

DEPARTMENT OF BIOLOGICAL SCIENCES 2008 FUNDED RESEARCH

Acquisition of a Laser Ablation-Inductively Coupled Plasma-Mass Spectrometer: Modern Trace Element and Isotope Analysis for Interdisciplinary Research at Texas Tech University. M. Barnes, PI, C. Barnes, M. Ridley, G. Cobb, and **S. Diamond**, co-PIs. 2006-2009. Texas Tech University. \$585,523.

ADVANCE Partnerships for Adaptation, Implementation and Dissemination: Partnership of Women in Engineering, Research and Science - PoWERS, K.A. Hoo, **C. E. Heintz-Wyatt**, C. Dunham, C. Raehl, S. Leeper and M. Jenkins. 2006-2009. NSF, \$499,590.

A laser micro-dissection microscope for microbial and plant science research. (Anderson, Cairney, **Tissue**, Conroy). 2008. University of Western Sydney – Research Infrastructure Fund (RIF). \$379,200.

A model that supports conservation and sustainable yield in Central America: The American Crocodile. **L. Densmore**. 2008-2009. Research Enhancement Fund. \$34,500.00.

Analyses of Recreational Fisheries in the South Atlantic off the Southeastern U.S. **S. Diamond**, PI. 2008-2009. Environmental Defense. \$22,000 USD.

A new proteomic method and its application to chemical biology. Robert Bright; Satomi Niwayama; **N. Collie**, **L. Gollahon**, David Knaff, Shaorong Liu; Gail Cornwall. 2007 – 2009. Texas Tech University Health Sciences Center/Texas Tech University Initiative. \$500,000.

Applied Biosystems 3100-Avant sequencer (2 instruments); Gene Codes Corporation software upgrade. **R. D. Bradley** (PI) and **R. J. Baker** Co-PI. 2008-2009. TTU VP for Research – Research Instrumentation Support. \$20,100.

A tunable diode laser system for field and laboratory measurement of stable isotopes of CO₂. **Tissue**, Ellsworth. 2008. University of Western Sydney – Research Infrastructure Fund (RIF). \$236,444.

A tunable diode laser system for field and laboratory measurement of stable isotopes of CO₂. Warren, Conroy, Ellsworth, **Tissue**, Adams. 2008. Australian Research Council – Linkage Infrastructure, Equipment and Facilities (LIEF). \$121,954.

A viral-encoded Kinase Induces Apoptosis. **S. Bilimoria**. 01/08-08/09. Research Enhancement Funds. VP Research, Texas Tech University. \$34,654.

Beyond an inconvenient truth: coping with changes in atmospheric CO₂ and climate change Conroy, **Tissue**, Drake. 2008-2009. University of Western Sydney – International Research Initiatives Scheme (IRIS). \$16,084.

Biogeography and evolution of American cottontails, Lagomorpha: *Sylvilagus*, from morphology and molecules, emphasizing South and Mesoamerican taxa. Ruedas, L. and **J. Salazar-Bravo**. 09/01/06 – 08/30/08. National Science Foundation. \$174,688.

Biomarkers of endocrine and reproductive disruption in fish of Lake Mead and the Colorado River. **R. Patino**. 2007-2009. USGS Nevada Water Science Center, \$152,000.

Can Rapid Recompression Reduce Mortality Of Discarded Red Snapper in the Recreational Fisheries? **S. Diamond**. 2007-2008. U.S. Department of Commerce, National Marine Fisheries Service-Marine Fisheries Initiative. \$262,386.

Collaborative research: The ecology of *Anaplasma phagocytophilum*: Reservoirs, risk, and incidence. F Keesing, RS Ostfeld, K LoGuidice, **KA Schmidt**. 2008-2010. NSF Infectious Diseases. \$35,000.

Collection Enhancement, Enlargement, and Compactorization of the Natural Science Research Lab. **R. Bradley, R. J. Baker**. 2006-2008. National Science Foundation. \$155,182.

Computational analysis of causality between miRNAs and antisense transcription: Supplement to Promote Diversity in Health-Related Research. **C.Rock**. 2007- 2009. National Institutes of Health High Risk/High Impact. \$416,016.

Conducting spring burns. **D. Schwilk**, Brian Wilsey. 2008. Texas Tech Extramural Research Promotion Award. \$1000.

Conservation baseline assessment and strategy development for Gunung Palung National Park, Indonesia. **C. Cannon** and K. Malen (XTBG). 2009. United States Agency for International Development. \$27,000.

Control of the Larger Black Flour Beetle in extended storage of cotton gin trash. C. Nansen, P. Porter, **N.E. McIntyre, M.N. Parajulee**, and B.A. Baugh. 2009. Cotton Inc. \$25,000.

Corticotropin-releasing factor regulation of the autonomic nervous system. **J. Carr**. 2008-2009. TTU Research Enhancement Fund. \$34,000.

Creating drought-tolerant cotton for West Texas. **Zhang** ; Dick Auld. 10/01/08-09/30/09. USDA-Texas Tech International Cotton Center. \$ 60,144.

Creation of a Radiation Workers Safety Program in the Iraq Ministry of Environment. Co-PI's **C. J. Phillips, R. K. Chesser, and B.E. Rodgers**. 2008. U. S. Department of State: Office of Cooperative Threat Reduction. \$400,000. (funding to Iraq)

CREST Center for Excellence in Bioinformatics and Computational Biology. **R. Owens**. 2004-2009. National Science Foundation, as subcontract from New Mexico State University. \$44,373.

Decompression and Delayed Mortality: The Effects of Barotrauma on Red Snapper (*Lutjanus campechanus*). **S. Diamond**. 2004-2008. National Marine Fisheries Service-Marine Fisheries Initiative. \$100,184.

Determination of Cellular Receptors in New World Arenaviruses. **R. D. Bradley**. 2008-2009. TTU VP for Research – Research Enhancement Fund. \$34,143.

Development of snook (*Centropomus* spp.) seed production technology for application in aquaculture and restocking of over-fished populations in Mexico. subproject PI, **R. Patino** with K. Fitzsimmons overall project PI. 2007-2009. U.S. Agency for International Development/CRSP through University of Arizona. \$78,000.

Developmental toxicity of PBDE-47 flame retardant in fish. **R. Patino PI**, with E. Little and C. Orazio. 2007-2008. USGS Columbia Environmental Research Center, \$15,000.

Diagnostic Radio-ichthyology: Using CT scans to explore the effects of barotrauma on fish. **S. Diamond**, PI, J. Stewart and D. Ferrell, co-PIs. 2007-2008. UWS Internal Partnership Grant. \$17,553 AUD.

Dismantlement and Disposal of Nuclear Wastes in Iraq. **R. K. Chesser, C. J. Phillips, B.E. Rodgers**. 2008-2009. U.S. Department of State: via a contract with Sandia National Laboratory. \$510,000.

Eavesdroppers and signal evolution. Ryan, M.J., **Bernal, X.E.**, and Page, R.A. 2006-2010. NSF (at UT Austin). \$289,000

The Ecology of Information in Predator-Prey Interactions: Testing mechanisms by which informed prey avoid their predators in space and time. **KA Schmidt**. 2008-2013. NSF Career Grant. \$600,000.

Effects of Clarke County (Nevada) wastewater effluent on fish. **R. Patino**, PI; Erik Orsak, Shane Snyder and Doug Drury, Collaborators 2007-2010. USGS Nevada Water Science Center, \$440,000.

Effects of low concentration of cadmium on growth and sex ratio of zebrafish. **R. Patino**. 2007-2008. Pakistani Higher Education Commission, \$7,000.

Effects of Grassland Restoration Efforts on Soil Resources in Degraded Tabosa Grasslands at Big Bend National Park. **John Zak**. 2008 – 2011. National Park Service. \$14,000.

El Centro-TTU STEM Partnership Grant. **John Zak** (Co-PI), Valerie Paton (PI). U.S. Department of Education/ Title V. 2008 –2010. \$5.5 million.

Engineering Cotton for higher drought-and salt tolerance. **H. Zhang**, R. Gaxiola, E. Blumwald, D. Auld. 2007-2010. USDA. \$320,707.

Enhancing Cotton Fiber Elongation and Cellulose Synthesis by Manipulating Fructokinase Activity. **Scott Holaday, Hong Zhang**. 01/01/08-12/31/08 Texas Department of Agriculture/Binational Agricultural Res. and Devel. Fund. \$ 50,000

Enhancing Cotton Fiber Elongation and Cellulose Synthesis by Manipulating Fructokinase Activity. Granot, D., **Holaday, A.S.**, and **Allen, R.D.** 07/08-06/11. Texas Department of Ag-Texas Israel Exchange/United States-Israel Binational Agricultural Research and Development Funds. \$150,000.

Establishing an ecological evolution lab at the Xishuangbanna Tropical Botanic Garden. **C. Cannon**. 2007-2009. Chinese Academy of Sciences. \$416,667.

Eucalypt growth in past and future environments – a novel approach to understanding the impacts of atmospheric CO₂ and climate. **Tissue**, Conroy, Phillips, Logan. 2008-2010. Australian Research Council – Discovery. \$300,000.

Evaluation of woody plant communities two years after the East Amarillo Complex wildfires. S. Ridout-Hanzak, D. Wester and **D. Schwilk**. 2009-2010. . TTU VPR grant. \$35,000.

Evolution and conservation of biodiversity in the Hengduan Mts., Yunnan, China. **C Cannon** and long list of collaborators from many Chinese institutions. 2008-2011. Chinese Bureau of Science and Technology. 200,000 RMB.

Evolutionary basis of aggression in old world tarantulas and implications of “over-kill”. **Hamilton, D.** 2008-2009. Research grant, American Arachnological Society, \$300.

Extending Warranties for Conviron Plant Growth Chambers. **Holaday, A.S.** 09/08-08/09. Office of the Vice President for Research, Texas Tech University. \$10,110.00.

Flying Fox Conservation, SEABCRU. **T. Kingston**. 2008- 2009. Lubee Bat Conservancy. \$7,000.

Habitat Analyses of Red Snapper Hotspots in the Gulf of Mexico. **S. Diamond**, PI. 2007-20008. Environmental Defense. \$96,892 USD.

Generation of transgenic Arabidopsis and cotton against boll weevils. **Shan Bilimora , Hong Zhang, Meha Parajulee.** 09/01/08-08/31/10. Texas Tech Office of the Vice President for Research. \$294,998.

Genetic analysis of plasmenylethanolamine in *Leishmania* parasites. **Kai Zhang.** 7/1/2008-6/30/2009. NIH-NIAID. \$206,350.

Heat-shock Factor Binding Protein and the Regulation of Plant Stress Responses. **Holaday, A.S., Allen, R.,** and Burke, J. 08/08-07/09. Southwest Consortium for Plant Genetics and Water Resources. \$40,000.

Howard Hughes Medical Institute Science Education Program (PI with Co-PIs **L. Densmore, R. Taraban, S. Talkmitt**); 9/06-8/10. \$1,500,000.

Influence of drought on tree response to past, present and future climate conditions. **Tissue, Conroy, Phillips.** 2007-2008. University of Western Sydney – International Research Initiatives Scheme (IRIS). \$29,700.

The Impact of Rapid Anthropogenic Land Cover Change in the Chaco and Interior Atlantic forest in Paraguay on Hantavirus Ecology. **R. Owen, L. Allen,** and others. 2004-2008. National Institutes of Health. \$1,858,000.

Integrated plant stress research program. **Allen, Tissue, Xie** and 10 others. 2006-2009. Texas Tech University – VP for Research. \$540,000.

Interactive effect of drought, CO₂ and temperature on tree response in past and future climates. **Tissue, Anderson, Lewis.** 2009-2010. University of Western Sydney – International Research Initiatives Scheme (IRIS). \$18,400.

International Collaboration in Infectious Diseases Research: Hantavirus Ecology and Disease in Chile and Panamá. Mertz, G. et al. **Salazar-Bravo** is one of 15 “key personnel”. 2005–2010. National Institutes of Health. \$4,471,435.

Iraqi “Train and Engage” Program in Ukraine. **R. K. Chesser, C. J. Phillips, B. E. Rodgers,** M. Bondarkov. 2008-2009. Great Britain Ministry of Finance and Industry. \$363,500.

Joint Admission Medical Program, State of Texas; **M. San Francisco.** 2008-2009. \$23,000.

Laser Scanning Confocal Microscope: A Tool for Biological and Material Science. **L. Gollahon, PI, N. Collie** and L. Dai, Co-PIs. 2008 - 2009. TTU Research Instrumentation Support. \$14,180.

Live from the field: a research-based learning environment for teaching biological concepts. **T. Kingston**, PI; **M. McGinley**, **K. Schmidt**, Co PIs. 2008-2009. TTU VP for Research Education Research Initiative. \$208,871.

LTREB: Acorn pulses and the dynamics of rodents, ticks, and Lyme-disease in oak forests. R Ostfeld, C Canham, **KA Schmidt**. 2005-2010. NSF Ecology. \$300,000.

Making peanut a profitable crop in water limited West Texas. **Hong Zhang**, Dick Auld, Eduardo Blumwald, Mark Burow. 09/01/08-08/31/09. Texas Department of Agriculture. \$15,000.

Making peanut significantly more drought and salt tolerant. **H. Zhang**, **P. Payton**. 2008. Texas Peanut Producers Board (Texas Local Board). \$30,000.

Making peanut significantly more drought tolerant. **H. Zhang**. 05/01/08-4/30/09. Texas Peanut Producers Board (US National Board) \$ 34,262.

Making the Mekong Connected: Developing carbon and biodiversity assets for multifunctional landscapes in the Upper Mekong. **C. Cannon** involving collaboration among seven institutes in China, Laos, Myanmar, and Thailand. 2009-2011. Grant from the Federal Ministry of Economic Cooperation and Development, Germany (BMZ) and Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ). \$68,000.

Mathematical Foundations of Evolutionary Theory. **S. Rice**. 2006-2009. National Science Foundation. \$223,000.

Mapping of Species in the Gulf of Mexico Using GIS (Part II). **S. Diamond**. 2006-2008. Environmental Defense. \$25,000.

Middle School Math and Science (MS)²: Understanding by Design. J Wilhelm, D. Cassadonte, M. Baker, J. Dwyer, Z. Aquire-Munoz, **M. McGinley**. And D. Lamp. 2008 – 2014. Greater Texas Foundation. \$3,000,000.

Modeling of Hantavirus Reservoirs in Brazil. Jonsson C. **Salazar-Bravo** is one of 4 “key personnel”. 01/01/2007 to 12/31/2009. NIH. \$96,000.

Plains Bridges to the Baccalaureate: Increasing Minorities in Science. Cañas, J., **Salazar-Bravo**, **J. Zak**, 5 other co-PI's. 2008-2013. \$1,074,496.00.

Population dynamics of fishes in the upper Brazos River. **Wilde, G. R.** 2007-2008. Texas Parks and Wildlife Department (State Wildlife Grant). \$70,056.

Production and testing of transgenic cotton that expresses transcription factors for enhanced seed traits and productivity under drought stress. **C. Rock**, PI, C. Bednarz, Co-PI. 2008- 2010. TTU-USDA International Cotton Research Center. \$84,714.

Queen Control Over Worker Behavior in Colonies of Red Imported Fire Ants: Role of the Venom Sac Proteins. **Deslippe, R.J.** 2008-2009. Research Enrichment Fund Grant Competition, TTU. \$33,300.

Red River Chloride Control baseline inventory of aquatic resources and location of instream refugia. **Wilde, G. R.** 2006-2008. US Army Corps of Engineers, Tulsa District (Oklahoma) by contract with Weston Solutions, Inc., Broken Bow, Oklahoma. \$101,738.

Research Enhancement Fund. **M. San Francisco.** 2008-2009. TTU V. P. Research Competition. \$35,000.

Response of Multidrug Resistance Proteins to Antitumor Drugs in a Co-Culture Model of Breast Cancer. **N. Collie, PI,** and **L. Gollahon, Co-PI.** 2008-2009. TTU VPR Spring 2008 Research Enrichment Fund. \$34,823.

Role of Plant RNA-dependent RNA Polymerases in Viru-induced RNA Silencing. **Xie, Zhixin.** 2006-2009. USDA. 190,000.

South East Asian Bat Conservation Research. **T. Kingston.** 2008-2010. BAT Biodiversity Partnership/Earthwatch Institute. \$24,000.

South East Asian Bat Conservation Research. **T. Kingston.** 2008-2010. BAT Biodiversity Partnership/Earthwatch Institute. \$9102.

Synthetic Approaches towards crocodylian phylogeny. **L. Densmore;** 2005-2009. NSF (Systematics and Population Cluster) \$300,000; \$211,000 to TTU.

Synthesis of existing datasets to explore the implications of altered precipitation for carbon and water dynamics in desert ecosystems of the southwestern US. Ogle, Huxman, **Tissue,** Smith, Loik. 2006-2009. Department of Energy – National Institute for Climate Change Research. \$375,000.

Testing climatic, physiological and hydrological assumptions underpinning water yield from montane forests. Adams, Turnbull, Vervoort, Buckley, Phillips, **Tissue,** Hepplewhite. 2008-2012. Australian Research Council – Linkage. \$2,477,844.

Testing Hypotheses on Red Snapper Stock and Recruitment Patterns, including the Effects of Global Warming Environmental Defense. **S. Diamond.** 2008-2011. \$339,632.

Trade-off between carbon sequestration in forests and water yields under rising CO₂. Conroy, Ellsworth, **Tissue,** McMurtrie, Eamus, Montagu, Medlyn. 2007-2009. New South Wales -- Department of Environment and Conservation. \$484,000.

Transcription factors and method for introducing of value-added seed traits and stress tolerance. **C. Rock.** 2008- 2008. TTU Office of Technology Commercialization. \$22,000.

Understanding AM Species Dynamics Associated with Cotton production Systems: Impacts of Management Decisions and Soil Moisture. **John Zak**, PI and Bobbie McMichael, CO-PI. 2006 to 2008. USDA -International Cotton Research Center. \$74,000.

Understanding Climate Change Impacts on Desert Grasslands in Big Bend National Park. **John Zak** and **David Tissue**. 2006-2008. National Park Service. \$10,000.

Understanding the Variability of Arbuscular Mycorrhizal Fungi in Ameliorating the Impacts of Environmental Stress on Cotton Plants. **John Zak**, PI and **David Tissue** and Bobbie McMichael CO-PIs. 2006-2009. USDA– International Cotton Research Center. \$60,000.

Unlocking the economic potential of the soil biodiversity in arid-land agriculture, with **J. Jeter**, **J. Zak**, **M. San Francisco**, B. McMichael and P Pare. 2007-2009. TTU V. P. Research Competition. \$540,000.

Using GIS Methods to Reduce Bycatch in the Gulf of Mexico, Part II. **S. Diamond**. 2007-2008. The Ocean Conservancy. \$75,000.