TRIES-NEWS*. As Dr. Lutterschmidt begins his second academic year as director, he hopes to develop additional research programs and to help support faculty research related to the TRIES mission. Dr. Lutterschmidt said, "Directing a research facility with such a long history of collaboration among Sam Houston State's faculty and staff will be most rewarding and exciting. I am honored to continue the great tradition of accomplishments by past directors, Drs. Michael Warnock and Gordon Plishker. I know that this new administrative position will be most rewarding and challenging and I look forward to serving Sam Houston State University in this administrative position."

## New Researchers Join TRIES

**Dr. Jeffery R. Wozniak**, an aquatic and ecosystem ecologist with an expertise in nutrient cycling, has joined the research faculty at SHSU this fall as a post-doctoral research fellow. He obtained his Ph.D. from Florida International University and was involved in aquatic research at Texas A&M University prior to joining TRIES. Dr. Wozniak brings expertise that will help

TRIES develop research collaborations between Biology, Chemistry, Political Science, and Forensic Science. Please help us in welcoming Dr. Wozniak to the SHSU community. Here Dr. Wozniak introduces himself and his research. — "As a new post doctoral fellow at TRIES, I have been trying to meet as many of my new colleagues as possible. When I come

## New Researchers Join TRIES (Continued from Page 1)



across a new face and introduce myself, one of the first questions is, “What do you do?” When I respond, “I am an ecosystem ecologist,” I am not always sure how much the inquirer knows about ecosystems and moreover what amount of additional information is necessary to adequately define ecosystem ecology. So I would like to take this opportunity to discuss exactly what I do, how I do it, and how I envision my research at TRIES fitting into the greater scientific community at Sam Houston State University.

Ecosystem approaches to science involve the integration of both biotic and abiotic considerations and often involve measurements of both ecosystem structure (plants, microbes, soils, and hydrology) and function (primary/secondary production, species diversity, and decomposition rates). For most of my career, I have utilized wetlands as model systems to address research questions regarding the biogeochemical cycling of nutrients, ecosystem and community responses to natural and anthropogenic drivers (at varied spatial & temporal scales), and the importance/role of habitat management to sustain ecosystem goods and services. In my opinion, to effectively “do” ecosystem science, it is crucial to collaborate with researchers from multiple scientific disciplines including: geology, economics, meteorology, hydrology, chemistry, modeling, statistics, and biology. As a result, nearly all of my research endeavors have been part of interdisciplinary research groups and have centered on research projects in the freshwater marshes of the Florida Everglades, subalpine wetlands of the Colorado Rockies, deciduous forests of northwestern Pennsylvania, and coastal marshes of Texas.

Moving forward, I believe that the interface between ecological systems and the fringe of anthropogenic impacts is getting closer and closer. This convergence has amplified ecological “tipping points” to the point where the slightest of environmental impacts can result in dramatic ecological responses, which can rapidly cascade through the ecosystem. Consequently, the field of environmental science has entered a time when

researchers need to think at larger, more global spatial scales and need to consider the combined effects of system drivers. We find ourselves at the doorstep of significant global environmental changes, and with these changes follow a myriad of ecological questions. As a research scientist, this cannot be a more exciting time and I believe we need engaging researchers to continue to address (and continue to ask) these challenging questions. This can be viewed as a daunting task, but I am confident that through a collaborative effort, we are up to the task. I look forward to the role that TRIES can play in bringing together a wide range of researchers from across the SHSU community to actively participate in this process and to work towards finding the solution.” Please visit Dr. Wozniak’s web site for additional information regarding his research program at TRIES. [www.shsu.edu/~jrw034](http://www.shsu.edu/~jrw034)

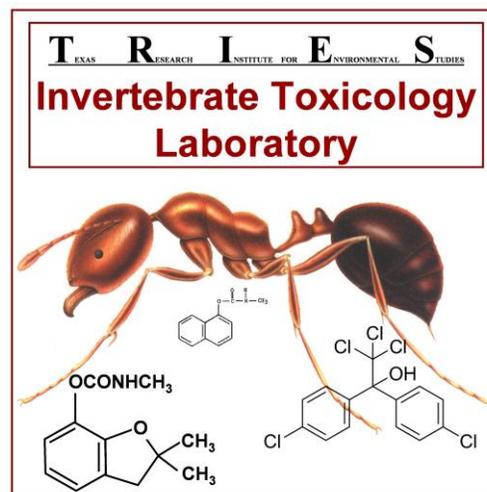


**Ms. Shirley Carrias** (Operations Manager of the Invertebrate Toxicology Laboratory) received her Master of Science from SHSU working on leaf-litter ants in the pine forests of east Texas and Belize. Ms. Carrias continues to conduct this research and is currently working on the description of a new ant species from the Maya Mountains of Belize. Her research responsibilities at TRIES include managing the Invertebrate Toxicology Laboratory, which was established at TRIES in January, 2009. Prior to the current association with TRIES, this

research was conducted by Dr. Jerry Cook (Assoc. VP for Research and Sponsored Programs) within the Department of Biological Sciences. The lab’s primary function is efficacy testing of pesticide products

developed by the pest control industry. Thus research and tests are independent of the companies that produce the pesticides. This independent testing is required by the Environmental Protection Agency

(EPA) before product licensing. The Invertebrate Toxicology Laboratory is currently working with three separate companies within the larger BASF Corporation. One of these companies recently purchased by BASF, was an independent product development company (Whitmire Micro-Gen) in which Dr. Cook conducted testing for more than ten years. The Lab's newest client is BASF Global Pesticide Division which develops and markets products world-wide. Additional research projects will investigate experimental products to control the red imported fire ant and Argentine ant, both of which are global pest species. In addition to conducting pesticide trials, the Invertebrate Toxicology Laboratory is also working on basic ant research.

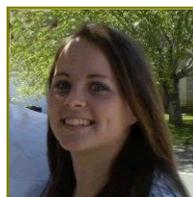


## Graduate Research Assistantships in the TRIES Analytical Laboratory

The TRIES Analytical Laboratory is a state-of-the-art facility that plays an essential role in both undergraduate and graduate education at Sam Houston State University (see *Pages 5 & 6* of *TRIES-NEWS*). This fall Dr. Lutterschmidt (TRIES Director), with the help of ORSP, has restructured student work positions within the laboratory to aid in graduate research and education. There are now two competitive research assistantships associated with the Analytical Laboratory. These positions were awarded this Fall to **Ms. Charity Beherec** and **Mr. R. Samuel Bonge** to work 20 hours per week in the Analytical Laboratory testing water and soil samples. These RA positions will allow students to obtain training and gain valuable research experience in analytical chemistry for use in their graduate research programs.

Ms. Beherec is a graduate student in Forensic Science working with Ms. Kelsie Simons and Dr. Joan Bytheway. Ms. Beherec will be focusing her research on the leaching of melanin and resulting melanin concentrations in soil samples associated with the Southeast Texas Forensic Science (STAFS) facility located within the Center for Biological Field Studies (CBFS). To date, only one study has addressed how traces of melanin in the soil may serve as a tool in forensic science.

Mr. Bonge is a graduate student in the Department of Biological Sciences working with Drs. Tom Chasteen (Chemistry) and Lutterschmidt. Mr. Bonge is investigating the chemical composition of skin extracts excreted by two frog species as an anti-



**Ms. Charity Beherec**  
M.S. Graduate Student  
Chemistry and Forensic  
Science



**Mr. R. Samuel Bonge**  
M.S. Graduate Student  
Biological Sciences

predator mechanism. Both of these research questions will rely heavily on the TRIES Analytical Laboratory and will result in direct scholarship for increased research visibility for both TRIES and its Analytical Laboratory. Much of their work will be technically directed by **Ms. Rachelle Smith's** (Operations Manager) expertise in analytical chemistry. Upon Ms. Beherec and Mr. Bonge completing their M.S. degrees, these positions will be announced through the Graduate College and applications will be accepted for these competitive research positions within the TRIES Analytical Laboratory.



## A Research Collaboration between the Colleges of Arts and Sciences and Criminal Justice



A major long-term research and environmental monitoring program between TRIES, the Center for Biological Field Studies (CBFS), and the Southeast Texas Applied Forensic Science facility (STAFS) is being supported by both the Colleges of Arts and Sciences and Criminal Justice. To monitor and validate the low environmental impact of the STAFS facility, scientists from TRIES, CBFS, and STAFS have come together in a collaborative research initiative to create a long-term water quality monitoring program. The Colleges of Arts and Science (COAS) and Criminal Justice (CCJ) have helped with start-up funds for the equipment necessary to begin the long-term program. Their support for four water quality auto-samplers will serve as the backbone of the program, thus providing a long-term, achievable, high-resolution, water quality data set for the STAFS drainage catchment at the CBFS.

This project offers a unique opportunity for continued inter-departmental collaborative research efforts between STAFS, CBFS, and TRIES which will undoubtedly benefit both faculty and students. To aid in the successful, long-term implementation of this research project, the TRIES Analytical Laboratory has matched the support of COAS and CCJ by providing the necessary staff, field expertise and maintenance, sample collection, and sample analyses.

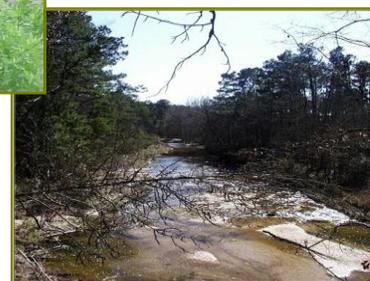
STAFS is a state-of-the-art research facility matched by no other facility in the state of Texas. The CCJ STAFS facility was designed like no other facility, where potential environmental impacts would be mitigated by a drainage catchment system. The drainage catchment system offers a unique opportunity for environmental research and demonstrates the forward-thinking in the development of this research facility.

**Pro-Active Planning by COAS and CCJ.** In developing the STAFS facility, the COAS and CCJ helped in construction of a large retention pond at the CBFS. This pond acts as a large aquatic system to process nutrient and water runoff from the STAFS facility and serves as the principle barrier to the Harmon Creek watershed. To date, there are no other forensic science facilities that have such an environmentally progressive design.

**Opportunities for Study.** There are no empirical data on the composition or level of nutrients that are associated with such forensic facilities. This offers the unique opportunity to unequivocally understand the nutrient and trace element composition of water runoff from the

STAFS facility, as well as the overall efficacy of the retention pond as an ecological water treatment tool. Moreover, the implementation of this project will result in the high-resolution and real-time data necessary for STAFS and CBFS scientists to formulate and maintain an adaptive and responsible management plan for the site.

Four sampling sites along a “flow-oriented” transect will be monitored to document surface water flow patterns. Water samples collected as part of this program will be available to students and researchers who may benefit from understanding not only the nutrient concentration of surface water runoff (nitrogen, phosphorus, and carbon), but also more specific concentrations of trace elements/materials (e.g. volatile fatty acids: propionate and acetate). These specific trace concentrations may be of particular interest to an individual student’s graduate research project or may be incorporated into science laboratory courses. Students will also have the opportunity to assist with sample analysis and will benefit from learning novel trace element analysis techniques and their application in the field of criminal justice. Furthermore, the creation of a long-term data set will represent an exciting opportunity for the faculty of the CCJ, CBFS, and TRIES to collaborate on several unique, cross-discipline research projects resulting in publication. We anticipate these potential publications will be well received in both ecological journals (focusing on the ecological processes at work in mitigating nutrient runoff) and criminal justice journals (focusing on the specific composition of effluent by-products associated with the STAFS facility). Such data will be the first of its kind and will set the standard for how to establish a state-of-the-art facility both in environmental planning and design.



## Introducing the TRIES Advisory and Editorial Board

In Fall 2008, the **TRIES Advisory and Editorial Board** was created by Dr. William I. Lutterschmidt to aid in important decisions regarding the future research directives of TRIES. Each member of the board serves a three-year term and is officially appointed to the board by the Associate Vice President for Research (Dr. Jerry Cook) through the Office of Research and Sponsored Programs (ORSP). Board members have active research programs in their areas of expertise and bring a broad knowledge base to TRIES. The 2011 class of board members are Drs. **Donovan C. Haines** (Chemistry), **Douglas M. Kingman** (Agriculture Sciences), **Christopher T. Baldwin** (Geology), **Tamara Waggener** (Political Science), and **Chad W. Hargrave** (Biological Sciences). Board members serve an active and important roll in the review of research operations including the selection of candidates for research positions associated with TRIES. **Dr. Jeffery R. Wozniak** was awarded the TRIES Post-Doctoral Research Fellowship in May 2009 after the board interviewed four candidates and reviewed their respective research programs in March and April of 2009. Board members attended each candidate's research seminar which was open to the University community. The four candidates, from Rutgers, Texas Tech, Texas A&M, and the University of Nebraska, provided details about their perspective research programs that would be brought to TRIES. The

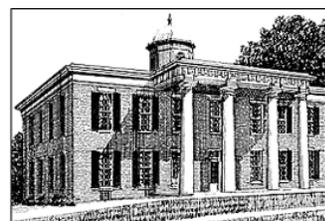


presented research served as major criteria for the board's candidate selection. The board will also be reviewing student candidates for the new graduate position, **The TRIES Advancements in Environmental Science (AES) Graduate Research Fellowship** which opens for application submission and competitive review in Spring 2010 (See *Page 6* of *TRIES-NEWS*). We thank these board members for their dedicated commitment and service as TRIES continues to develop additional programs to serve the University community.

## TRIES Analytical Laboratory Involved in Educational Outreach

Chemistry classes of Alpha Omega Academy in Huntsville, Texas visited the TRIES Analytical Laboratory to learn about and participate in soil and water testing. This opportunity provided students with first-hand experience in processing and chemically analyzing soil samples. **Ms. Rachelle Smith** (Operations Manager) coordinated all student lab activities and provided expert instruction on safety, instrumentation, laboratory procedures and techniques, and data collection and processing. After teaching the students about the particular chemical analyses they would be conducting, student were allowed to individually test soil samples collected from their home gardens and yards. After testing these samples, students developed a scientific laboratory report

summarizing fertilizer recommendations for their parents. Each student had a fun and rewarding experience learning about analytical chemistry and participating in a organized field trip to Sam Houston State University.



AUSTIN HALL

## TRIES Analytical Laboratory Operations and Updates



### Ms. Rachele Smith (Operations Manager)

To further graduate research at Sam Houston State University, the Office of Graduate Studies recently provided funding to the TRIES Analytical Laboratory to procure a new Gas Chromatograph/Mass Spectrometer (GCMS) to be used in graduate research. The GCMS has been configured to analyze samples for pesticide and herbicide residues, anti-bacterial agents such as triclosan, and to research additional parameters helping graduate students working

with Dr. Tom Chasteen in chemistry. We welcome additional research ideas and offer the expertise of the Analytical Laboratory to any graduate student needing assistance in their graduate research. Please contact Ms. Smith at your convenience if you think we can help serve in your graduate research program.

### *NELAC certification*

The TRIES Analytical Laboratory is currently seeking National Environmental Laboratory Accreditation Conference (NELAC) certification through the Texas Commission on Environmental Quality (TCEQ). NELAC certification is a national certification program that standardizes laboratory policies and procedures. This certification will allow our Laboratory to develop collaborative research programs and create a diversity of funding opportunities for TRIES and Sam Houston State University. The TRIES Analytical Laboratory also participates in the National Forage Testing Association (NFTA) and the North American Proficiency Testing Program (NAPT) which audits and validates analytical data obtained from TRIES analytical apparatus. The Laboratory is currently recognized by NFTA and NAPT in its accuracy for the testing of chemical standards.

### *New Graduate Research Assistantships in the Analytical Laboratory*

Part of Dr. Lutterschmidt's initiative as Director, is to promote the TRIES Analytical Laboratory's support for

graduate education. He has transitioned the hourly student work positions into graduate Research Assistantship (RA) positions promoting the Analytical Laboratory's participation in and support of graduate research. **Ms. Charity Beherec** (M.S. student in Chemistry and Forensic Science) and **Mr. R. Samuel Bonge** (M.S. student in Biological Sciences) were awarded these research assistantships and will hold these positions provided they maintain graduate standing in their respective departments. As research assistants in the TRIES Analytical Laboratory, they are required to work 20 hours per week assisting the Operations Manager with sample processing and data collection. As a research assistant in the TRIES Analytical Laboratory, they are expected to develop graduate research programs with a heavy emphasis in analytical chemistry leading to peer review presentations and publication within their respective fields. Ms. Beherec is investigating melanin leaching in soils as a tool in forensic science and Mr. Bonge is investigating the chemical composition of skin extracts excreted by two frog species as an anti-predator mechanism.

Graduate students interested in the availability of these RA positions are welcome to visit the TRIES web site or contact the Office of Graduate Studies. Application material and requirements will be posted upon availability.

## A New Graduate Research Fellowship at TRIES

TRIES announces the **Advancements in Environmental Science (AES) Graduate Research Fellowship** open to all graduate students of Sam Houston State University. This graduate fellowship is a competitive fellowship awarded each year to an outstanding graduate student with environmentally based research interests. All graduate students are eligible regardless of department affiliation or discipline. The successful candidate will be selected based upon a proposal outlining a graduate thesis that directly advances the discipline or the awareness of environmental issues. The research fellowship is a full

nine-month graduate stipend beginning September 1<sup>st</sup>, 2010 and ending May 30<sup>th</sup>, 2011. The successful candidate will be provided with a graduate office at TRIES and will be expected to interact with the TRIES research community during the funding period. Selection criteria to be used by the TRIES Advisory and Editorial Board will include a well written and developed research proposal that shows extreme promise for publication within the student's discipline.

This research fellowship will also promote graduate education at SHSU by providing additional opportunities for graduate support. The successful

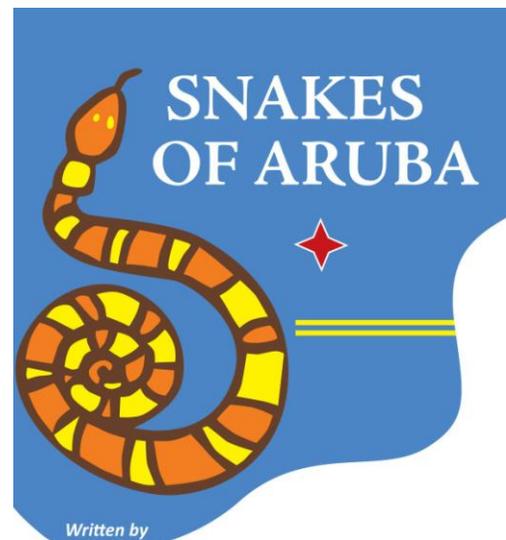
## A New Graduate Research Fellowship (Continued from Page 1)

student, who once occupied a teaching assistantship within their respective department, will open an available TA position for an additional student in their program. TRIES encourages students from all Colleges including Business, Criminal Justice, Education, Humanities, as well as Arts and Sciences to apply for this graduate opportunity. For application information and materials, contact Dr. William I. Lutterschmidt (TRIES Director), or Ms. Peggy Ellenberger (TRIES Administrative Assistant) at 936-294-3715. Application deadline is 30 March 2010 and the award will be announced by 15 May 2010.



## A Special Publication on Invasive Species Brings International Recognition to TRIES and Sam Houston State University

Researchers from the University of Aruba, The College of New Jersey, Arcadia College, the Toledo Zoological Society, and Sam Houston State University have come together to write a popular guide informing the general public and visitors to Aruba's Arikok National Park about the biology of invasive species. This TRIES Special Publication explains the concerns regarding invasive species and the potential impact these species have on disrupting the natural order and balance of ecosystems and endemic (native) species. The boa (*Boa constrictor*) was first reported on Aruba in 1999. Since, this invasive species has been found across Aruba in all habitat types including residential and tourist locations. Although these snakes are nonvenomous, they can reach lengths of three meters and raise some public concerns. Conservation efforts include the removal and killing of boas. This publication introduces, illustrates, and describes the physical characteristics of the boa and both of Aruba's endemic (native) snakes to prevent false identifications where Aruba's endangered Cascabel and the Santanero might be confused with boas and harmed. Aruba is home to the Cascabel and the Santanero which are not found anywhere else in the world. Specifically, the Cascabel is internationally recognized as one of the world's rarest rattlesnakes and is listed as Critically Endangered by the International Union for Conservation of Nature and Natural Resources (IUCN). With colleagues, Dr. Lutterschmidt has been investigating the biology and physiological ecology of the Aruba's Cascabel and



Rhodyn Z.C. Croes, Howard K. Reinert,  
Lauretta M. Bushar & William I. Lutterschmidt

Croes, R.Z.C., H.K. Reinert, L.M. Bushar, R.A. Odum, and W.I. Lutterschmidt. 2009. Snakes of Aruba. Special Publication: Texas Research Institute of Environmental Studies. Sam Houston Press, Texas. Pp. 1-6.

boa as part of a long-term research program. The ecology of the Cascabel has been under intensive research since 1985 with research efforts focusing on individuals within the Arikok National Park.

The *Snakes of Aruba* will be distributed to

## A Special Publication on Invasive Species (Continued from Page 7)

thousands of international visitors that tour the *Parke Nacional Arikok* thus bringing international recognition to both TRIES and Sam Houston State University. Such research affiliations and collaborative efforts help demonstrate how our faculty and the supportive efforts of TRIES are dedicated to the pursuit and dissemination of scientific discovery through our innovative research and research programs. TRIES will continue toward this aspect of its mission increasing research visibility for Sam Houston State University. A copy of this publication may be requested from TRIES.



## Innovative Research at Work: TRIES Researchers Develop Breakthrough Technology for Water Treatment



A new portable and self-sustaining wastewater treatment system holds great promise for both military and civil application. The breakthrough technology, developed by TRIES

researchers at Sam Houston State University, offers a low cost and highly transportable method for rapid wastewater treatment anywhere in the world. The technology was developed for water treatment applications in remote areas with little or no infrastructure for water treatment. Such applications would include military operations, disaster relief efforts, and nation building.

Researchers have worked on this technology for eight years with multi-year funding from the US Air Force. Several deployments of the Deployable Autonomous Aerobic Bioreactor (DAAB) were conducted across Texas and Oklahoma to test the systems function and ability to treat various wastewater streams with the military's independent technology consulting firm validating the testing results. Additional research is currently ongoing through an additional multi-year grant from the US Army in the amount of four million dollars. **Dr. Todd Primm** (PI) from the Dept. of Biological Sciences and **Mr. Sabin Holland** (Co-PI) from TRIES are leading the efforts in collaboration with Lamar and Sul Ross State Universities.

This new packaged DAAB wastewater system converts wastewater to EPA standards within 24 to 48 hours rather than days associated with traditional systems. Each DAAB system also has remote

monitoring and communication capabilities so the operator continually knows the operational performance regardless of its location. DAAB technology can have several configurations, but the standard system is comprised of two twenty-foot ISO shipping containers and treats 20,000 gal. of wastewater potentially servicing 600 people per day. The technology has been patented and commercialization efforts have begun through the Contracts and Grants Office at Sam Houston State University. Interest in this leading-edge technology continues to grow with several units being sold to the US military. TRIES has supported four undergraduate students who received valuable research experience under the direction of Dr. Primm and Mr. Holland. One student, **Ms. Lori Center**, participated in an internship last summer and received additional research experience at the Army Engineering and Research Development Center in Vicksburg, Mississippi. Several other undergraduate and graduate students in engineering have also gained research experience at Lamar University.

This ongoing research program at SHSU will receive continued support for research and testing through the TRIES Analytical Laboratory.



## TRIES Hosts a Research Seminar and Meetings with the Houston Area Research Center (HARC) to Discuss Global Climate Change

TRIES invited Dr. Mark Morrissey from the School of Meteorology at the University of Oklahoma to lead discussions regarding global climate change. Dr. Morrissey's main research focuses on mathematical and statistical methods for validating satellite estimations of precipitation. Dr. Morrissey is the Senior Research Fellow and Advisor for the Environmental Verification and Analysis Center (EVAC) at the University of Oklahoma and presented a research seminar entitled *Scalable stochastic rainfall models in time and space* in the Department of Biological Sciences seminar series. His seminar addressed details for how estimations of precipitation by satellite must account for a number of variables that present interesting challenges in mathematical and statistical models. During Dr. Morrissey's visit to Sam Houston State University, he had the opportunity to meet with members of TRIES, ORSP, and the Houston Area Research Center (HARC). Dr.



**Dr. Mark Morrissey**  
School of Meteorology  
University of Oklahoma

Morrissey's interest and expertise in climate forecasting served to moderate lengthy discussions on how both TRIES and HARC may help in the long-term monitoring programs aiding in evaluating climate change patterns of Texas. A collaborative effort between TRIES and EVAC will bring visibility and research opportunities to Sam Houston State University. Dr. Lutterschmidt will be organizing future discussions with science faculty in several departments along with researchers of HARC. Such discussions will help researchers evaluate how we can help in the collection, archival, and analysis of climate data to serve future research efforts related to global climate change.

## Recent Scholarship and Publications (Continued on Page 10)

### Publications:

**Buchman AB, R Deaton, CP Randle, T Brummel, ED Wilson, & WI Lutterschmidt** (2009) Isolation and characterization of polymorphic microsatellite loci for the three-toed box turtle (*Terrapene carolina triunguis*) and cross-amplification in other *Terrapene* species. *Molecular Ecology Resources* 9:1169-1171.

**Cook JL** (2009) New host association, distribution, and morphological variation in *Caenocholax Fenysei* (Stepsiptera: Myrmecolacidae). *Proceedings of the Entomological Society of Washington* 111:370-377.

**Cook JL & DJ Richardson** (In review) Earwigs (*Dermaptera: Hemimerina*) associated with Emin's pouched rat (*Cricetomys emini*) in Cameroon, Africa. *Entomological News*

**Cureton II JC, AB Buchman, CP Randle, WI Lutterschmidt, & R Deaton** (In press) Characterization of ten novel microsatellite loci for the threatened Ornate Box Turtle, *Terrapene ornata*. *Conservation Genetics Resources* (doi: 10.1007/s12686-009-9034-7)

**Lutterschmidt WI, JC Cureton II, and AR Gaillard** (In review) Extraction and isolation of DNA from keratin protected tissue within the claws of *Terrapene ornata* museum specimens: reconfirming a futile exercise in molecular biology? *Herpetological Review*

**Turner JC & JO Hall** (2009) Brain acetylcholinesterase activity of the American pronghorn antelope (*Antilocapra americana*) collected from the US Army Dugway Proving Ground, Utah.

*European Journal of Wildlife Research* 55:525-530.

**Burra R, GA Pradenas, RA Montes, CC Vasquez, & TG Chasteen** (In Press) Production of dimethyl triselenide and dimethyl diselenenyl sulfide in the headspace of metalloids-resistant *Bacillus* spp. grown in the presence of selenium oxyanions. *Analytical Biochemistry*

**Burra R, JD Fox, GA Predenas, CC Vasquez, & TG Chasteen** (In Press) Biological interactions of Selenocyanate: Bioprocessing, Detection, and Toxicity. *Environmental Technology*

**Wozniak JR & BM Mason** (In Review) Overcoming elemental imbalance with food through shifts in feeding behavior: a study of the caddisfly *Ptilostomis ocellifera* (Trichoptera: Phryganeidae). *Journal of the Pennsylvania Academy of Science*.

**Wozniak JR, DL Childers, WT Anderson, EE Gaiser, DT Rudnick, & CJ Madden**. (In Review) A <sup>15</sup>N natural abundance study in the freshwater marshes of the southern Everglades, Florida USA. *Hydrobiologia*.

### Presentations:

**Cureton II, JC, CP Randle, WI Lutterschmidt, & R Deaton**. (2009) Investigating the impact of urbanization on Ornate box turtles, *Terrapene ornata*. *Texas Academy of Science Annual Meeting* (7 March 2009) and *Southwestern Association of Naturalists Annual Meeting* (25 April 2009)



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### TRIES Staff

**Dr. William I. Lutterschmidt**, Director  
**Ms. Peggy Ellenberger**, Administrative Assistant  
**Ms. Rachelle Smith**, Analytical Lab Operations Manager  
**Dr. Jeffery Wozniak**, Research Fellow



AUSTIN HALL

**TRIES Mission** — The Texas Research Institute for Environmental Studies is a research facility dedicated to the pursuit and dissemination of scientific discovery through innovative research and to the growth of unique educational opportunities for both faculty and students at Sam Houston State University. The Institute hosts and supports leading researchers in environmental science and provides opportunities for acquiring external funding to support innovative research programs. The institute also maintains and operates a state-of-the-art analytical laboratory which serves both the University and the surrounding community.

### Sam Houston State University

Member of The Texas State University System

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K.J. Lilly Houston	M. Truncale Beaumont
R. Mitchell Horseshoe Bay	W.C. Peterson, Student Regent
	San Marcos

## Recent Scholarship and Publications

(Continued from Page 9)

**Lutterschmidt WI & MA Miller** (2009) An ecophysiological investigation of cutaneous water loss in two sympatric snakes species. Department of Biology, San Angelo State University. San Angelo, Texas (16 September 2009)

**Miller M & WI Lutterschmidt** (2009) Comparative skin permeability in two congeneric and sympatric pitvipers: does physiology influence habitat selection? Joint Meeting of Ichthyologists and Herpetologists, ASIH, SSAR, and HL. Portland, Oregon. (22-27 July 2009).

**Smith R** (2009) Removal of metals from wastewater using a biopolymer resin. American Chemical Society's Southwest Regional Meeting. El Paso, Texas. (4-7 November 2009).

### Grants:

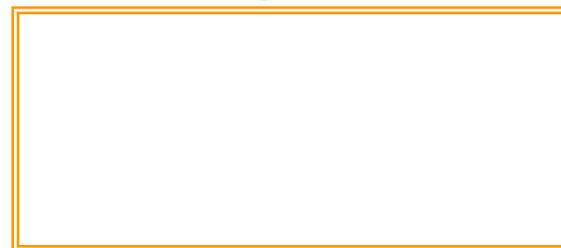
**Cook JL & S Carrias** (2009) Evaluation of a Dinotefuran gel ant bait at two concentrations and comparison with an industry standard. Whitmire Micro-Gen. **\$10,000**

— BASF Efficacy of new products for control of Rove Ants, *Brachymyrmex* species, with determination of LD90s and LD50s. **\$10,000**

— Comparison of nine formulations of granular baits for the control of the Red Imported Fire Ant, *Solenopsis invicta*. BASF-Whitmire Micro-Gen. **\$10,000**

— Evaluation of liquid and gel baits for the control of the Raspberry Crazy Ant, *Paratrechina* sp. BASF-Whitmire Micro-Gen. **\$12,000**

### Mailing Address



— Evaluation of experimental baits for field use to control Red Imported Fire Ants and Argentine Ants BASF Global. **\$15,000**  
 — Evaluation of new gel baits for the control of Sweet Feeding Ants BASF-Whitmire Micro-Gen. **\$5,000**

**Cureton II, JC** (2009) Investigating the impact of urbanization on Ornate box turtles, *Terrapene ornate*. National Geographic Young Explorers Grant. **\$2,500**, Joey Harrison Biological Sciences Student Research Award **\$330**, Sigma Xi Grants-in-Aid of Research **\$1,000**.

**Deaton P, CP Randle & WI Lutterschmidt** (2009) Conservation of declining Ornate box turtles (*Terrapene ornate ornate*) in Texas: Impacts of urbanization on population genetics structure and mortality. Arthur A. Seeligson, Jr. Texas Wildlife Conservation Fund. Dallas-Fort Worth Zoo. **\$5,000**

**Slack, RD, WE Grant, TM Swannack, & JR Wozniak** (In Review) Evaluation of factors affecting food abundance and time-activity budgets of whooping cranes at Aransas National Wildlife Refuge. GBRA, SARA, EAA. **\$439,872**