

CHAD WESLEY HARGRAVE
Curriculum Vitae

Department of Biological Sciences
Sam Houston State University
Huntsville, Texas 77341

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EDUCATION

Ph.D. Zoology University of Oklahoma, Norman, OK. May 2005

Advisor: William Matthews

DISSERTATION: Effects of Fish Density, Identity, and Diversity on Stream Ecosystems.

M.S. Zoology University of Oklahoma, Norman, OK. May 2000

Advisor: William Matthews

THESIS: Spatial and Temporal Variation in Fish Assemblages of the Upper Red River After a Summer Drought.

B.S. Biology *Cum Laude* University of Arkansas, Fayetteville, AR. May 1998

Honors Thesis Advisor: James Johnson

THESIS: Status of the Arkansas Darter (*Etheostoma cragini*) and Least Darter (*Etheostoma microperca*) in Arkansas.

EMPLOYMENT

Associate Professor & Departmental Chair, Department of Biological Sciences, Sam Houston State University, Huntsville, TX. 2012-Present.

Assistant Professor, Department of Biological Sciences, Sam Houston State University, Huntsville, TX. 2006-2012.

Post-Doctoral Research Fellow, University of Oklahoma Biological Station, Kingston, OK. 2005- 2006.

Graduate Research Assistant, Sam Noble Museum of Natural History, Norman, OK. 2004-2005.

Graduate Curatorial Assistant, Sam Noble Oklahoma Museum of Natural History, Norman, OK. 2003-2004.

Graduate Research Assistant, Department of Zoology, University of Oklahoma, Norman, OK 2002-2003.

Graduate Teaching Assistant Department of Zoology, University of Oklahoma, Norman, OK. 1998-2002.

Biological Technician, U.S. Forest Service, Ozark Ranger District, Ozark, AR
1997-1998.

TEACHING EXPERIENCE

Sam Houston State University:

General Ecology & Lab (BIO340); fall, spring 2006-2012; ~75 students/class
Limnology (BIOL5390); spring 2012; ~10 students
Fish Ecology (BIO595); fall 2010; ~6 students
Community Ecology (BIO595); spring 2010; ~9 students
Ichthyology (BIO582); fall 2009; fall 2011; ~9 students/class
Experimental Design (BIO595); spring 2009, 2011; ~20/10 students
Aquatic Biology (BIO433); spring 2007; ~20 students
Environmental Science (BIO137); fall 2006; ~60 students

University of Oklahoma Biological Station:

Reservoir Fish Ecology (ZOO4970/5970); summer 2005-2006; ~16 students/class

RESEARCH INTERESTS

Fish Ecology
Endangered Fish Conservation
Ecosystem, Community, and Population Ecology
Human impacts on Aquatic Ecosystem Structure and Functions
Effects of Climate Change on Aquatic Ecosystems

RESEARCH GRANTS, CONTRACTS AND FELLOWSHIPS

14. Sam Houston State University Competitive Intramural Research, 2012-2013
Amount: \$15,000
Title: *Effects of Elevated Atmospheric CO₂ on Stream Ecosystems*
PI: Chad Hargrave
13. United States Bureau of Reclamation, 2010-2013
Amount: 150,000
Title: *Conservation of Fish Species in Phantom Spring Lake*
PI: Chad Hargrave
12. United States Department of Agriculture, Sustainable Agriculture Water Conservation, Rio Grande Basin Initiative, 2010-2011
Amount: 49,800
Title: *Aquatic Habitat Quality in the Trans Pecos (Big Bend) Ecoregion, Southwest Texas.*
PI: Chad Hargrave

11. Texas Parks and Wildlife Department, 2010-2011
Amount: \$23,884
Title: *Long-term monitoring of the Endangered Pecos Gambusia and Commanche Springs Pupfish.*
PI: Chad Hargrave, Co-PI: P. Raelynn Deaton
10. U.S. Fish and Wildlife Service & Texas Parks and Wildlife Department, 2009-2010
Amount: \$28,000
Title: *Ecosystem-level Conservation of the Endangered Pecos Gambusia and Commanche Springs Pupfish.*
PI: Chad Hargrave, Co-PI: P. Raelynn Deaton
9. United States Department of Agriculture, Sustainable Agriculture Water Conservation Research, 2009-2011
Amount: \$50,376
Title: *Local processes driving fish assemblages in the Rio Grande Basin*
PI: Chad Hargrave
8. Texas Parks and Wildlife Department, 2008-2009
Amount: \$2,200
Title: *Baseline Data: Ecosystem-level Conservation of the Endangered Pecos Gambusia and Commanche Springs Pupfish.*
PI: Chad Hargrave, Co-PI: P. Raelynn Deaton
7. Big Thicket Association, 2008-2010
Amount: \$15,330
Title: *Local, Regional, and Temporal Drivers of Fish Communities in the Big Thicket National Preserve*
PI: Chad Hargrave
6. Sam Houston State University Competitive Intramural Research, 2007-2008
Amount: \$5,000
Title: *Effects of Elevated Atmospheric CO₂ on Stream Ecosystems*
PI: Chad Hargrave
5. National Science Foundation, Doctoral Dissertation Improvement Grant, 2003-2004
Amount: \$6,980
Title: *A Mechanistic Test of Consumer-Mediated Regulation of Primary Production*
PI: William J. Matthews (advisor), Co-PI: Chad Hargrave
4. McCarley Student Research, Southwestern Association of Naturalists, 2003-2004
Amount: \$1,000
Title: *A Mechanistic Test of Consumer-Mediated Regulation of Primary Production*
PI: Chad Hargrave
3. University of Oklahoma Competitive Intramural Research, 2002-2003
Amount: \$6,975
Title: *Effects of Fish Species Richness on stream ecosystems*
PI: Chad Hargrave
2. Sam Noble Oklahoma Museum of Natural History Hoving Ph.D. Fellowship, 2001-2005
Amount: \$10,000

Title: *Effects of Fish Density, Identity and Diversity on Stream Ecosystems*

PI: Chad Hargrave

1. University of Arkansas Competitive Intramural Research, 1997-1998

Amount: \$500

Title *Status of the Arkansas Darter and Least Darter in Arkansas*

PI: Chad Hargrave

Total Research Funding \$360,545

GRADUATE STUDENTS

Kaitlen P. Gary (MS – 2012 Graduation)

Kelbi Delaune (MS – 2014 Graduation)

UNDERGRADUATE RESEARCH STUDENTS

Jessica McWilliams (2011 – Present); Krytal Ramsey (2011 – Present); Nkenna Odom (2011 – Present); Ashley Sequiera (2011 – Present); Chad Cambell (2010 - 2011); Kelbi Deluane (2010 - 2011); Heather Otell (2009- 2010); Assumpta Nwaneri (REU 2010); Jessica Sanchez (2009 - 2010); Ivy McClellan (REU 2009), Samir K. Rosado (2008- 2009); Laura A. Gaides (2008- 2009); Kaitlen Gary (2007-2008); Landis Shoemaker (2006-2008); Andrea Heim (REU (2008); Samuel Hammontree (2006-2008); Hanna Turner (REU 2007)

PEER-REVIEWED PUBLICATIONS

† indicates undergraduate in my lab when submitted.

15. Chad W. Hargrave, K. David Hambright, and Lawrence J. Weider. 2011. Variation in resource consumption across a gradient of increasing intra- and inter-specific richness. *Ecology*, 92:1226-1235.
14. Chad W. Hargrave, Samuel Hamontree†, and Kaitlen P. Gary. 2010. Direct and indirect food web regulation of microbial decomposers in headwater streams. *Oikos*, 119:1785-1795.
13. Chad W. Hargrave and Christopher M. Taylor. 2010. Spatial and temporal variation in fishes of the upper Red River drainage (Oklahoma-Texas). *The Southwestern Naturalist*, 55:149-159
12. Chad W. Hargrave, Kaitlen P. Gary†, Samir K. Rosado†. 2009. Potential effects of elevated atmospheric carbon dioxide on benthic autotrophs and consumers in stream ecosystems: a test using experimental stream mesocosms. *Global Change Biology*, 15:2779-2790
11. Keith B. Gido and Chad W. Hargrave. 2009. Fish, Productivity. In Gene E. Likens (Ed.). *Encyclopedia of Inland Waters*, vol. 3, pp. 473-481 Oxford: Elsevier.
10. Chad W. Hargrave. 2009. Effects of fish species richness and assemblage composition on stream ecosystem function. *Ecology of Freshwater Fish* 18:24-32.

9. Chad W. Hargrave. 2006. A test of three alternative pathways for consumer regulation of primary productivity. *Oecologia* 149:123-132.
8. Chad W. Hargrave, Raul Ramirez, Melody Brooks, Michael A. Eggleton, Katherine Sutherland, Raelynn Deaton, and Heather Galbraith. 2006. Indirect food web interactions increase growth of an algivorous stream fish. *Freshwater Biology* 51:1901-1910.
7. Chad W. Hargrave, Katherine Sutherland, Edie Marsh-Matthews, and William J. Matthews. 2005. Multiple interacting factors affect pH in museum storage fluids. *Collection Forum* 19:23-31.
6. Michael A. Eggleton, Raul Ramirez, Chad W. Hargrave, Keith B. Gido, Jason R. Masoner, Gary D. Schnell, William J. Matthews. 2005. Predictability of littoral-zone fish communities through ontogeny in Lake Texoma, Oklahoma-Texas, USA. *Environmental Biology of Fishes* 73:21-36.
5. Chad W. Hargrave and Keith B. Gido. 2004. Evidence of reproduction by exotic grass carp in the Red and Washita Rivers (Oklahoma). *Southwestern Naturalist* 49:89-93.
4. Chad W. Hargrave and James E. Johnson. 2003. Status of Arkansas darter, *Etheostoma cragini*, and least darter, *E. microperca*, in Arkansas. *Southwestern Naturalist* 48:89-92.
3. Keith B. Gido, Chad W. Hargrave, William J. Matthews, Gary D. Schnell, and Darrell W. Poque. 2002. Structure of littoral-zone fish assemblages along physical and chemical gradients in a southern reservoir: local versus system-wide effects. *Environmental Biology of Fishes* 63:253-263.
2. Kerri E. Pratt, Chad W. Hargrave, and Keith B. Gido. 2002. Rediscovery of *Labidesthes sicculus* (Atherinidae) in Lake Texoma (Oklahoma-Texas). *Southwestern Naturalist* 47:112-118.
1. Thomas M. Buchanan, Chad Hargrave, Drew Wilson, Les. G. Claybrook, and Phillip W. Penny, Jr. 1996. First Arkansas records for bigscale logperch, *Percina macrolepida* Stevenson (Pisces: Percidae), with comments on habitat preference and distinctive characters. *Proceedings of the Arkansas Academy of Science* 50:28-35.

ARTICLES IN REVIEW OR REVISION

1. Chad W. Hargrave and Kaitlen P. Gary. Regional, local and temporal drivers of fish species richness and assemblage composition in Gulf Coastal streams of the Big Thicket National Preserve, Texas, USA. *Environmental Biology of Fishes*.

INVITED SEMINARS

Department of Biology, University of Texas at Tyler, September 2011;

Hosted by: Dr. Lance Williams

Department of Biology, Trinity University, October 2010;

Hosted by: Dr. Kelly Lyons

Department of Biology, Texas State University, September 2009;

Hosted by: Dr. Michael Huston

Big Thicket Association, Big Thicket National Preserve, October 2009; Hosted by: Linda Brindle
Department of Earth and Environmental Sciences, University of New Orleans, November 2008;
Hosted by: Dr. Martin O'Connell
Department of Ecology and Evolutionary Biology, Rice University, October 2007; Hosted by:
Dr. Jennifer Rutgers
Department of Biological Sciences, University of Southern Mississippi, November 2006;
Hosted by: Dr. Jacob Schaefer
Department of Wildlife and Fisheries Sciences, Texas A & M University, May 2006
Hosted by: Dr. Gil Rosenthal
Department of Zoology, University of Oklahoma, May 2004
Hosted by: Dr. Bill Matthews - Ph.D. Seminar

ORAL PRESENTATIONS

First Authored Only:

21. Local, regional and temporal processes affecting fish communities in Big Thicket Streams.
At: Texas Academy of Science, 2012
20. A preliminary analysis of potential hybridization between endangered *Gambusia nobilis* and invasive *G. geiseri* in a reconstructed desert wetland, San Somon cienega, Balmorhea State Park, TX.
At: Texas Invasive Plant and Pest Conference, 2011.
19. Population dynamics, food web interactions and possible ecosystem management options for the endangered *Gambusia nobilis* and *Cyprinodon elegans* in San Solomon Ciénega, Balmorhea State Park, Texas
At: Rio Grande Fishes Recovery Meeting, 2011
18. Local, regional and temporal processes affecting fish communities in Big Thicket Streams.
At: Big Thicket Science Conference, 2011
17. Potential hybridization between invasive *Gambusia geiseri* and endangered *Gambusia nobilis*.
At: Desert Fishes Council, 2010
16. Interactive effects of stream habitat complexity and consumers on stream ecosystem function (Invited).
At: North American Benthological Society, 2010
15. Regional patterns in environment and fishes of the Rio Grande Basin, Texas (Invited)
At: Rio Grande Basin Initiative, 2010
14. On the Population and Community Ecology of Fishes in a small Second-order Stream Ecosystem.
At: Texas Academy of Science, 2009; Southwestern Association of Naturalists, 2009
13. Regional and Local variation in fishes of the Big Thicket National Preserve, Texas.
At: OK-TX Aquatics Research Group and Great Plains Limnology Conference, 2008
12. Mosquitofish ecology and a changing climate: the current and future ecological role of the *Gambusia affinis* in temperate streams.

- At: 3rd European Poeciliid Biologists Conference, 2008
11. Global warming affects nutrient dynamics in small second order stream ecosystems;
At: Texas Academy of Sciences, 2008; Southwestern Association of Naturalists, 2008
 10. Trophic and Functional effects of fishes in first- and second order perennial streams.
At: Southwestern Association of naturalists, 2007.
 9. Effects of Genetic Diversity on Ecosystem Function: Grazing Rates in Clonal and Non-Clonal *Daphnia* assemblages.
At: Southwestern Association of Naturalists, 2006; American Society of Limnology and Oceanography, 2006.
 8. Interactive consumer effects on ecosystem properties and functions
At: Joint meeting of the Oklahoma-Texas Aquatics Research Group and Texas River and Reservoir Management Society, 2005.
 7. Fish effects on stream ecosystems: a mechanistic test
At: North American Benthological Society, 2005; Southwestern Association of Naturalists, 2005.
 6. Fish diversity enhances ecosystem function.
At: North American Benthological Society, 2003; Texas A&M Conservation Ecology Symposium, 2004.
 5. Evidence of natural grass carp reproduction in the Red and Washita rivers (Oklahoma).
At: American Fisheries Society, Oklahoma Chapter Annual Meeting, 2003.
 4. Effects of fishes on stream ecosystem function.
At: Southwestern Association of Naturalists, 2002; Great Plains Limnology Conference, 2002.
 3. Persistence and stability of fishes in a harsh prairie river system (upper Red River): Effects of scale.
At: North American Benthological Society - Invited landscape ecology session, 2000; Oklahoma Academy of Science, 2002; Southwestern Association of Naturalists, 2000.
 2. Rediscovery of *Labidesthes sicculus* (Atherinidae) in Lake Texoma (Oklahoma-Texas).
At: Great Plains Limnology conference, 2000.
 1. Current Status of Arkansas Darter (*Etheostoma cragini*) and Least Darter (*E. microperca*) in Arkansas.
At: Arkansas Academy of Science, 1998; Great Plains Limnology conference, 1998; Oklahoma Academy of Science, 1998.

Oral Presentations by students working in my lab at SHSU:

18. Population dynamics, Food Web Structure and Potential Community-level interactions in a reconstructed desert wetland, San Solomon Cienega, Balmorhea State Park, Texas;
At: Texas Academy of Science, 2012;
Presenter: Ashley Sequeria - Undergraduate
17. Potential hybridization between endangered *Gambusia nobilis* and invasive *G. geiseri* in a reconstructed desert wetland;

- At: Texas Academy of Science, 2012;
Presenter: Kelbi Delaune - Graduate
16. Comparison of metabolic scope between the invasive *Gambusia geiseri* and endangered *G. nobilis*: potential importance of flow for endangered species management
At: Texas Academy of Science, 2012;
Presenter: Krystal Ramsey - Undergraduate
15. Thermal minimum and maximum for three species of temperate *Gambusia*.
At: Texas Academy of Science, 2012;
Presenter: Nkenna Odom - Undergraduate
14. Population dynamics and possible competition between the endangered *Gambusia nobilis* and invasive *Gambusia geiseri*, San Solomon Ciénega, Balmorhea State Park, Texas
At: Texas Invasive Pest and Plant Conference, 2011;
Presenter: Kelbi Delaune - Graduate
13. How riparian protection can affect ecosystem structure and function in streams.
At: Big Thicket Science Conference, 2011;
Presenter: Katilen Gary - Graduate
12. Gut contents, diet overlap and potential competitive interactions among fishes in a reconstructed desert wetland: implications for endangered species conservation
At: Desert Fishes Council, 2010;
Presenter: Sam Hamontree - Graduate
11. Population dynamics of *Cyprinodon elegans* and *Gambusia nobilis* in two reconstructed desert wetlands.
At: Desert Fishes Council, 2010;
Presenter: Kelbi Delaune - Undergraduate
10. Population and community ecology of in San Solomon Cienega at Balmorhea State Park, Texas.
At: Texas Academy of Science, 2010;
Presenter: Kelbi Delaune - Undergraduate
9. Preliminary analysis of critical current speed between *Gambusia nobilis* and *G. geisier* in Balmorhea State Park, TX.
At: Texas Academy of Science, 2010;
Presenter: Sam Hamontree - Graduate
8. Regional and Local variation in fishes of the Big Thicket National Preserve, Texas.
At: Texas Academy of Science, 2009; Southwestern Association of Naturalists, 2009;
Presenter: Katilen Gary - undergraduate
7. A context-dependent trophic cascade in a simple stream food web.
At: OK-TX Aquatics Research Group and Great Plains Limnology Conference, 2008;
Texas Academy of Science, 2009; Southwestern Association of Naturalists, 2009;
Presenter: Landis Shoemaker - Undergraduate
6. Fish mediated secondary production in stream ecosystems.

- At: OK-TX Aquatics Research Group and Great Plains Limnology Conference, 2008;
Texas Academy of Science, 2009; Southwestern Association of Naturalists, 2008;
Presenter: Laura Gadis - Undergraduate
5. Effects of elevated CO₂ on stream ecosystem properties and functions.
At: Texas Academy of Science 2008, Southwestern Association of Naturalists, 2008;
Presenter: Kaitlen Gary – Undergraduate, Samir Rosado - Undergraduate
 4. Direct and indirect effects of fish on leaf litter decomposition;
At: Texas Academy of Sciences, 2008; Southwestern Association of Naturalists, 2008;
Presenter: Sam Hamontree - Undergraduate
 3. Predator-induced phenotypic plasticity in the western mosquitofish (*Gambusia affinis*).
At: 3rd European Poeciliid Biologists Conference, 2008; Southwestern Association of Naturalists, 2008;
Presenter: Samir Rosado - Undergraduate
 2. A simple solution to a complex problem: a hypothesis based hierarchical approach for teaching general concepts in an ecology lab.
At: Texas Academy of Sciences, 2008; Southwestern Association of Naturalists, 2008;
Presenter: Chris Felder - Undergraduate
 1. Taxon-specific effects of microbial-mediated leaf litter decomposition in aquatic ecosystems.
At: Texas Academy of Sciences, 2008; Southwestern Association of Naturalists, 2008;
Presenter: Landis Shoemaker - Undergraduate

AWARDS

Best Graduate Student Paper, Conservation Ecology Symposium, Texas A & M 2004
Wilk's Award, Best Student Paper, Southwestern Association of Naturalists 2002
James Thompson Award, Excellence in Graduate Teaching 2000
2nd Place, best Undergraduate Paper, Arkansas Academy of Science 1998
Samuel Dillenger Award: Outstanding Senior Zoologist, University of Arkansas 1998
Scholar Preceptor Program, University of Arkansas Fort Smith 1995
Outstanding Achievement in Biology, University of Arkansas Fort Smith 1995

PROFESSIONAL SOCIETIES

Ecological Society of America
North American Benthological Society
Oklahoma-Texas Aquatic Research Group
Organization of Biological Field Stations
Southwestern Association of Naturalists
Texas Academy of Science

SERVICE

Manuscripts reviewed for:

American Midland Naturalist
Journal Fisheries and Aquatic Sciences
Ecology (5)
Ecology of Freshwater Fish (9)
Evolutionary Ecology
Freshwater Biology (2)
Hydrobiologia (2)
Great Plains Research
Copeia

Journal of Comparative Parasitology
Canadian Lakes and Reservoirs Research and Management
North American Journal of Fisheries
Management
Oecologia (5)
Oikos (4)
Southwestern Association of Naturalists (7)
Transactions of the American Fisheries Society (3)

Grants reviewed for:

National Science Foundation
Southwestern Association of Naturalists (student grants)

Committees:

Departmental-level:

Departmental Events (Chair; 2011 – present)
Distance Learning (Chair; 2010 – present)
Environmental Science Program (2010 – present)
Department Merit Review (2010, 2011),
Departmental Budget (2008– present),
Graduate Selections (2006 – 08),
Seminar Committee (Chair; 2007 – 2009, 2009 - Present),
Center for Biological Field Studies (2006 – present),
Student Research Award (2008 – present).

University-level:

SHSU Faculty Senate (2009-2012),
SHSU Faculty Research Council (2008-2011),
SHSU Capital Fund Campaign (2006-2009).

Elected Positions:

Science Committee for the Big Thicket National Preserve (2010 - Present)
Vice President, Executive Council, Big Thicket Association (2010 - 2013)
Executive Council, Huntsville Senior Citizen Center (2010 - 2013)
Board of Governors Southwestern Association of Naturalists (2006-2009).

Public Outreach:

Public Presentation, Fishes of the Big Thicket Ecoregion, Big Thicket Association, July 2011

Public Presentation Understanding Human-Related Impacts to Aquatic Ecosystems in Texas,
Big Thicket Association, Beaumont, TX, July 2011

Fish collecting trip on Neches River, Big Thicket Association, April 2010

Fishes of the Big Thicket National Preserve, Identification Workshop, Big Thicket Association,
October 2009

Public Presentation, Bats of Texas, Huntsville Down-town Association and Rotary Club
2007.

Co-host, Joint meeting of the Oklahoma Texas Aquatic Research Group and Texas Rivers and
Reservoir Management Society, University of Oklahoma Biological Station 2005.

Public Outreach Specialist, University of Oklahoma Biological Station 2005-2006

Public presentation on Ecology of Lake Texoma, West End Association (2005, 2006, 2007).

Instructor for Science Institute for Secondary and Elementary School Teachers, Sam Noble
Oklahoma Museum of Natural History, 2004-2005.

Various presentations at elementary schools on fish diversity and functional ecology
2003 - present.