MATTHEW D. BROXSON

CURRICULUM VITAE

CONTACT INFORMATION:

Removed

DEGREES EARNED:

M.S. – Biology; 2011
Thesis: Natural History of an Eastern Texas Snake Community with Particular Focus on the Resource Partitioning of Four Sympatric Species.
B.S. – Wildlife Biology; 2007
A.S. – Biology; 2004

EDUCATION:

2017-Present American College of Education, Indianapolis, Indiana
Ed.D in progress
Major: Leadership in Higher Education
46 credit hours currently completed

2008-2011 West Texas A&M University, Canyon, Texas
Degree attained: Master of Science
Major: Biology

2006-2007 West Texas A&M University, Canyon, Texas
Degree attained: Bachelor of Science
Major: Wildlife Biology
Dean's List – Fall 2006

2005 The University of Texas at Arlington, Arlington, Texas
Major: General Biology
29 credit hours – transferred to WTAMU

2000-2004 Navarro College, Corsicana, Texas
Degree attained: Associate of Science
Major: Biology
Dean's List - Spring 2004
President's List - Fall 2004

EMPLOYMENT:

August 2010 – Present
Division Chair of Math and Science; Professor of Biology – 2016 to Present
Associate Professor of Biology – 2013 to 2016
Assistant Professor of Biology – 2011 to 2013

Instructor of Biology – 2010 to 2011
Frank Phillips College
Borger, TX

May 2010 – August 2010
Research assistant
West Texas A&M University
Canyon, TX
Contracted from Texas Parks and Wildlife Department

May 2006 – August 2006
Intern
Arizona Game and Fish Department
Phoenix, Arizona

March 2005 – January 2006
Herpetological Curator's assistant
The University of Texas at Arlington

May 2005- June 2005
Field assistant under Ellen Stringer PhD candidate – Mountain lion and bobcat population assessment pilot study– Big Bend National Park
The University of Texas at Arlington, Arlington, Texas

TEACHING EXPERIENCE:

Biology for Science Majors I – BIOL1406
- Face-to-face, distance learning, and dual credit sections

Biology for Science Majors II – BIOL1407
- Face-to-face, distance learning, and dual credit sections

Integrated Science: Biology – BIOL1308
- Face-to-face

General Botany – BIOL1411
- Face-to-face

General Zoology – BIOL1413
- Face-to-face

Nutrition and Diet Therapy (Elementary Nutrition) – BIOL1322
- Face-to-face, distance learning, dual credit, and internet sections

Anatomy and Physiology I – BIOL2401
- Face-to-face and distance learning sections

Anatomy and Physiology II – BIOL2402
- Face-to-face and distance learning sections

Environmental Biology – BIOL2406
- Face-to-face and internet sections (as BIOL2306)

Wildlife Conservation and Management – AGRI2330

* Honors sections as separate labs for BIOL1406, 1407 in 2010 and 2011, combined 2011 to present with addition of BIOL1411, 1413, 1322, and 2406 sections.

PROFFESSIONAL AND HONORS SOCIETY MEMBERSHIPS:

Kappa Delta Pi – International Honor Society in Education (2017-Present)
Texas Community College Teachers Association (2015-2017)
Society for the Study of Amphibians and Reptiles (2010- 2016)
Delta Xi Chapter of Beta Beta Beta – Biological Honors Society (2010-2011)
Southwestern Association of Naturalists (2010-2011)
The Wildlife Society (2010- 2013)
Texas Chapter of the Wildlife Society (2009-2011)
Kansas Herpetological Society (2007-2011)
WTAMU Student Chapter of The Wildlife Society (2006-2011)

COMMITTEE SERVICE

Academic Standards Committee – 2012-2014; 2016-Present
Retention Performance Management Planning Committee - 2017
Library Committee – 2015-2018
Plainsmen Council, President's Advisory Committee – 2016-2018
Frank Phillips College Faculty Senate Vice President – 2012-Present

SPECIALIZATION:

STEM education
Conservation biology
Natural resource management
Ecological evaluation of herpetofauna at the community and intraspecific level.
Habitat assessment; particularly macrohabitat level; evaluation including cartography via remote sensing and ground level data collection involving the use of GIS software during thesis work.
Diet analysis methodology
Public outreach and education

PUBLICATION:

Broxson, M. D. 2011. Range Extension for Agkistrodon contortrix in Rockwall County, Texas. Herpetological Review 42 (1): 113.

PROFESSIONAL PRESENTATIONS:

Broxson, M.D. 2016. Science: What Does it Mean? Panhandle Math and Science Conference, Canyon, Texas.

Broxson, M. D. and R. T. Kazmaier. 2010. Diet and dietary niche overlap among four snake species. 57th Annual Meeting of the Southwestern Association of Naturalists, Junction, Texas.

Broxson, M. D. and R. T. Kazmaier. 2010. Dietary and habitat niche overlap among four snake species in Eastern Texas. 113th Annual Meeting of the Texas Academy of Science, Stevenville, Texas.

Lange, R. A., R. T. Kazmaier, and **M. D. Broxson**. 2010. Choosing methods wisely: Lessons from three snake communities across Texas. 46th Annual Meeting of the Texas Chapter of The Wildlife Society, Galveston, Texas.

Broxson, M. D., R. T. Kazmaier and W. Littrell. 2010. Selection by an Eastern Texas snake community: Influences of soil and macrohabitat. 46th Annual Meeting of the Texas Chapter of The Wildlife Society, Galveston, Texas.

Broxson, M. D. and R. T. Kazmaier. 2009. Ecology of a Copperhead Population in Eastern Texas. 36th Annual Meeting of the Kansas Herpetological Society, Olathe, Kansas.

Lange, R. A., R. T. Kazmaier, and **M. D. Broxson**. 2009. Patterns of richness and diversity of snake communities in Texas: The influence of sampling methodology. 94th Ecological Society of America Annual Meeting, Albuquerque, New Mexico.

Broxson, M. D., R. T. Kazmaier, and W. Littrell. 2009. Dietary niche overlap among four snakes in East-central Texas. 45th Annual Meeting of the Texas Chapter of The Wildlife Society, Lubbock, Texas.

Broxson, M. D. and R. T. Kazmaier. 2008. Assessing Diet in an Eastern Texas Snake Community. 35th Annual Meeting of the Kansas Herpetological Society, Witchita, Kansas.

Broxson, M. D. and R. T. Kazmaier. 2008. Macrohabitat selection by a snake community in Eastern Texas. 55th Annual Meeting of the Southwestern Association of Naturalists, Memphis, Tennessee.

Broxson, M. D. and R. T. Kazmaier. 2007. Habitat Selection of a Snake Community in East-central Texas. 34th Annual Meeting of the Kansas Herpetological Society, Topeka, Kansas.

POPULAR PRESENTATIONS AND PUBLIC OUTREACH:

2017 – Presented biology facilities and introduced basic lab components to Borger 4-H club.

2016 – Presented a lesson to primary school students on types of mixtures for Frank Phillips College Kid's College

2015 – Gave a presentation to a summer Frank Phillips College physics class over the discovery of *Tiktaalik roseae* to demonstrate the predictive quality of scientific theories.

2012 – Gave a short presentation to White Deer Boy Scouts about local invertebrates featuring a live Texas brown tarantula (*Aphonopelma hentzi*).

2011 – Attended White Deer Boy Scouts camping trip to Lake McClellan National Grasslands, TX to give interpretational presentations via outings covering local flora and fauna.

2011 – Operated public education kiosk at Amarillo Zoo relaying ongoing research and conservation needs of the Texas horned lizard.

2008 – Organized and operated a public education kiosk to relay to the local community an appreciation for wildlife in the Panhandle region of Texas, Canyon, Texas

2006 – Gave a presentation at the West Texas A&M Student Chapter of The Wildlife Society to promote working wildlife internships for both undergraduate and graduate students, Canyon, Texas
2004 – Presented a week-long series of lectures entitled *Rep-phibia* to grade school children as a course during a college camp event at Navarro College, Corsicana, Texas

PROFESSIONAL MEETINGS ATTENDED:

2018 – 4th Biennial Texas Panhandle Water Conservation Symposium, Amarillo, Texas
2017 – 1st Annual Amarillo College Educational Summit, Amarillo, Texas
2016 – 23rd Annual Panhandle Math and Science Conference, Canyon, Texas
2016 – 3rd Biennial Texas Panhandle Water Conservation Symposium, Amarillo, Texas
2015 – 68th Annual Conference of the Texas Community College Teachers Association, Dallas, Texas
2010 – 57th Annual Meeting of the Southwestern Association of Naturalists, Junction, Texas
– 113th Annual Meeting of the Texas Academy of Science, Stephenville, Texas
– 46th Annual Meeting of the Texas Chapter of The Wildlife Society, Galveston, Texas
2009 – 36th Annual Meeting of the Kansas Herpetological Society, Olathe, Kansas
– 45th Annual Meeting of the Texas Chapter of The Wildlife Society, Lubbock, Texas
2008 – 35th Annual Meeting of the Kansas Herpetological Society, Witchita, Kansas
– 55th Annual Meeting of the Southwestern Association of Naturalists, Memphis, Tennessee
2007 – 34th Annual Meeting of the Kansas Herpetological Society, Topeka, Kansas
2006 – 33rd Annual Meeting of the Kansas Herpetological Society, Hays, Kansas

SKILLS AND KNOWLEDGE:

Educational
- Curriculum design in STEM subjects (particularly Biology, Environmental Science, and Wildlife Conservation and Management)
- Instruction in varied formats including face-to-face, distance learning, blended, and internet based.

Biological
- Majority of formal education based on natural resource and wildlife management, and conservation biology.
- Use of biological survey methods
  - Sherman and tomahawk live traps, pitfall arrays, funnel traps, avian sampling, and mist netting
  - Intensive and time-constrained searches, and spotlight surveys
  - Vegetation sampling including transects/quadrats and plant collection and identification

Capture-mark-recapture population/community surveys. Marking methods including heat branding, toe-clipping, microchip PIT tags, carapace and scale notching, ear and toe tagging
Aquatic sampling including seining, trapping, electro-shocking and chemical means as well as hand collection via snorkeling and SCUBA diving.

- Evaluating natural process and management impacts on plant and animal communities
  M.S. thesis includes implications of habitat alteration as well as effects of fire suppression and rainfall fluctuation on community structure and activity.
- Implementation of management techniques focusing on habitat improvement to deteriorated and human altered areas.
- Experience in captive animal husbandry with a particular focus on herpetoculture including care of anurans, salamanders, turtles/tortoises, and squamates.
- Standard morphometric measurement collection
- DNA sample collection
  Liver cells – snakes and lizards
  Epithelial cells – amphibians
  Hair cells – mammals
- Collection and preparation of specimen
- Diet analysis
  Collection of stomach contents (lavage, palpation, and necropsy) and fecal collection
  Identification of sample contents via bare eye, dissecting scope, or microscopic examination including vertebrate and invertebrate prey as well as various plant remains
- Use of statistical methods in wildlife research
- Use of GIS, GPS, and Radiotelemetry technology
  Use of GIS software in map creation and habitat characterization
  Application and use of radiotelemetry devices on reptiles and mammals; Texas horned lizards, desert tortoises and ringtails
  Use of GPS in map creation, data collection, and navigation
- Adept usage of Microsoft Xcel and Word for report composition and data storage as well as PowerPoint for creation of presentations
- Ability to work on projects effectively in a wide variety of terrains and adverse conditions.
- Safe handling of venomous species
  Extensive work with Viperids, particularly with copperheads, cottonmouths, and pigmy rattlesnakes
- Experience in public relations, educational presentations, and outreach programs
- Certified SCUBA diver (certified 2001)

ACTIVITIES:

- Led 9 student field trips, including 2 overnight camping trips to Lake Merideth, to

observe ecological subjects including invasive species, community interactions, and ecosystem builders.

- Conducted conservation outreach booth for "Conservation Celebration" at the Amarillo Zoo. Amarillo, TX
- Volunteered for activities associated with habitat restoration at Gus Engeling Wildlife Management Area including three control burns, reconstruction of beaver dam and various other projects
- Participated as group member for black-footed ferret surveys in March 2009 as part of an EIS for construction project near a ferret reintroduction site in the Aubrey Valley near Seligman, Arizona
- Presented proper morphological data collection methods of snakes (both Viperid and Colubrid) to a group of field techniques students from the University of Oklahoma Biological Station (2007)
- Secretary (2006-2007) and Vice-President (2007-2008) of the WTAMU Student Chapter of The Wildlife Society
- Participated as group member in 2006 Tortoise Blitz to monitor Sonoran desert tortoise population with Arizona Game and Fish, Sugarloaf Mountain, Arizona
- Organized a wildlife outreach event near Amarillo, Texas, in 2008 to present local wildlife awareness to public audiences
- Volunteered at Crossbar Ranch (Bureau of Land Management) for Public Lands Day assisting with improvements on the property
- Located and identified herpetofauna to assist with updating a baseline inventory of wildlife at Gus Engeling Wildlife Management Area, Anderson County, Texas, 2007-2009
- Hands-on involvement in work with a large array of herpetofauna (snakes, lizards, aquatic and terrestrial salamanders, toads and frogs), mammals (various small mammals, mesocarnivores, bats, and large carnivores), fishes, arthropods, intestinal parasites, and birds
- Assisted with a variety of projects dealing with many plant and animal types including Texas horned lizards (radio-telemetry, intensive searches, collecting toe samples for annuli analysis and powder tracking juveniles), many species of snakes (road cruising, intensive searches, cover boards, funnel trapping, pitfalls, transmitter surgery, PIT tagging, branding, scat collection, specimen preparation), Texas tortoise (intensive searches and marking), desert tortoise (intensive searches and marking), turtles including yellow mud turtles (annuli data collection), alligator snapping turtles and common snapping turtles (as well as many other turtle species as non-target: hoop nets, fyke nets, scute marking, and PIT tagging), American alligator (alligator box traps, hoop nets, seining, noose poles, intensive searches, PIT and toe tagging, and stomach lavaging) lesser sirens (trapping and DNA sample collection), turkey (setting pen traps and transporting individuals), mountain lions and bobcats (tracking, identifying sign and scat collection), small mammals (Sherman trapping), mesocarnivores including gray fox, ringtails, black-tailed prairie dog surveys (including community co-inhabitants: burrowing owls, mountain plovers and ferruginous hawks) and raccoons (tomahawk trapping, drugging and marking), bats (mist netting), aquatic

sampling (seines, fyke nets, hoop nets, minnow traps, gill nets, crayfish traps, crab traps, basking traps), and invertebrates (blacklight traps)

- Worked and assisted with various species of concern at both state and federal levels including Texas horned lizard, Texas tortoise, desert tortoise, scarlet snake, alligator snapping turtle, mountain lion, black-footed ferret, black-tailed prairie dogs, ringtails and Palo Duro mouse.