

Ryan S. Luna, Ph.D.
Assistant Professor of Wildlife Management
Borderlands Research Institute & Dept.
of Natural Resource Management
P.O. Box C-16
Sul Ross State University
Alpine, TX 79832

Education

Ph.D. May 2013
Texas State University, San Marcos, Texas
M.S. Biology, 2007
University of Texas at San Antonio, San Antonio, Texas
B.S. Zoology, minor Chemistry, 2001
Texas Tech University, Lubbock, Texas

Professional Experience

2013-Present Sul Ross State University, Borderlands Research Institute

- Scaled quail and Gambel's quail diet, range, movements, habitat use, nest site selection, and survival in the Trans-Pecos
- Species specific toxicant development for population control of feral swine
- White-tailed deer dietary selection—native vs. pen raised and released
 - Supplemental feed use and home range sizes

2011-2013 National Science Foundation (NSF) GK-12 Fellow

- Develop educational science curriculum for a variety of grade levels.
- Create multisensory labs to teach specific curriculum and expose students to new techniques
- Present the above mentioned curriculum and labs to diverse age groups with varied scientific background knowledge
- Develop, coordinate, and implement comprehensive curriculum-based activities for youth in formal and informal educational settings
 - Travel to city pond—"What's in your backyard" Ecology Lab
 - Travel to wildfire site to show fire impact/regeneration
- Collaborate with teachers and NSF Fellows as well as state and federal agencies
- Provide guidance/suggestions for utilization of classroom science stipend
- Travel to USFWS fishery
 - Introduce students to various aquatic vertebrate and invertebrate sampling techniques
 - Introduce students to the unique diversity of salamanders in the Edwards Aquifer, including several endangered and endemic salamander species, and discuss how their speciation was influenced by local geology
 - Show students how we use science to manage wildlife through captive breeding and stock replenishment
 - Increase students' knowledge about job diversity in the field of science

2010-2013 Roosevelt elk study

- Conducted in Redwood National and State Parks; Orick, California
- Population census
- Recorded movement activity of groups and focal animals to determine habitat use
- Measured available forage with Daubenmire frame
- Measured forage intake
- Influence of body size on relative food intake and forage behavior

2008-2013 White-tailed deer studies

- Compiled information on harvested animals (from hunts and culled) to assist with wildlife management practices on Texas Parks and Wildlife Management Area.
- Present research to a variety of audiences from parent/child hunting groups to wildlife professionals
- Conducted physiological rumen studies on Texas Parks and Wildlife Management Areas (KWMA and MMWMA)
- Analyzed rumen-reticulum capacity, liver weight, digesta load, Surface Enlargement Factor from papillae measurements, bacterial colonies, and how these parameters relate to forage quality and life history demands
- Analyses of morphological changes due to precipitation during three consecutive years

2011-2012 Field assistant for TSU Masters and PhD Student projects

- Estimating overwintering populations of Brazilian free-tailed bats: baseline population estimates and microclimate habitat analysis.
- Checked traps, marked and collected data on herpetofauna, and conducted surveys for endangered Houston toad research, Bastrop, Texas.
- Conducted white-tailed deer surveys for an urban deer population study

2010 Devils minnow sampling (endangered species)

- Seined portions of Pinto Creek, Los Moros Creek and the Devils River in Texas
- Catalogued species present to map current distributions.

2008 Mule deer studies

- Conducted line count surveys for a ranch in west Texas for two of three year base requirement for admittance into the Managed Lands Program

2007 University of Texas at San Antonio, San Antonio, Texas

- Directed research: human and animal observational studies for animal behavior

2004-2006 University of Texas Health Sciences Center, San Antonio, Texas
Department of Pharmacology

Research Assistant in Department of Pharmacology Laboratory

- Organized and assisted in hosting 2006 Behavioral Pharmacology Society Conference in San Francisco, CA.
- Trained Rhesus Macaques for behavioral assays with Morphine, Cocaine, Tetrahydrocannabinol (Δ^9 -THC), Midazolam, and 2,5-

Dimethoxy-4- methylamphetamine (DOM)

- Trained/observed new research assistants in research laboratory
- Performed blood draws for CBC testing, Simian B virus tests, and regular Pharmacokinetic studies

2001-2003 New Mexico Department of Game and Fish

Game Warden, certified officer in New Mexico

- Performed CWD testing on deer and elk
- Participated in Kokanee Salmon Spawn
 - Electrofishing and milking
- Desert Bighorn Sheep reintroduction
 - After net-gunned from helicopter, I record physical attributes of individuals, administered vaccines, and tagged them in preparation for relocation
- Reintroduced Desert Bighorn into their historical habitat
- Tranquilized and relocated nuisance bears
 - Proficient with dart gun --used both on treed individuals and on individuals within traps.
 - Culvert trap sets
- Administered antibiotics as needed to captured wildlife
- Performed numerous necropsies on poached animals
 - Identified case of death.
 - Poaching cases
 - Bullet recovery, identification
 - Obtained evidence to build cases
- Conducted elk and deer surveys via helicopter
 - Record sex ratios, location, habitat type and canopy cover
- Hunter Education Instructor
- Compiled data from Operation Bear Den
 - Record attributes of individuals
 - Radio collar information, and last tracked locations
- Gathered harvest data and helped to guide hunters for Oryx hunts on White Sands Missile Range

Teaching Experience

- Sul Ross State University
 - NRM 2302 Wildlife Resources. An introduction to the wildlife resources of the United States with specific reference to Texas. The history of game management, endangered species, and methods for the maintenance, control, and increase of wildlife resources.
 - NRM 2303 Principles of Conservation Biology. Introductory course on the fundamental issues in the discipline of conservation biology including conservation genetics, habitat fragmentation, natural resources sustainability, and island biogeography.
 - NRM 2330 Wildlife Conservation and Management. History of game management. Subject material will also cover methods used for control and maintenance of populations, and ways to increase wildlife resources.

NRM 3302. Forest Ecology. Introduction to forest ecosystems. Includes forest types and distribution, inventory, and monitoring techniques and management of forest ecosystems.

NRM 4309/5409 Wildlife Population Dynamics. Subject material dealing with the mechanics of growth and structure of populations, departures from stability and natural and artificial regulation of population levels, and techniques used to survey and monitor wildlife populations.

NRM 4305 Wildlife Management Techniques. An overview of habitat inventory and evaluation techniques, census methods; age and sex criteria; banding, data analysis, telemetry analysis, and research methods in wildlife management.

- NSF Fellow-Project Flowing Waters-NSF GK-12 Program
 - Project Flowing Waters is a National Science Foundation and Texas Pioneer Foundation supported collaboration between Texas State University and San Marcos CISD. The goal of Project Flowing Waters is to increase the interest of secondary school students in higher education by appointing an NSF Fellow to a science teacher. The fellow and the teacher collaborate to create a curriculum that is inquiry based which leads to a deeper understanding and hopefully an increased interest of science.

- Doctoral Instructional Assistant
 - BIO 1430 Functional Biology
Provides the science major with a strong foundation in cellular and molecular biology and physiology. Topics include biological chemistry, metabolism, the molecular bases of cellular functions and genetics, the molecular biology of reproduction and development, cell signaling, neurobiology and the special senses, and human physiology and the immune system.

 - BIO 4435/5435 Techniques in Wildlife Management
The purpose of this course is to introduce the student to standard techniques used in the field of wildlife science to manage wildlife populations for purposes of conservation or sustained use.

 - BIO 7405 Statistics and Experimental Design I
Introduction to inferential statistics, including exploratory and confirmatory data analysis, estimation and hypothesis testing, analysis of variance and regression, and non-parametric techniques, as applied to aquatic resource issues. Computer applications emphasized.

 - BIO 7406 Statistics and Experimental Design II
Introduction to the principles of experimental design, including

randomization, replication, sample-size determination, completely randomized and randomized block design, factorial design, repeated measure design, and analysis of variance and covariance, as applied to aquatic resource issues. Computer applications emphasized.

Reports

Luna, R.S., Duarte A., and F.W. Weckerly. 2011. Examining rumen-reticulum capacity and fill, dietary nutrition, body condition, and potential fawn crop in white-tailed deer from central Texas and what it means for management decisions. Submitted to the Texas Parks and Wildlife Department (Kerr Wildlife Management Area).

Duarte, A., **R.S. Luna**, and F.W. Weckerly. 2010. Body condition, dietary nutrition, and digesta loads in white-tailed deer: an evaluation of the current harvest and supplemental feed strategy. Submitted to Wagner Ranch.

Professional Presentations and Publications

Publications:

- 2014 Aiken, M., A. Duarte, R. S. Luna, D. M. Wolcott, and F. W. Weckerly. 2014. Daytime declines in rumen-reticulum fill of male white-tailed deer (*Odocoileus virginianus*) from south Texas. *Canadian Journal of Zoology*: 92(7): 637-642.
- 2014 Duarte, A., R. S. Luna, H. D. Starns, and F. W. Weckerly. 2014. Intraspecific scaling of rumen-reticulum fill might depend on dietary fiber. *American Midland Naturalist*: *In press*
- 2014 Para, C.A., Duarte, A., Luna, R.S., Wolcott D.M., and Weckerly, F.W. 2014. Body weight, age, and reproductive influences on liver weight of white-tailed deer. *Canadian Journal of Zoology*. 92(4) 273-278.
- 2014 Luna, R.S., C. Gonzalez-Gonzalez, and L.A. Harveson 2014. Using radio-telemetry to determine nest site selection and recruitment for Scaled quail in the Trans-Pecos. *Texas Wildlife*, May: 22.
- 2013 Luna, R.S., C. Gonzalez-Gonzalez, R. Temple, B. Gallegos, R. Jankowiak, E. Garcia, C. Greene, J. Turney, and L.A. Harveson. 2013. A research report on desert quail ecology and management. SRSU print shop, Alpine, Texas.
- 2013 Luna, R.S. 2013. Body size, rumen-reticulum functions, and dietary nutrition of white-tailed deer. Dissertation, Texas State University, San Marcos, Texas
- 2013 Luna, R.S., A. Duarte, and F.W. Weckerly. 2013 Influence of body size on dietary nutrition of white-tailed deer (*Odocoileus virginianus*). *Journal of Fish and Wildlife Management* 4(1):53-62.
- 2013 Luna, R.S. and F.W. Weckerly. 2013. Rumen-reticulum capacity and digesta load in white-tailed deer (*Odocoileus virginianus*) in autumn. *Southeastern Naturalist* 12(2): 283-296.
- 2012 Luna, R.S., A. Duarte, and F.W. Weckerly. 2012. Rumen-reticulum characteristics and scaling relationships associated with ontogeny in white-tailed deer. *Canadian Journal of Zoology* 90 (11):1351-1358.

Presentations:

- Aiken, M.R., D.M. Wolcott, H.D. Starns, **R.S. Luna**, A. Duarte, and F.W. Weckerly. 2014. Variation in rumen-reticulum fill in white-tailed deer. Texas Chapter of the Wildlife Society. Austin, TX (oral presentation)
- Luna, R.S.**, A. Duarte, and F.W. Weckerly. 2013 Influence of body size on dietary nutrition of white-tailed deer (*Odocoileus virginianus*). Texas Academy of Science, Kerrville, TX (oral presentation)
- Luna, R.S.**, A. Duarte, and F.W. Weckerly. 2013 Influence of body size on dietary nutrition of white-tailed deer (*Odocoileus virginianus*). Texas Chapter of the Wildlife Society. Houston, TX (oral presentation)
- Luna, R.S.**, A. Duarte, and F.W. Weckerly. 2012. Rumen-reticulum characteristics, scaling relationships, and ontogeny in white-tailed deer. International Research Conference for Graduate Students, San Marcos, TX (oral presentation)
- Luna, R.S.**, A. Duarte, and F.W. Weckerly. 2012. Body size influence on dietary nutrition of white-tailed deer. American Society of Mammalogists, Reno, NV (oral presentation).
- Luna, R.S.**, A. Duarte, and F.W. Weckerly. 2012. Influence of body size on forage selection and niche partitioning in white-tailed deer. Texas Chapter of the Wildlife Society, Ft. Worth, TX (oral presentation).
- Duarte, A., **R. S. Luna**, and F.W. Weckerly. 2011. Dynamics of rumen-reticulum capacity and fill in female white-tailed deer (*Odocoileus virginianus*). 16th Annual Biology Student Colloquium, San Marcos, Texas (oral presentation).
- Luna, R.S.**, A. Duarte, and F.W. Weckerly. 2011. Rumen-reticulum capacity and fill in female white-tailed deer: Meeting demands in a stochastic environment. Ecological Society of America annual meeting, Austin, TX (poster presentation).
- Duarte, A., **R. S. Luna**, and F.W. Weckerly. 2011. Rumen-reticulum capacity in response to dietary nutrition and reproductive demands in female white-tailed deer. 47th Annual Texas Chapter of the Wildlife Society Meeting, San Antonio, TX (oral presentation).
- Luna, R.S.** and F.W. Weckerly. 2010. Rumen-reticulum morphology in male white-tailed deer foraging on natural or pelleted diets. American Society of Mammalogists, Laramie, WY (oral presentation).
- Luna, R.S.** and F.W. Weckerly. 2010. Effects of high protein vs. natural forage on rumen-reticulum morphology in white-tailed deer. Southeast Deer Study Group, San Antonio, TX (oral presentation).
- Luna, R.S.** and F.W. Weckerly. 2010. Effects of high protein vs. natural forage on rumen- reticulum morphology in white-tailed deer. Texas Chapter of the Wildlife Society, Galveston, TX (oral presentation).
- Luna, R.S.** and F.W. Weckerly. 2009. Is rumen-reticulum organ weight associated with digesta load in white-tailed deer? Texas Chapter of the Wildlife Society, Lubbock, TX (oral presentation).
- Luna, R.S.** and F.W. Weckerly. 2009. Rumen-reticulum organ weight and digesta load in white-tailed deer. Biology Student Symposium, San Marcos, TX (oral presentation).

Fellowships and Awards

- NSF Fellow-Project Flowing Waters-NSF GK-12 Program 2011-2012, 2012-2013
- Dan Boone Memorial Scholarship from The Dan Boone Endowment Fund and Texas Chapter of The Wildlife Society 2011, 2013

- Academic Excellence Award (departmental) 2010, 2011& 2012
- American Conservation and Education Society Scholarship from the Houston Safari Club for 2009-2010, 2010-2011
- American Society of Mammalogists Travel Grant 2010, 2012

Professional Organization Memberships

- American Society of Mammalogists, 2010-present
- Ecological Society of America, 2010-present
- The Wildlife Society, 2009-present
- The Wildlife Society, Student Chapter, Texas State University, 2009-present
- Texas Academy of Science, 2010-present
- Houston Safari Club, 2009-present