# NSRL NEWS

Natural Science Research Laboratory
Museum of Texas Tech University

Volume 1, Fall 2015


# NSRL: Past, Present, and Future

**Dr. Clyde Jones**

**Dr. Robert J. Baker**

**Dr. Robert D. Bradley**

**Dr. Caleb D. Phillips**

***Comments from the Director:***

For the last year or so, we have been considering putting together a newsletter so that our Research Associates, colleagues, former students, and potential students can be informed of the activities of the NSRL. So here is our first attempt! Please let us know if you have ideas for additions/deletions/modifications. Our goal is to have several recurring sections that are simply updated from issue to issue, as well as to develop "feature sections" that track major happenings at the NSRL. Given that this is the first issue, let me catch you up on several recent events that have had a major impact on the NSRL.

First, we lost a great friend and colleague with the passing of Dr. Clyde Jones (6 April 2015). Dr. Jones had a long and distinguished career with the USFWS, and in 1982 he assumed the role of Director of the Museum of Texas Tech University. In 1985, Clyde hung up the administrative hat and returned full time to his roots of bat and rat catching. From the mid-1980's on, Clyde's contributions to the NSRL, and mammalogy in general, were many. He trained numerous graduate students in field mammalogy and added significantly to our knowledge of West Texas mammals. Clyde was a Horn Professor (highest distinguished faculty position at Texas Tech) and Associate Chair in the Department of Biological Sciences. Clyde's focus on the natural history of the mammalian fauna of Big Bend National Park, Big Bend Ranch State Park, Davis Mountains, and Chinati Mountians will set the stage for future research on climate change, systematics, and ecology for years to come. We will miss Clyde's perfectly prepared specimens (THOB - thing of beauty), but most of all, we will miss the knowledge, camaraderie, humor, stories, and the man himself.

Second, on 31 May 2015, Dr. Robert J. Baker officially retired as Director of the NSRL and as Horn Professor of the Department of Biological Sciences. Dr. Baker will serve as Professor Emeritus of Biological Sciences and plans to remain active in research and continue his projects on genomics, systematics, and phylogenetics. Dr. Baker has had a long and distinguished career at Texas Tech University. He arrived at TTU in 1967 and quickly moved through the academic ranks, achieving the rank of Horn Professor in 1979. His contributions to the NSRL have been numerous, including the initial idea for such an entity. Legend has it that during a meeting at Baker's house (ca. 1970), Drs. Baker, Robert L. Packard, Dilford C. Carter, and J Knox Jones, Jr. drew up the plans for the NSRL on a cocktail napkin. By 1972, the dream had become a reality with a dedicated building for the NSRL

*see COMMENTS on page 2*

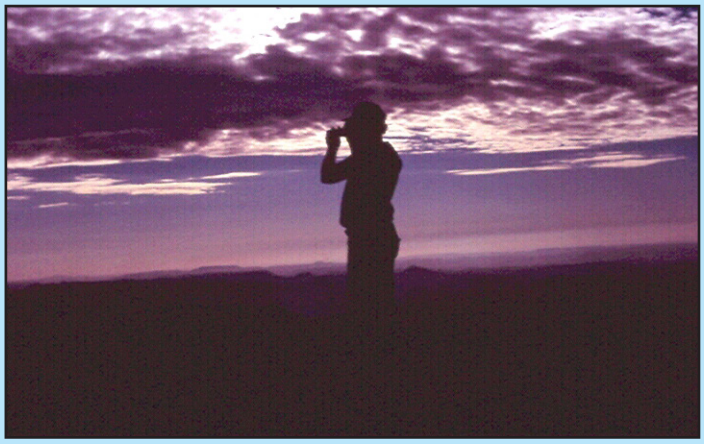
*COMMENTS continued from page 1*

as part of the Museum of Texas Tech University complex. Dr. Baker oversaw the activities and growth of the NSRL for approximately 40 years. His visionary requirement to save "frozen tissues" led to the Genetic Resources Collection, an immensely valuable collection to everyone that has been doing allozyme, DNA, or genomic-based research. In addition, under his leadership the mammal collection grew from a few thousand specimens to nearly 120,000. Robert's contributions to the NSRL and mammalogy are too numerous to mention in this short communique. Let's just say, we have some big shoes to fill!

Third, given Dr. Baker's pending retirement, the TTU administration gave approval for me to assume the role as Director of the NSRL, effective 1 June 2015. Perhaps more importantly, the University allowed the Department of Biological Sciences and the Museum to replace Dr. Baker's Biology faculty position with a mammalian functional genomicist and his NSRL position with a Curator of the Genetic Resources Collection. I am happy to announce that this joint position has been filled, and that Dr. Caleb D. Phillips came on board this summer. Many of you already know Dr. Phillips; he received his M.S. degree with Dr. Russell Pfau at Tarleton State University and his Ph.D. with Dr. John W. Bickham at Purdue University. Caleb did a postdoctral research fellowship with Dr. Baker and then was employed as a Principal Scientist at Research and Testing Laboratory in Lubbock. Caleb has an outstanding background in traditional mammalogy and in the state-of-the-art field of genomics. I look forward to working with Caleb to continue the growth and enhancement of the Genetic Resources Collection and to maintain our focus on field research.

As I mentioned earlier, we have some big shoes to fill. You simply do not replace a Dr. Baker or a Dr. Jones. Their influence and contributions to the NSRL cannot be matched. Caleb and I will continue to conduct "business as usual," so please be patient with us as we settle into our new roles. The good news is that we have a wonderful staff and a cadre of graduate and undergraduate students to help us continue along the path that was outlined on that cocktail napkin more than 40 years ago.

*~ Robert D. Bradley*



*Looking for good students! Bradley in Davis Mountains, Texas.*

## A Message to Prospective Students:

Faculty and staff associated with the NSRL are very active in field- and specimen-based research. Our faculty and students have interests in mammalogy, ornithology, invertebrate zoology, molecular systematics, genomics, ecology, and museum science. Most of the undergraduate and graduate students that are affiliated with the NSRL receive degrees in the Department of Biological Sciences or the Department of Natural Resources Management. We also have students who are part of the Museum Science program. Together, we have a strong core of faculty and undergraduate and graduate students, and we are always on the look-out for potential new students. If you are interested in pursuing a graduate degree or undergraduate research opportunities, please contact any of the faculty members highlighted in this newsletter.

*Emma Roberts trapping gophers at Black Mesa, Oklahoma.*

*Austin Osmanski prompting an alligator to return to the water after blood collection.*

*Field methods, 2013, Gila Mountains, New Mexico.*

# NSRL Faculty Curators

**Dr. Robert D. Bradley** is Director of the NSRL, Curator of Mammals, and Professor of Biological Sciences. Dr. Bradley's research foci are systematics and molecular evolution of New World rodents; hybridization; infectious zoonotic diseases; and natural history of mammals. He has been a faculty member since 1994. He is currently directing 5 PhD and 1 MS students. He has graduated 18 MS and 8 PhD students, and he has published 157 peer-reviewed articles (all on mammals).

*robert.bradley@ttu.edu*

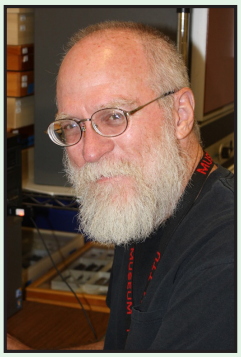
**Dr. Nancy McIntyre** is the NSRL Curator of Birds and a Professor of Biological Sciences. She is a landscape ecologist whose research focuses on how land conversion and climate change are fragmenting migratory habitats for wildlife in the Great Plains of North America. Dr. McIntyre has served as Curator of Birds since 2006. She is currently directing 2 PhD and 1 MS student, and mentoring several undergraduate students, in her lab.

*nancy.mcintyre@ttu.edu*

**Dr. Caleb D. Phillips** is the Curator of Genetic Resources of the NSRL and an Assistant Professor of Biological Sciences. The Phillips' lab studies how gene expression and microbiome communities evolve in support of mammalian life histories; bioinformatics; and the evolutionary/developmental process of mammalian divergence. Dr. Phillips joined the TTU faculty and NSRL in 2015. He currently is directing 2 Ph.D. students.

*caleb.phillips@ttu.edu*

# NSRL Curatorial and Support Staff



**James Cokendolpher** is the NSRL Assistant Curator of Invertebrate Zoology and a Research Scientist. His research experience includes work with invertebrates, vertebrates, and botany. He is an authority on two Orders of arachnids and has published papers and books on a variety of animal and plant taxa.

*james.cokendolpher@ttu.edu*

**Heath Garner** is the NSRL Curator of Collections. His role is to facilitate the daily operations and maintenance of the NSRL collections. His duties include specimen processing, cataloging, and tracking, loan processing, student worker and volunteer training and supervision, documentation, and collections preventative conservation.

*heath.garner@ttu.edu*

**Kathy MacDonald** is the Collection Manager for the Genetic Resources Collection. Her primary duties include the organization and processing of incoming samples and the subsampling and processing of loans. Other duties include maintaining the NSRL website, assisting with specimen tracking in the collections, and data management and design.

*kathy.macdonald@ttu.edu*

**Lisa Bradley** is the Production Editor for Occasional Papers and Special Publications. Her duties include coordinating the review and revision process, copy editing, and final layout and design. She also assists in the writing and editing of scientific articles published by NSRL staff, the preparation of grant proposals, and the development of NSRL exhibits for the Museum.

*lisa.bradley@ttu.edu*

# NSRL Collections - Summary and Statistics

The Natural Science Research Laboratory (NSRL) is a division of the Museum of Texas Tech University that archives biological samples and their associated data. These collections serve as a library of our natural heritage for education and research purposes. Natural history collections provide the foundation for our understanding of biodiversity. They serve as a historical reference for documenting changes in our environment and the effects of those changes on wildlife and, ultimately, on humans.

The collections maintained by the NSRL are available to researchers at academic, scientific, and government institutions around the world for scientific investigation, discovery, and problem-solving in the natural sciences. The causes and/or effects of animal-borne diseases, environmental pollutants, parasites, climate change, habitat loss, geographic isolation, and natural evolutionary processes and speciation are just a few examples of the investigations that can be conducted utilizing specimens and tissues archived in a natural history collection. Further, the resources of the NSRL are utilized by the academic and scientific communities to train and educate students at the undergraduate and graduate levels for careers in the natural sciences as well as museum science.

### Mammal Collection

The Mammal Collection currently contains 119,200 cataloged specimens of an estimated 1,437 species. Specimen preparation types include preserved skins, skeletal materials, alcohol-preserved specimens, and taxidermy mounts. From January through June 2015, the Mammal Collection cataloged 800 specimens and granted 7 loans of 118 specimens.

### Bird Collection

The Bird Collection currently contains 5,506 cataloged bird specimens, as well as eggs and nests, of approximately 890 species. From January through June 2015, the Bird Collection cataloged 20 specimens and granted 7 loans of 177 specimens.

### Invertebrate Zoology Collection

The Invertebrate Zoology Collection contains an estimated 4.5 million specimens. These include insects, crustacea, endo- and ecto-parasites, and arachnids. Specimen preservation methods include dried, in fluid (ethanol or formalin), on slides, and frozen. From January through June 2015, the collection cataloged 17,386 specimens and made 1,988 high-resolution combined photographs.

### Genetic Resources Collection

The Genetic Resources Collection contains >340,000 samples of tissues, blood, and extracted DNA from >95,000 specimens of mammals and other taxa. From January through June 2015, the GRC granted 12 loans totalling 816 samples. The Collection grew by 5,750 samples obtained from 1,401 individuals.

As a whole, the NSRL hosted 135 visitors from January through June, including researchers utilizing the collections, students taking classes, and individuals and groups on tours. The NSRL also filled 83 data requests by researchers. Thirty-four students (6 graduate, 28 undergraduate) were employed by the NSRL during the January through June time period.

# Recent Publications by NSRL Faculty, Staff, and Students


Adams, A. M, L. P. McGuire, L. A. Hooton, and M. B. Fenton. 2015. How high is high? Using percentile thresholds to identify peak bat activity. Canadian Journal of Zoology 93:307–313.

Collins, S. D., and N. E. McIntyre. In press. Modeling the distribution of odonates: a review. Freshwater Science.

Benjamin, L., M. Struebig, S. Rossiter, and T. Kingston. 2015. Mounting concern over trade in bat souvenirs from Southeast Asia. Oryx 49:204–204.

Bradley, R. D., D. J. Schmidly, B. R. Amman, R. N. Platt II, K. M. Neumann, H. M. Huynh, R. Muñiz-Martínez, C. López-González, and N. Ordóñez-Garza. 2015. Molecular and morphometric data reveal multiple species in *Peromyscus pectoralis*. Journal of Mammalogy 96:446–459.

Bried, J., S. Joq, N. McIntyre, A. Dzialowski, and C. Davis. In press. Resident-immigrant dichotomy matters in classifying wetland site groups and metacommunities. Freshwater Biology.

Chun-Chia Huang, J., E. Lestari Rustiati, M. Nusalawo, I. Maryanto, Maharadatunkamsi, S. Wiantoro, and T. Kingston. 2014 (published 2015). A recent survey reveals Bukit Barisan Selatan Landscape as chiropteran diversity hotspot in Sumatra. Acta Chiropterologica 15:413–449.

Csorba, G., T. Görföl, S. Wiantoro, T. Kingston, P. Bates, and J. Chun-Chia Huang. 2015. Thumb-pads up – a new species of thick-thumbed bat from Sumatra. Zootaxa 3980(2):267–278.

Heintzman, L. J., T. A. Anderson, D. L. Carr, and N. E. McIntyre. 2015. Local and landscape influences on PAH contamination in urban stormwater. Landscape and Urban Planning 142:29–37.

Hoffmann, F. G., L. P. McGuire, B. A. Counterman, and D. A. Ray. 2015. Transposable elements and small RNAs: Genomic fuel for species diversity. Mobile Genetic Elements 5:1–4.

Lopez-Gonzalez, C., S. J. Presley, A. Lozano, R. D. Stevens, and C. L. Higgins. 2015. Ecological biogeography of Mexican bats: the relative contributions of habitat heterogeneity, beta diversity, and environmental gradients to species richness patterns. Ecography 38:261–272.

McDonough, M. M., R. Šumbera, V. Mazoch, A. W. Ferguson, C. D. Phillips, and J. Bryja. In press. Multilocus phylogeography of a widespread savanna-woodland adapted rodent reveals the influence of Pleistocene geomorphology and climate change in Africa's Zambezi region. Molecular Ecology.

McIntyre, N. E., K. Knowles-Yánez, and D. Hope. Urban ecology as an interdisciplinary field: differences in the use of "urban" between the social and natural sciences. Urban Ecosystems 4:5–24. To be reprinted (currently in press) in Urban Ecology: Critical Concepts in Geography (I. Douglas, ed.). Routledge Publishing, 2015. [A compilation of the "classic" papers from urban ecology.]

Milazzo, M. L., M. N. Cajimat, M. R. Mauldin, S. G. Bennett, B. D. Hess, M. P. Rood, C. A. Conlan, K. Nguyen, J. W. Wekesa, R. D. Ramos, R. D. Bradley, and C. F. Fulhorst. 2015. Epizootiology of Tacaribe serocomplex viruses (Arenaviridae) associated with neotomine rodents (Cricetidae, Neotominae) in southern California. Vector-Borne and Zoonotic Diseases 15:156–166.

Nicolas, R., S. Lee, N. Saho, A. Kanaan, S. B. Cox, C. D. Phillips, and E. Wang. In press. The role of viruses in the clinical presentation of chronic rhinosinusitis. International Forum of Allergy and Rhinology.

Pannkuk, E. L., L. P. McGuire, L. Warnecke, J. M. Turner, C. K. R. Willis, and T. S. Risch. 2015. Glycerophospholipid profiles of bats with white nose syndrome. Physiological and Biochemical Zoology 88: 25–432.

Pardiñas, U. F. J., P. Teta, and J. Salazar-Bravo. 2015. A New Tribe of Sigmodontinae Rodents (Cricetidae). Mastozoología Neotropical 22:171–186.

Pardiñas, U. F. J., P. Teta, and J. Salazar-Bravo. In press. El Género Tapecomys (Rodentia, Cricetidae) en Argentina: Una clarificación. Mastozoologia Neotropical.

Phillips, C. D. 2015. Life history, ecology, and status of fur seals and sea lions of Australia and New Zealand. (Book Review of Fur Seals and Sea Lions, by Roger Kirkwood and Simon Goldsworthy; CSIRO Publishing). Journal of Mammalian Evolution, DOI 10.1007/s10914-015-9288-7.

Platt, II, R. N., Y. Zhang, D. J. Witherspoon, J. Xing, M. S. Keith, L. B. Jorde, R. D. Stevens, and D. A. Ray. 2015. Targeted capture of phylogenetically informative Ves SINE insertions in genus *Myotis*. Genome Biology and Evolution 7:1664–1675.

Ramakodi, M. P., B. Singh, J. D. Wells, F. Guerrero, and D. A. Ray. 2015. A 454 sequencing approach to dipteran mitochondrial genomes research. Genomics 105:53–60.

Ray, D. A., H. J. T. Pagan, R. N. Platt, S. Schaack, and R. D. Stevens. 2015. Differential SINE evolution in vesper and non-vesper bats. Mobile DNA 6:10.

Ray, J. D., N. McIntyre, M. C. Wallace, and M. G. Schoenhals. In press. Burrowing Owls. Bird Watcher's Digest.

Roberts, E. K., H. Crenshaw, C. D. Dunn, J. Q. Francis, W. L. Hood II, M. S. Keith, L., L. Lindsey, S. F. Mangum, N. Ordóñez-Garza, R. N. Platt II, and R. D. Bradley. 2015. A record of *Microtus ochrogaster* from the Llano Estacado and other distributional records of small mammals from Texas. Occasional Papers, Museum of Texas Tech University 329:1–7.

Sabino-Santos, Jr., G., F. G. Motta Maia, T. M. Vieira, R. d. L. Muylaert, S. M. Lima, C. B. Gonçalves, P. D. Barroso, M. N. Melo, C. B. Jonsson, D. Goodin, J. Salazar-Bravo, L. T. M. Figueiredo. 2015. Evidence of Hantavirus Infection Among Bats in Brazil. American Journal Tropical Medicine and Hygiene 93:404–406.

Senawi, J., D. Schmieder, B. Siemers, and T. Kingston. 2015. Beyond size – morphological predictors of bite force in a diverse insectivorous bat assemblage from Malaysia. Functional Ecology. DOI: 10.1111/1365-2435.12447.

Sotero-Caio, C., M. Volleth, F. G. Hoffmann, L. Scott, H. A. Wichman, F. Yang, and R. J. Baker. Accepted. Integration of molecular cytogenetics, dated molecular phylogeny, and model-based predictions to understand the extreme chromosome reorganization in the Neotropical genus *Tonatia* (Chiroptera: Phyllostomidae). BMC Evolutionary Biology.


*see PUBLICATIONS on page 8*

## Student Presentations

During the period January through June 2015, at least 32 graduate and undergraduate students gave 23 oral and 28 poster presentations of their research at more than 10 local, regional, national, or international conferences and society meetings. These meetings included, among others, the American Society of Mammalogists, Texas Society of Mammalogists, Society for Freshwater Science, Midwest Fish and Wildlife Conference, and Arizona/New Mexico Chapter of the Wildlife Society.

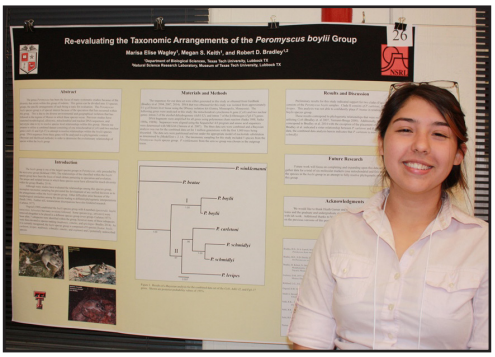
Several students won awards for their presentations, including:

**Emma K. Roberts.** Graduate student. TSM Award, Annual Meeting of the Texas Society of Mammalogists (Regional Meeting); 1st place for oral presentation in Evolutionary Biology category, 6th Texas Tech Annual Biological Sciences Symposium (Regional Meeting).

**Christopher D. Dunn**. Graduate student. Clyde Jones Award, Annual Meeting of the Texas Society of Mammalogists (Regional Meeting).

**Marina Fisher-Phelps.** Graduate student. Co-1st place, Ecology, 6th Texas Tech Annual Biological Sciences Symposium (Regional Meeting).

**James Q. Francis**. Undergraduate student. 2nd place, oral presentation by an Undergraduate Student, 6th Texas Tech Annual Biological Sciences Symposium (Regional Meeting).




*Undergraduate student Marisa Wagely presenting a poster of her research at the Annual Meeting of the Texas Society of Mammalogists, February 2015.*

**Joseph Drake**. Graduate Student. 2nd place, oral presentation in Natural Resources Management category, 6th Texas Tech Annual Biological Sciences Symposium (Regional Meeting).

**Sarah Mangun.** Graduate student. 2nd place for oral presentation in Evolutionary Biology, 6th Texas Tech Annual Biological Sciences Symposium (Regional Meeting).

**Austin Osmanski.** Graduate student. Co-1st place for oral presentation in Ecology, 6th Texas Tech Annual Biological Sciences Symposium (Regional Meeting).

**Scott Starr**. Graduate student. 1st place, poster presentation, 6th Texas Tech Annual Biological Sciences Symposium (Regional Meeting); 2nd place for poster presentation in Science Category IV, TTU 14th Annual Graduate School Poster Competition (Regional Meeting).

## Recent Graduates

**M. Raquel Marchán-Rivadeneira.** PhD. Co-advised by Robert J. Baker and Richard Strauss. Dissertation title: Environmental effects on morphological and genetic configuration within a phylogenetic framework. Research Laboratory Technician Senior, University of Michigan.

**Gilberto Sabino-Santos.** PhD. Co-advised by Jorge Salazar-Bravo. Dissertation title: Ecologia de hantavírus e de ectoparasitos em pequenos mamíferos selvagens. Current position: Faculdade de Medicina de Ribeirão Preto, Sao Paulo, Brasil.

**Juliana Senawi**. PhD. Advised by Tigga Kingston. Dissertation title: The relationship between morphology and ecological performance in Malaysian insectivorous bats. Current position: Lecturer, LESTARI, Universiti Kebangsaan Malaysia.


*Dr. Bradley with many of his current and former students at the annual meeting of the Texas Society of Mammalogists, TTU Center at Junction.*

# Student Grants and Awards

**Chris Dunn.** Graduate student. TTU Association of Biologists, $700.

**Marina Fisher-Phelps**. Graduate student. TTU Association of Biologists, $700.

**Keegan Gossett**. Undergraduate student. NSF-PRISM Scholarship.

**Lucas Heintzman**. Graduate student. Elo and Olga Urbanovsky Assistantship (2015-2018), $15,000/yr; TTU Association of Biologists, $700.

**Joe Chun-Chia Huang**. Graduate student. Doctoral Dissertation Completion Fellowship, TTU Graduate School (2014-2015).

**Laramie Lindsey.** Graduate student. TTU Association of Biologists, $700.; Texas Academy of Science, $1,500.

**Sarah Mangum**. Graduate student. TTU Association of Biologists ($700).

**Kendra Phelps.** Graduate student. Doctoral Dissertation Completion Fellowship, TTU Graduate School (2015-2016).

**Roy Neal Platt**. Post-doctoral Associate. University of Michigan Office of Research, $15,000.

**Maria Cristina Rios Blanco**. Graduate student. American Society of Mammalogists Grant in Aid of Research, $1,481.19; Student International Research Award, Global Vision Awards presented by the Office of International Affairs, TTU.

**Susan Sherali.** Undergraduate student. Undergraduate Scholar Project, TTU Center for Undergraduate Research ($950).

**Cibele Sotero-Caio.** Graduate student. Doctoral Dissertation Completion Fellowship, TTU Graduate School (2014-2015).

**Scott Starr**. Graduate student. The CH Foundation Doctoral Fellowship (2011-2015); Water Conservation Research Fellowship (2015-2016), $1000; TTU Doctoral Dissertation Completion Fellowship (2015-2016), $19,791; TTU Graduate School Student Travel Grant (2015), $375; TTUAB Travel Grant (2015), $550; TTU Dept. Biological Sciences Travel Grant (2015), $350.

**Kevin Sullivan**. Graduate student. TTU Association of Biologists, $700.

**Iroro Tanshi**. Graduate student. Bat Conservation International Student Research Fellowship (2015-2019).

# Student Highlight

*Nicté Ordóñez-Garza presented a synopsis of her research during the Plenary Session of the 2015 annual meeting of the American Society of Mammalogists.*


**Nicté Ordóñez-Garza**, PhD student in the Department of Biological Sciences, received the Albert R. and Alma Shadle Fellowship from the American Society of Mammalogists at their annual meeting in 2014. This prestigious fellowship is awarded to an outstanding graduate student whose research potential suggests a promising career in mammalogy.

Ms. Ordóñez-Garza's research involves using mammalian speciation patterns to test the dynamics of the Isthmus of Tehuantepec as an isolating barrier.

Nicté is a citizen of Guatemala and has published over 20 scientific papers pertaining to her studies of mammals. In addition, she has received over $60,000 in research grants and has been a Fulbright recipient. She has served as the President of the Guatemalan Association of Mammalogists. Nicté is an avid field biologist and participates in the activities of the Natural Science Research Laboratory at the Museum of Texas Tech University.

# Faculty and Staff Grants (active January - June 2015)

Boyles, J. G., and **L. P. McGuire**. "Autumn migration of Indiana bats (*Myotis sodalis*) and northern myotis (*Myotis septentrionalis*) in eastern Illinois." Jointly funded by private energy company and US Fish and Wildlife Service.

Boyles, J. G., and **L. P. McGuire**. "A regional-scale assessment of spring migration of Indiana bats (*Myotis sodalis*) and northern myotis (*Myotis septentrionalis*) in the Indiana bat Midwest Recovery Unit". US Fish and Wildlife Service.

Boyles, J. G., and **L. P. McGuire**. "A regional-scale assessment of autumn migration and swarming movements of Indiana bats (*Myotis sodalis*) and northern myotis (*Myotis septentrionalis*) in the Indiana bat Midwest Recovery Unit". US Fish and Wildlife Service.

Boal, C., **Bradley, R. D.**, and **R. J. Baker**. "SNL/TTU Bird and Bat Environmental Study for the Experimental Wind Farms". Sandia National Laboratories.

**Cokendolpher, J**., et al. "Southwest Collections of Arthropods Network (SCAN): A Model for Collection Digitization to Promote Taxonomic and Ecological Research." National Science Foundation, Digitization TCN (Collaborative Research).

**Cokendolpher, J.** "Pseudoscorpions of the Great Smoky Mountains National Park: Identification and Databasing." Discover Life in America.

**Cokendolpher, J., C. Phillips,** and **R. J. Baker**. "Endangered Eyeless *Cicurina* (Araneae: Dictynidae) Spiders: Species Identification with Genetic Applications." Texas Department of Transportation.

Griffis-Kyle, K. L., and **N. E. McIntyre**. "Landscape Connectivity of Isolated Waters in the Sonoran Desert for Wildlife." U.S. Bureau of Reclamation - Desert and Southern Rockies Landscape Conservation Cooperatives.

Hoffmann, F., and **D. Ray**. "piRNA Dynamics in the Absence of Active TEs." National Science Foundation.

Johnson, E., **R. D. Bradley**, and C. Saffel. "Mechanical Assist System Installing/Retrofitting Project". The CH Foundation.

**McGuire, L. P.**, J. G. Boyles and R. M. Brigham. "Going the distance: Does heterothermy facilitate long-distance migration in goatsuckers?" National Geographic Committee for Research and Exploration.

**McIntyre, N. E.,** and K. Hayhoe. "Collaborative Proposal: Climatic and Anthropogenic Forcing of Wetland Landscape Connectivity in the Great Plains." NSF-Macrosystems Biology.

**Stevens, R. D**. "Distribution, abundance and use of artificial roosts by critically imperiled bat species in Louisiana." Louisiana Wildlife and Fisheries.

**Stevens, R. D.**, **D. Ray**, R. N. Platt, and **R. D. Bradley**. "RFP No. 209f for Endangered Species Research Projects for the Texas Kangaroo Rat." Texas State Comptroller.

Williams, G., J. Cañas, J. Dwyer, S. Jang, and **N. E. McIntyre**. "RMR-TTU: Recruitment, Mentoring, and Research in Mathematics and Science at Texas Tech University." NSF-PRISM (Proactive Recruitment in Introductory Science and Mathematics).

Pires Costa, L., **J. Salazar-Bravo**, et al. "Gradients of biodiversity: Closing the gaps in the distribution patterns, genetic diversity and morphology of mammals of Espiritu Santa State." FAPES (Brasil).

Rico, A. I. Moya and **J. Salazar-Bravo**. "Development and strengthening of the Bolivian program on ecology and evolution of emergent disease ecology." Swedith International Development Cooperation Agency.

**Tigga Kingston**. "Southeast Asian Bat Conservation Research Unit." National Science Foundation.

*PUBLICATIONS continued from page 5*

Stevens, R. D., and M. M. Gavilanez. In press. Dimensionality of community structure: phylogenetic, phenetic and functional perspectives along biodiversity and environmental gradients. Ecography.

Stevens, R. D., and N. Platt. In Press. Patterns of secondary sexual size dimorphism in New World *Myotis* and a test of Rensch's Rule. Journal of Mammalogy.

Struebig, M. J., A. Wilting, D. Gaveau, E. Meijaard, R. J. Smith, The Borneo Mammal Distribution Consortium*, Manuela Fischer, Kristian Metcalfe, Stephanie Kramer-Schadt. 2015. Targeted conservation to safeguard a biodiversity hotspot from climate and land-cover change. Current Biology 25:1–7. *Tigga Kington as named member of the Borneo Mammal Distribution Consortium.

Suh, A., G. Churakov, M. P. Ramakodi, R. N. Platt II, J. Jurka, K. K. Kojima, J. Caballero, A. Smit, F. G. Hoffmann, J. Brosius, R. E. Green, E. L. Braun, D. A. Ray, and J. Schmitz. 2015. Multiple lineages of ancient CR1 retroposons shaped the early genome evolution of amniotes. Genome Biology and Evolution 7:205–217.

Webber, Q. M. R., L. P. McGuire, S. B. Smith, and C. K. R. Willis. 2015. Host behaviour, age and sex correlate with ectoparasite prevalence and intensity in a colonial mammal, the little brown bat. Behaviour 152:83–105.

## Occasional Papers and Special Publications of the Museum of Texas Tech University

The NSRL produces two peer-reviewed publication series, Occasional Papers and Special Publications, both of which are edited by Dr. Robert D. Bradley, Director of the NSRL. These series provide outlets for scholarly works resulting from museum-based natural history research. Relevant topics include, but are not limited to, taxonomic studies, faunal lists, species descriptions, zoonoses research, distributional records, and field and museum techniques and methodology, including molecular methods that are applicable to field or museum research. Publication in these series is available to all authors without regard to their association with Texas Tech University. Authors who plan to submit manuscripts to these series should refer to both the Museum Publications Policy and the Guidelines and Procedures for Authors, available at our website, *www.nsrl.ttu.edu/publications*, for more information.

Lisa Bradley serves as the Production Editor for both series. Our goal is to produce 10–12 Occasional Papers and 1–2 Special Publications per year. Feel free to contact Lisa, *lisa.bradley@ttu.edu*, if you are interested in submitting manuscripts or monographs to the Occasional Papers or Special Publications series.

**Publications produced January – June 2015:**

**Occasional Paper 331**. Ancient Hybridization and Subsequent Mitochondrial Capture in Ground Squirrels (Genus *Ictidomys*). Cody W. Thompson, Frederick B. Stangl, Jr., and Robert D. Bradley.

**Occasional Paper 330.** Effects of Fire on Small Mammals of the Koanaka Hills, Northwestern Botswana. Monte L. Thies and Patrick J. Lewis.

**Occasional Paper 329**. A Record of *Microtus ochrogaster* from the Llano Estacado and Other Distributional Records of Mammals from Texas. Emma K. Roberts, Howard Crenshaw, Christopher D. Dunn, James Q. Francis, William L. Hood II, Megan S. Keith, Laramie L. Lindsey, Sarah F. Mangum, Nicte Ordóñez-Garza, Roy N. Platt II, and Robert D. Bradley.

In addition to these three papers, several additional Occasional Papers and one Special Publication are anticipated for publication in 2015. These will be available on our website on the date of publication.

**View and download Occasional Papers and Special Publications at the NSRL website:**
***www.nsrl.ttu.edu/publications***

## Faculty Recognition

**Jorge Salazar-Bravo** received an award as a TTU Outstanding Faculty Mentor.

**Tigga Kingston** was appointed Co-Chair of the Bat Specialist Group of the IUCN's Species Survival Commission.

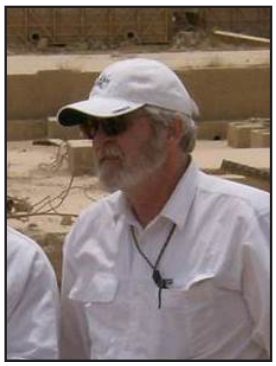
## Upcoming!

*Watch for these updates in the next issue of NSRL News:*

- The NSRL receives NSF funding to improve the Genetic Resources Collection with a liquid nitrogen storage system
- David Schmidly and Robert Bradley co-author the latest revision of *The Mammals of Texas*

# TTU Faculty Associates of the Natural Science Research Laboratory

The following faculty at Texas Tech University have research programs that both contribute to and benefit from a working relationship with the Natural Science Research Laboratory. Graduate and undergraduate students of these faculty members, as well as the faculty Curators of the NSRL, conduct field-based research studies that result in growth of the NSRL collections and conduct laboratory-based research utilizing the resources of the NSRL to advance the sciences of mammalogy, ornithology, invertebrate zoology, wildlife ecology, and many other disciplines. The NSRL's strong history of field-based and organismal research, and continued committment to such endeavors, set us apart from many other natural history programs.



**Dr. Ron Chesser** is a Professor of Biological Sciences and the department Chair. His research program focuses on assessing radioactive contamination, reconstructing flow of radioactive materials into the environment, and modeling the impacts and recovery of mammal populations affected by radiation. He has conducted research at Chernobyl, Ukraine since 1992. He worked in Iraq for 8 years (2005–2013) dismantling the former nuclear infrastructure, and he has contracted with the US Department of State, Department of Energy, International Atomic Energy Agency, Great Britain Ministry of Industry, US Civilian Research & Development Foundation, and the European Commission.

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**Dr. Tigga Kingston** is an Associate Professor of Biological Sciences. Her research and activities are dedicated to the conservation ecology of Paleotropical bats. She has been working on the conservation ecology of bats of Southeast Asia for >20 years, with projects in Malaysia, Indonesia, Myanmar, Philippines, and Vietnam. More recently, she has student projects and collaborations in Africa, specifically Nigeria, Kenya, and South Africa.

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**Dr. Liam McGuire** is an Assistant Professor of Biologial Sciences. His research focusses on the ecology and physiology of bats and birds in situations of energy limitation (e.g., migration, hibernation) and the strategies these animals use to cope with environmental variation, often in the context of conservation issues. He takes an integrative approach using techniques ranging from molecular biology and biochemistry, to whole animal physiology, behavioral and movement ecology. Current research foci include the physiological ecology of bat migration, and the physiological ecology and pathophysiology of hibernating bats affected by white-nose syndrome, a devastating fungal disease responsible for killing millions of North American bats.

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**Dr. David A. Ray** is an Associate Professor of Biological Sciences. The Ray laboratory focuses on the study of genomes and genome evolution with an emphasis on transposable elements and their role in the diversification of species. Model organisms include bats, several other mammals, and crocodilians.

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**Dr. Brenda Rodgers** is an Associate Professor, Department of Biological Sciences. Her research centers on the impacts of radiation on small mammals, mechanisms of adaptation to low dose radiation in pregnant females and fetuses, and human health issues in contaminated environments. She has worked on mammal population impacts at Chernobyl, Ukraine since 1997. She worked for eight years in Iraq evaluating human impacts in contaminated regions and training scientists on laboratory practices, and she has contracted with the US Department of Energy (Low-dose Program), US Department of State, and the Civilian Research & Development Foundation.

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**Dr. Jorge Salazar-Bravo** is an Associate Professor of Biologial Sciences. His research revolves around two basic themes: developing and testing phylogenetic hypotheses for mammalian taxa at various hierarchical levels; and using first principles in ecology and evolution to understand the triggers for disease emergence. Research topics he has pursued, as represented in his publications, include: Systematics, biogeography, evolution, and conservation of Neotropical mammals; the Ecology and Evolution of virus/host co–evolution, and the interplay between ecology and disease.

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**Dr. Richard Stevens** is an Associate Professor of Natural Resources Management. He is a bat and rodent community ecologist, macroecologist and biogeographer. His lab does collections-based ecological work in Paraguay, Colombia, Mojave Desert and Texas. They also conduct morphometric studies to try to better understand the relationship between form and function in bats as well as how phenotypic variation contributes to large scale patterns of biodiversity.

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*Students from the laboratories of Drs. Ray and Densmore taking measurements and collecting blood from hatchling crocodiles in Louisiana as part of studies to investigate aging and development in vertebrates.*

*Dr. Liam McGuire collecting a blood sample from a little brown bat (Myotis lucifugus) in Alaska. Dr. McGuire is examining foraging and energetics at high latitudes where it doesn't get dark in the summer (potentially an issue for a nocturnal animal).*




# PLEASE SUPPORT THE NSRL

**Dear Former Students, Colleagues, and Friends:**

**This summer we initiated a Fund-Raising Initiative for the NSRL. This initiative (NSRL Fund for Excellence) is designed to help support the many collections activities of the NSRL. Our goal is to use these funds to establish a student curatorial position. This position would enable the NSRL to improve curatorial and collection management activities, as well as help support students with a professional interest in natural history collections. As this fund grows, we envision that we will be able to financially support multiple students.**

**Your contribution to the Natural Science Research Laboratory Fund for Excellence is very important to the future of the NSRL. With limited, and often declining, funding from state and federal sources, the NSRL needs your help to ensure our continued service to the academic and scientific communities. We appreciate your consideration in giving a tax deductible donation in support of the NSRL's operations and research. Many of you benefited from the resources provided by the NSRL, now we ask that you help the NSRL continue its quest to be among the premier natural history collections in the world.**

**Donations to the NSRL Fund for Excellence may be made through the Texas Tech Foundation, Inc. To donate by check, please make the check payable to Texas Tech Foundation, designate NSRL Fund for Excellence on the memo line, and mail to: Texas Tech University System, Financial Services, Box 45025, Lubbock, TX, 79409-5025.**

**YOUR SUPPORT IS APPRECIATED!**

*NSRL News* is produced biannually by Lisa Bradley with assistance from the staff, research scientists, and graduate students of the NSRL. Please contact Lisa to request a hard copy or to submit comments or contributions for upcoming issues of *NSRL News*.

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NATURAL SCIENCE RESEARCH LABORATORY

*at the Museum of Texas Tech University*