

CURRICULUM VITA
Christopher L. Higgins, Ph.D.

CONTACT INFORMATION

Department of Biological Sciences
Tarleton State University
Stephenville, Texas 76402-0100
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EDUCATION

Ph.D., Biology, Texas Tech University (2005)

- Dissertation: *Functional groups in stream fishes: spatiotemporal variation, predictability, and patterns of diversity*
- Advisor: Dr. Richard E. Strauss

M.S., Biology, Texas Tech University (2001)

- Thesis: *Discrimination of foraging paths produced by different search tactics*
- Advisor: Dr. Richard E. Strauss

B.S., Biology, Angelo State University (1999)

- Research: *Home range of the nine-banded armadillo, Dasypus novemcinctus, in the Concho Valley of Texas*
- Advisor: Dr. Robert C. Dowler

PROFESSIONAL EMPLOYMENT

Tarleton State University

- Assistant Professor (2005 - present)

South Plains College

- Instructor of Zoology (2004 - 2005)

Texas Tech University

- Teaching Assistant (2000 – 2005)
- Instructor (Summer 2002, Summer 2003)
- Research Assistant (2001, 2004, 2005)

Angelo State University

- Peer Tutor (1999)

ACADEMIC AWARDS AND PROFESSIONAL HONORS

2007- Selected to be a faculty mentor for Tarleton's Faculty Partner Program

- The overall goal of this program is to encourage meaningful partnerships with students to assist in successful student transition and persistence to graduate.

2003- Selected to be a graduate mentor for a McNair scholar

- The McNair Program is designed to prepare first-generation students for doctoral studies through involvement in research and other scholarly activities.

2003- Selected to be a Teaching Effectiveness And Career eHancement (TEACH) fellow

- The TEACH program assists graduate students in further developing their teaching skills and exploring faculty roles in academia.

2002- Inducted into The Honor Society of Phi Kappa Phi

- The Honor Society of Phi Kappa Phi is a 104-year-old organization whose mission is to recognize and promote academic excellence in all fields of higher education.

TEACHING EXPERIENCE (TARLETON STATE UNIVERSITY)

Ecology and Evolution (BIOL 353 - writing intensive course)

- Fall 2008 (1 section, 19 students)
- Spring 2009 (1 section, 34 students)
- Fall 2009 (1 section, 25 students)
- Spring 2010 (1 section, 36 students)

General Biology I (BIOL 120)

- Fall 2005 (2 sections, 304 students)
- Summer 2006 (1 section, 30 students)
- Fall 2006 (2 sections, 298 students)
- Summer 2007 (1 section, 31 students)
- Fall 2007 (2 sections, 284 students)
- Summer 2008 (1 section, 43 students)
- Fall 2008 (2 sections, 228 students)
- Spring 2009 (1 section, 126 students)
- Summer 2009 (1 section, 28 students)
- Fall 2009 (2 sections, 283 students)
- Spring 2010 (1 section, 125 students)

General Biology II (BIOL 121)

- Spring 2006 (2 sections, 185 students)
- Spring 2007 (2 sections, 192 students)
- Spring 2008 (2 sections, 173 students)

Ichthyology (BIOL 462)

- Spring 2006 (1 section, 5 students)
- Spring 2005 (1 section, 18 students)
- Spring 2008 (1 section, 8 students)
- Spring 2009 (1 section, 17 students)
- Spring 2010 (1 section, 13 students)

Research Design and Analysis (BIOL 598)

- Fall 2005 (1 section, 10 students)
- Fall 2006 (1 section, 11 students)
- Fall 2007 (1 section, 14 students)
- Fall 2008 (1 section, 14 students)
- Fall 2009 (1 section, 18 students)

TEACHING EXPERIENCE (SOUTH PLAINS COLLEGE)

General Zoology (BIOL 1204, lecture)

- Fall 2004 (2 sections, 64 students)
- Spring 2005 (2 sections, 56 students)

General Zoology (BIOL 1204, lab)

- Fall 2004 (2 sections, 64 students)
- Summer 2005 (2 sections, 56 students)

TEACHING EXPERIENCE (TEXAS TECH UNIVERSITY)

Environmental Problems (BIOL 1113, lab)

- Spring 2003 (2 sections, 62 students)
- Fall 2003 (3 sections, 87 students)
- Fall 2004 (3 sections, 92 students)

Biology of Animals (BIOL 1402, lecture)

- Summer 2002 (1 section, 32 students)
- Summer 2003 (1 section, 32 students)

Biology of Animals (BIOL 1402, lab)

- Spring 2001 (3 sections, 96 students)
- Fall 2001 (3 sections, 94 students)
- Spring 2002 (3 sections, 92 students)
- Fall 2002 (3 sections, 89 students)
- Summer 2003 (1 section, 32 students)

Human Anatomy (ZOOL 2403, lab)

- Summer 2001 (2 sections, 64 students)

Comparative Invertebrate Zoology (ZOOL 3406, lab)

- Spring 2003 (1 section, 32 students)
- Spring 2004 (1 section, 32 students)
- Spring 2005 (1 section, 32 students)

Introduction to Ichthyology (ZOOL 4410, lab)

- Spring 2004 (1 section, 14 students)
- Spring 2005 (1 section, 12 students)

REFEREED ARTICLES

Presley, S.J., C.L. Higgins, and M.R. Willig. [in press]. Toward a comprehensive framework for the evaluation of metacommunity structure. *Oikos*.

Higgins, C.L. 2010. Patterns of functional and taxonomic organization of stream fishes: inferences based on α , β , and γ diversities. *Ecography* – online early.

- Higgins, C.L. 2009. Spatiotemporal variation in functional and taxonomic organization of stream-fish assemblages in central Texas. *Aquatic Ecology* 43: 1133-1141.
- Presley, S.J., C.L. Higgins, C. Lopez-Gonzalez, and R.D. Stevens. 2009. Elements of metacommunity structure of Paraguayan bats: multiple gradients require analysis of multiple axes. *Oecologia* 160: 781-793.
- Higgins, C.L. and R.E. Strauss. 2008. Modeling stream-fish assemblages with niche apportionment models: patterns, processes, and scale dependence. *Transactions of the American Fisheries Society* 137: 696-706.
- Willig, M.R., C.P. Bloch, N. Brokaw, C.L. Higgins, J. Thompson, and C.R. Zimmermann. 2007. Cross-scale responses of biodiversity to hurricane and anthropogenic disturbance in a tropical forest. *Ecosystems* 10: 824-838.
- Bloch, C.P., C.L. Higgins, and M.R. Willig. 2007. Effects of large-scale disturbance on community structure: temporal trends in nestedness. *Oikos* 116: 395-406.
- Higgins, C.L., M.R. Willig, and R.E. Strauss. 2006. The role of stochastic processes in producing nested patterns of species distributions. *Oikos* 114: 159-167.
- Chizinski, C.J., C.L. Higgins, C.E. Shavlik, K.L. Pope. 2006. Multiple hypotheses testing of fish incidence patterns in an urbanized ecosystem. *Aquatic Ecology* 40: 97-109.
- Higgins, C.L., and G.R. Wilde. 2005. The role of salinity in structuring fish assemblages in a prairie stream system. *Hydrobiologia* 549: 197-203.
- Smith, C.D., C.L. Higgins, G.R. Wilde, and R.E. Strauss. 2005. Development of a morphological index of the nutritional status of juvenile largemouth bass. *Transactions of the American Fisheries Society* 134: 120-125.
- Higgins, C.L. and R.E. Strauss. 2004. Discrimination and classification of search paths produced by different search-tactic models. *Behavioral Ecology* 15: 248-254.

MANUSCRIPTS IN REVIEW

- Presley, S.J., M.R. Willig, C.P. Bloch, I. Castro-Arellano, C.L. Higgins, and B.T. Klingbeil. Integrating species abundances into analyses of metacommunity structure: terrestrial gastropods along a tropical elevational gradient. *Ecology*.

MANUSCRIPTS IN PREPERATION

- Bloch, C.P., C.L. Higgins, and M.R. Willig. Temporal dynamics in hierarchical partitioning of gastropod diversity during recovery from large-scale disturbances. *Oikos*.
- Lopez-Gonzalez, C., S.J. Presley, A. Lozano, R.D. Stevens, and C.L. Higgins. Metacommunity structure of Mexican bats: a test of contemporary paradigms in an area of high geographic and environmental complexity. *Ecography*.

PUBLISHED ABSTRACTS

Higgins, C.L., P.J. Butler, and R.E. Strauss. 2000. Discrimination of foraging paths produced by different search models. *American Zoologist* 40: 1055-1056.

INVITED SEMINARS AND WORKSHOPS

Higgins, C.L. 2009. The effects of hurricanes on biodiversity in the Caribbean National Forest, Puerto Rico. Texas Bioscience Institute. Temple, TX

Higgins, C.L. 2006. Incorporating Research Experiences into the Curriculum. Tarleton State University. Stephenville, TX

INVITED SYMPOSIA

Higgins, C.L., R.E. Strauss, and G.R. Wilde. 2004. I survived and was released: my journey back home. Symposium titled "I Survived: A Fish's-Eye View in Black Bass Fishing Competitions." American Fisheries Society. Madison, WI

PRESENTATIONS (STUDENT AUTHORS ARE UNDERLINED)

Munz, J.Y. and C.L. Higgins. 2009. Comparative analysis of biotic integrity between the Bosque and Paluxy. Tarleton State University Student Research Symposium. Stephenville, TX

Blalack, E.A. and C.L. Higgins. 2009. Partitioning biodiversity of stream-fish assemblages in central Texas. Tarleton State University Student Research Symposium. Stephenville, TX

Bloch, C.P., C.L. Higgins, and M.R. Willig. 2009. Long-term trends in spatial partitioning of biodiversity: considerations of disturbance and recovery. Long Term Ecological Research Network All Scientist Meeting. Estes park, CO

Higgins, C.L., C.P. Bloch, and M.R. Willig. 2008. Temporal changes and the effects of disturbance on the partitioning of biodiversity of terrestrial gastropods at various spatial scales. Ecological Society of America. Milwaukee, WI

Barmore, A.M. and C.L. Higgins. 2007. Habitat selection in blacktail shiners. Texas A&M University System Pathways Student Research Symposium. Stephenville, TX

Higgins, C.L. 2006. Modeling stream-fish assemblages with niche apportionment models: patterns, processes, and scale dependence. Ecological Society of America. Memphis, TN

Higgins, C.L. 2006. Spatiotemporal variation in fish assemblages based on species composition and functional groups. Southern Division of the American Fisheries Society. San Antonio, TX

Chizinski, C.J., C.L. Higgins, and K.L. Pope. 2005. Fish communities in urban settings: multiple hypotheses testing of fish incidence patterns. Texas Chapter of the American Fisheries Society. Grapevine, TX

- Chizinski, C.J., C.L. Higgins, C.E. Shavlik, and K.L. Pope. 2004. Multiple hypotheses testing of fish incidence patterns in an urbanized ecosystem. American Fisheries Society. Madison, WI
- Higgins, C.L. and G.R. Wilde. 2003. The role of salinity in structuring stream-fish assemblages in a prairie stream system. TTUAB Graduate Forum. Lubbock, TX
- Higgins, C.L. and R.E. Strauss. 2001. Effects of temperature and diet on the timing of ossification in the livebearing fishes *Xiphophorus helleri* and *X. maculatus* (Poeciliidae). Society for the Study of Evolution. Knoxville, TN
- Higgins, C.L., P.J. Butler, and R.E. Strauss. 2001. Discrimination of foraging paths produced by different search models. Society for Integrative and Comparative Biology. Chicago, IL
- Morris-Olson, L., M.A. Houck, C.L. Higgins, and G. de Grande. 2000. Honeybee wing morphology: multivariate discrimination of thelytokous populations. Entomological Society of America. Montreal-Quebec, Canada
- Higgins, C.L., O. Konu, and R.E. Strauss. 2000. Discrimination of foraging paths produces by different search tactics. Animal Behavior Society. Atlanta, GA
- Higgins, C.L. and J. Powers. 1998. Home range of the nine-banded armadillo, *Dasypus novemcinctus*, in the Concho Valley of Texas. Angelo State University. San Angelo, TX

PROFESSIONAL DEVELOPMENT ACTIVITIES ATTENDED

2010. 113th Annual Meeting. Texas Academy of Sciences. Stephenville, TX
2009. Beginning a Research Program in the Natural Sciences at a Predominantly Undergraduate Institution. Council of Undergraduate Research. Grand Rapids, MI
2008. 93rd Annual Meeting. Ecological Society of America. Milwaukee, WI
2007. 54th Annual Meeting. Southwestern Association of Naturalists. Stephenville, TX
2006. 91st Annual Meeting. Ecological Society of America. Memphis, TN
2006. 11th National Conference. Council of Undergraduate Research. Greencastle, IN
2006. 14th Annual Meeting. Southern Division of the American Fisheries Society. San Antonio, TX

GRANTS AND FUNDING RECEIVED (TOTAL = \$38,372)

- Higgins, C.L. 2009. The role of acoustic communication in shoal formation in fishes. \$15,535 from Tarleton State University, Organized Research Grant.
- Higgins, C.L. 2006. Habitat selection in stream-dwelling cyprinids: combining experimental and observational approaches. \$16,437 from Tarleton State University, Organized Research Grant.

Higgins, C.L. 2004. Functional groups in stream fishes: spatiotemporal variation, ontogenetic change, and patterns of diversity. \$2,000 from Texas Tech University, Graduate School.

Higgins, C.L. 2001. Evolutionary significance of growth rates among five species from the family Poeciliidae. \$2,000 from Texas Tech University, Department of Biological Sciences.

Higgins, C.L. 2000. Discrimination and classification of search paths produced by different search-tactic models. \$2,400 from Texas Tech University, Department of Biological Sciences.

PENDING GRANTS (TOTAL = \$0)

None

GRANTS AND FUNDING NOT RECEIVED (TOTAL = \$2,237,721)

Higgins, C.L. (PI). CAREER: The role of acoustic communication in ecological interactions among freshwater fishes: engaging undergraduate students throughout the scientific process. Submitted to National Science Foundation's Faculty Early Career Development Program. Amount requested \$655,425.

Higgins, C.L. (PI). CAREER: The role stream fishes play in ecosystem processes: an integration of research and education. Submitted to National Science Foundation's Faculty Early Career Development Program. Amount requested \$857,886.

Burk, J. (PI); C.L. Higgins (supporting faculty). NOYCE: Tarleton TMATE Stipends for Science Teachers. Submitted to National Science Foundation's Robert Noyce Scholarship Program. Amount requested \$706,077.

Higgins, C.L. (PI). Habitat fragmentation and species-area relationships for terrestrial gastropods of Puerto Rico. Submitted to Tarleton State University's Organized Research Grant. Amount requested \$18,333.

CURRENT GRADUATE STUDENTS

Jeremy Munz – Effects of water quality on acoustic communication in re shiner

Karla Stone – Reproductive ecology of fishes in the Paluxy River

CURRENT UNDERGRADUATE STUDENTS

Crystal Ibarra – Geographic distributions of North American freshwater fishes

Christian Perez – Sound production in bluegill sunfish

Caitlin Pyle – Sound production in blacktail shiner

PREVIOUS STUDENTS

Jeremy Munz (2009) - Comparative analysis of biological integrity between the Bosque and Paluxy Rivers (undergraduate)

Emily Blalack (2009) - Partitioning biodiversity of stream-fish assemblages in central Texas (undergraduate)

Melissa Edwards (2009) - Using mark-recapture data to generate population growth models (undergraduate)

Amanda Barmore (2007) - Habitat selection in blacktail shiners (graduate)

Shy Eisenbach (2007) – Current preferences in blacktail shiner (undergraduate)

PROFESSIONAL MEMBERSHIPS

American Fisheries Society

Ecological Society of America

Southwestern Association of Naturalists

Texas Chapter of the American Fisheries Society

SERVICE AS REVIEWER (MULTIPLE TIMES FOR MANY JOURNALS)

American Naturalist

Behavioral Ecology

European Journal of Operational Research

Naturwissenschaften

North American Journal of Fisheries Management

Oecologia

Oikos

Southwest Association of Naturalist

Texas Journal of Science

Transactions of the American Fisheries Society

US Geological Survey, Cooperative Research Units

UNIVERSITY SERVICE

Academic Appeals Committee – (2006 - present)

COST Curriculum Committee – (2007 – 2009)

Event Coordinator for Science Olympiad – (2006 - present)

Edit Review Committee – (2008 - 2009)
Faculty Achievement Grants Committee – (2008 – 2009)
Faculty Development Leave Committee – (2008 – 2009)
Faculty Mentor for Faculty Partner Program – (2007 - 2009)
Faculty Senate – (2008 – present)
General Education Advisory Council (2009 – present)
Speaker Symposium Committee – (2007 – 2009)
Task Force for the College Readiness Initiative – (2008 – present)
Task Force for Diversity Within the Curriculum – (2007 – 2009)
University Curriculum Committee - (2007 – 2009)

PROFESSIONAL SERVICE

Annual Meeting Committee - Southwestern Association of Naturalists (2007)
Judge for San Antonio Agriscience Fair (2008 – 2009)
Judge for Texas Academy of Science Student Proposal Competition (2010)

GRADUATE STUDENT COMMITTEES

Jeremy Munz (present) – Biological Sciences (chair)
Karla Stone (present) – Biological Sciences (chair)
Andrew Fehler (present) – Biological Sciences
Kelly Freeman (present) – Biological Sciences
Ashley Hyatt (present) – Biological Sciences
David Davis (2010) – Biological Sciences
Amanda Barmore (2009) – Biological Sciences (chair)
Melina Lopez (2009) – Environmental Sciences
Dustin McBride (2009) – Animal Sciences