

CALEB D. McMAHAN, PHD

The Field Museum of Natural History
1400 S. Lake Shore Drive
Chicago, IL 60605 USA

Curriculum Vitae, 2015

cmcmah2@lsu.edu

Education:

Ph.D., Systematics, Ecology, and Evolution (2015), Louisiana State University; Advisor: Dr. Prosanta Chakrabarty

Dissertation: "Diversification and Biogeography of Neotropical Cichlids"

M.S., Biological Sciences (2010), Southeastern Louisiana University; Advisor: Dr. Kyle Piller

Thesis: "Molecular Systematics of Middle American Fishes"

B.S., Biology [with honors] (2007), Erskine College; Advisor: Dr. Nora Espinoza

Research Training Program (2006), Smithsonian Inst. – National Museum of Natural History; Advisor: Dr. George Zug

Research Interests: Systematics and taxonomy, biogeography; Neotropical fishes

Awards & Achievements:

2015 Negaunee Research Grant – Change over time in Mexican fishes

2015 MCSF Award – fieldwork in Guatemala, Field Museum of Natural History

2014 Outstanding Graduate Student Award, LSU Museum of Natural Science

2014 Lerner-Gray Research Grant, American Museum of Natural History

2013 NSF Doctoral Dissertation Improvement Grant – DEB 1311408

2013 Finalist, Wilks Award – Southwest Association of Naturalists (SWAN meeting 2013)

2012 Stoye Award, American Society of Ichthyologists and Herpetologists, Annual meeting, Vancouver, Canada

2012 Collections Study Grant, The Field Museum, Chicago IL

2009 Lerner-Gray Research Grant, American Museum of Natural History

2009 Raney Research Grant, American Society of Ichthyologists and Herpetologists

2007 Ellison Biology Award, Erskine College

2007 1st place Field Biology research presentations (SCAS Annual Meeting 2007)

2007 Top Male Undergraduate Researcher in South Carolina (AAAS), SCAS Annual Meeting 2007

2006 Who's Who among American Colleges & Universities

2006 T.D. Brown Scholarship in Biology, Erskine College

2006 Research Training Program, Smithsonian NMNH (Advisor: Dr. George Zug)

2006 SC Wildlife Federation Scholarship

2005 Research grant from SC Independent Colleges & Universities (SCICU)

2005 T.D. Brown Scholarship in Biology, Erskine College

2004 βββ Award for Achievement in Freshman Biology

2003 2nd place Botany Research Award (SCAS annual meeting 2003)

2002 Research grant from the South Carolina Academy of Science (SCAS)

Publications:

* mentored undergraduate/research students

19. **McMAHAN, C.D.**, MATAMOROS, W.A., PILLER, K.R., & P. CHAKRABARTY. 2015. Taxonomy and systematics of the hericthyins (Cichlidae: Tribe Heroini), with the description of eight new Middle American Genera. *Zootaxa* 3999(2): 211-234.

18. **McMAHAN, C.D.**, FREEBORN, L.R., WHEELER, W.C., & B.I. CROTHER. *In Press*. Forked tongues revisited: molecular apomorphies support morphological hypotheses of squamate evolution. *Copeia*.

17. MATAMOROS, W.A., **McMAHAN, C.D.**, CHAKRABARTY, P., ALBERT, J., & SCHAEFER, J. 2015. Derivation of the freshwater fish fauna of Central America Revisited: Myers's hypothesis in the 21st Century. *Cladistics* 31(2): 177-188.
16. **McMAHAN, C.D.**, MATAMOROS, W.A., BARRAZA, E., KUTZ, J.*, & P. CHAKRABARTY. 2014. Taxonomic status of the Lago Coatepeque endemic convict cichlid *Amatitlania coatepeque* (Teleostei: Cichlidae). *Copeia* 4: 633-638.
15. MURRAY, C.M., **McMAHAN, C.D.**, DOBIE, J.L., GUYER, C. 2014. Cranial variation amongst independent lineages of the alligator snapping turtle (*Macrochelys temminckii*). *Journal of Zoological Systematics & Evolutionary Research* 52(4): 305-311.
14. BOHN, S., BARRAZA, E., **McMAHAN, C.**, MATAMOROS, W., & B. KREISER. 2013. Cross amplification of microsatellite loci developed for alligator gar (*Atractosteus spatula*) in tropical gar (*Atractosteus tropicus*). *Revista Mexicana de Biodiversidad* 84: 1349-1351.
13. **McMAHAN, C.D.**, SMITH, W.L., SPARKS, J.S., CHAKRABARTY, P., & M.P. DAVIS. 2013. Temporal patterns of diversification across global cichlid biodiversity (Acanthomorpha: Cichlidae). *PLoS ONE* 8(8): e71162.
12. CARSTENS, B.C., BRENNAN, R.S., CHUA, V., DUFFIE, C.V., HARVEY, M.G., KOCH, R.A., **McMAHAN, C.D.**, NELSON, B.J., NEWMAN, C.E., SATLER, J.D., SEEHOLZER, G., POSBIC, K., TANK, D.C., & J. SULLIVAN. 2013. Model selection as a tool for phylogeographic inference: An example from the willow *Salix melanopsis*. *Molecular Ecology* 22(15): 4014-4028.
11. MATAMOROS, W.A., CHAKRABARTY, P., ANGULO, A., GARITA-ALVARADO, C.A., & **C.D. McMAHAN**. 2013. A new species of *Roeboides* (Teleostei: Characidae) from Costa Rica and Panama, with a key to Middle American species of the genus. *Neotropical Ichthyology* 11(2): 285-290.
10. **McMAHAN, C.D.**, MATAMOROS, W.A., ALVAREZ CALDERON, F.S.*, HENRÍQUEZ, W.Y.*, RECINOS, H.M.*, CHAKRABARTY, P., BARRAZA, E., & N. HERRERA. 2013. Checklist of the inland fishes of El Salvador. *Zootaxa* 3608(6): 440-456.
9. **McMAHAN, C.D.**, DAVIS, M.P., DOMÍNGUEZ-DOMÍNGUEZ, O., GARCÍA DE LEON, F.J., DOADRIO, I., & K.R. PILLER. 2013. From the mountains to the sea: phylogeography and cryptic diversity in the mountain mullet, *Agonostomus monticola* (Teleostei: Mugilidae). *Journal of Biogeography* 40: 894-904.
8. **McMAHAN, C.D.**, MURRAY, C.M., GEHEBER, A.D., BOECKMAN, C.D.*, & K.R. PILLER. 2011. *Paraneetroplus synspilus* is a junior synonym of *Paraneetroplus melanurus* (Teleostei: Cichlidae). *Zootaxa* 2833: 1-14.
7. ECKSTUT, M.E., **McMAHAN, C.D.**, CROTHER, B.I., ANCHETA, J., MCLENNAN, D., & D. BROOKS. 2011. PACT in Practice: Comparative historical biogeographic patterns and species area relationships of the Greater Antillean and Hawaiian Island terrestrial biotas. *Global Ecology and Biogeography* 20: 545-557.
6. **McMAHAN, C.D.**, GEHEBER, A.D., & K.R. PILLER. 2010. Molecular Systematics of the Enigmatic Middle American Genus *Vieja* (Teleostei: Cichlidae). *Molecular Phylogenetics & Evolution* 57: 1293-1300.
5. RHEUBERT, J.L., **McMAHAN, C.D.**, SEVER, D.M., BUNDY, M.R., & K.M. GRIBBINS. 2010. Ultrastructure of the reproductive system of the Black Swamp Snake (*Seminatrix pygaea*) VII. Spermatozoon morphology and potential evolutionary trends of sperm characters among Serpentes. *Journal of Zoological Systematics & Evolutionary Research* 48(4): 366-375.

4. GEHEBER, A.D., **McMAHAN, C.D.**, & K.R. PILLER. 2010. First Record of the Non-native Three Spot Gourami (Osphronemidae: *Trichogaster trichopterus*) in Jamaica. *Aquatic Invasions* Supl. 1: S13-S16.
3. KENWAY-LYNCH, C.S., **McMAHAN, C.D.**, GEHEBER, A.D., HAYES, M.M., & K.R. PILLER. 2010. Threatened Fishes of the World: “*Xenotoca*” *eiseni* 1896 (Goodeidae). *Environmental Biology of Fishes* 87(3): 219-220.
2. BROACH, J.S. & **C.D. McMAHAN**. 2009. New Records of Amphibians and Reptiles from Florence County, South Carolina, USA. *Herpetological Review* 40(2): 243-244.
1. **McMAHAN, C.D.** & G.R. ZUG. 2007. Burmese *Hemidactylus* (Reptilia: Squamata: Gekkonidae): Geographic Variation in the Morphology of *Hemidactylus bowringii* in Myanmar and Yunnan, China. *Proceedings of the California Academy of Sciences* 58(24): 485-509.

Book Reviews & Other Publications:

4. MOHAMMADI, S. & **C.D. McMAHAN**. 2013. A Review of: Venomous Reptiles of the United States, Canada, and Northern Mexico Volume 2: *Crotalus*. *Copeia* 2013(1).
3. **McMAHAN, C.D.** 2012. Museum Techniques: Preservation of snake specimens for scientific study. *Snake Species of the World, Encyclopedia of Life, Life Desks*.
2. EDWARDS, M.L., & **C.D. McMAHAN**. 2011. Stuffed birds and pickled frogs: the importance of natural history museums in South Carolina. *South Carolina Wildlife*.
1. **McMAHAN, C.D.** 2011. A Review of: A Field Guide to Coastal Fishes from Maine to Texas. *Copeia* 2011(3).

Conference Presentations:

- 2015 Joint Meeting of Ichthyologists and Herpetologists (2 oral presentations, 1 poster presentation)
- 2014 Joint Meeting of Ichthyologists and Herpetologists (2 oral presentations, 1 poster presentation)
- 2013 Latin American Ichthyology Congress – Guatemala (oral and poster presentation); *delivered the keynote address at the opening of this conference*
- 2013 Joint Meeting of Ichthyologists and Herpetologists (3 oral presentations)
- 2013 Wilkes Award Symposium – Southwest Association of Naturalists (oral presentation)
- 2013 Central American Coastal Biology NSF Workshop – Honduras (oral presentation)
- 2012 Latin American Ichthyology Congress – Mexico (oral and poster presentations)
- 2012 Southeastern Fishes Council (poster presentation)
- 2012 Joint Meeting of Ichthyologists and Herpetologists/World Congress of Herpetology (2 oral and 2 poster presentations)
- 2011 Joint Meeting of Ichthyologists and Herpetologists (oral presentation)
- 2011 Evolution Meeting (oral presentation)
- 2010 Joint Meeting of Ichthyologists and Herpetologists (oral presentation)
- 2010 Association of Southeastern Biologists Annual Meeting (oral presentation)
- 2009 Southeastern Fishes Council (poster presentation)
- 2009 Joint Meeting of Ichthyologists and Herpetologists (oral presentation)
- 2008 Southeastern Fishes Council (oral presentation)
- 2008 Joint Meeting of Ichthyologists and Herpetologists (oral and poster presentations)
- 2007 South Carolina Academy of Science Annual Meeting (oral presentation)
- 2007 Association of Southeastern Biologists Annual Meeting (poster presentation)
- 2006 National Association of Biology Teachers (poster presentation)

- 2006 RTP Poster Symposium – Smithsonian NMNH (poster presentation)
2006 SCICU Research Symposium (oral presentation)
2004 SE American Society of Microbiologists Annual Meeting (poster presentation)
2004 South Carolina Academy of Science Annual Meeting (oral presentation)

Invited Seminars:

- 15 Jan 2015 DePaul University, Chicago – “Diversification and Biogeography of Neotropical Fishes”
3 Nov 2014 Livebearing Fishes Symposium; Morelia, Mexico – “Systematics of the genus *Poeciliopsis*”
7 Nov 2013 Keynote Address – Simposio Latinoamericano de Ictiología; Antigua, Guatemala –
“Diversificación y Biogeografía de Peces Neotropicales”
28 Oct 2013 Regis University, Colorado – “Diversification and Biogeography of Neotropical Fishes”
20 Feb 2013 University of Southern Mississippi – “Diversification and Biogeography of Neotropical Cichlids”

Current and Former Student Mentees:

*denotes authorship on mentee's published project

- *Chris Boeckman, Southeastern Louisiana University, cichlid taxonomy
*Parker House, LSU-MNS, fieldwork/tetra morphology (currently a MS student at California State Northridge University)
*Justin Kutz, LSU-MNS, cichlid systematics & taxonomy
*Carlos Garita, Universidad de Costa Rica, glass tetra taxonomy
*Arturo Alvarado, Universidad de Costa Rica, glass tetra taxonomy
Marcy Cage, LSU-MNS, cichlid body shape plasticity, distributional analyses
Lauren Cross, LSU-MNS, systematic of *Poeciliopsis* guppies
Natalie Deuroen, LSU-MNS, cichlid systematics
*Francisco Samuel Alvarez Calderon, Universidad de San Salvador, inventory of El Salvador fishes
*Wendy Henriquez, Universidad de San Salvador, inventory of El Salvador fishes
*Michelle Recenos, Universidad de San Salvador, inventory of El Salvador fishes
Christian Kuylen, LSU-MNS, cichlid systematics & taxonomy
*Gerald Soderstrum, LSU-MNS, cichlid morphology and distribution
Yue Li, LSU-MNS, diadromous fish phylogeography
Diego Elias, Universidad de Guatemala, cichlid phylogeography in Guatemala
David Clark, Jr., LSU-MNS, eco-morphology of *Astyanax aeneus* in Río Patuca, Honduras
Sera Sousley, Roosevelt University & FMNH, morphology of the genus *Alfaro*
Viridiana Lopez, Chicago State University & FMNH, clearing and staining methodology

Journal Reviewer for: *Environmental Biology of Fishes*, *Southeastern Naturalist*, *Zootaxa*, *Copeia*, *Molecular Ecology*, *Journal of Fish Biology*, *Aqua*, *CheckList*, *Molecular Phylogenetics and Evolution*, *Biological Journal of the Linnean Society*, *Journal of Biogeography*, *International Journal of Biodiversity and Conservation*

Collections Experience:

- Collections Manager of Fishes, The Field Museum of Natural History (June 2014-present)
Curatorial Assistant (CA), LSU Museum of Natural Science – Ichthyology; (Spring 2011-Spring 2014)
 - Fieldwork, sorting/identification, cataloging of specimens, design and implementation of tissue database protocols (allowing linking of tissue samples with voucher specimens), packing/shipping/receiving loans. Also coordinated migration of databases (specimen and tissue) to new system (Specify).Collections Assistant (CA), Southeastern Louisiana University Vertebrate Museum – Fishes; (Fall 2007-Summer 2010)
 - Fieldwork, sorting/identification, cataloging of specimens and associated tissues, packing/shipping/receiving loans

Research Assistant, Dept. of Biological Sciences, Southeastern Louisiana University; (Fall 2008-Spring 2009)

- Monthly collections of invasive carp species for gut content analysis and abundance surveys

Assistant Naturalist, Highlands Nature Center, Highlands Biological Station, Highlands, NC; (Summer 2007)

- Care of live animals on display and maintenance of exhibits, leading outreach events for public (adults and kids)

Collections Assistant, Vertebrate Collection (fishes, amphibians, reptiles), Dept. of Biology, Erskine College; (2005-2007)

- Fieldwork, sorting/identification, cataloging of specimens

Additional Experience:

Student Director, Biological Outreach Program, Dept. of Biology, Erskine College
(2004-2007)

Animal Care Staff, Animal Facility, Dept. of Biology, Erskine College
(2003-2007)

Fieldwork Experience:

19 trips to Neotropics – Honduras, Nicaragua, El Salvador, Panama, Costa Rica, Mexico, Guatemala, Jamaica; multiple trips throughout southeastern United States

Teaching Experience:

Fall 2010, Fall 2013: BIOL 4145 (Ichthyology), Louisiana State University

Fall 2010: Guest lecturer, Comparative Vertebrate Anatomy, Saint Louis University

Spring 2008: GBIO 152 (Genetics, Cell, Molecular Biology lab), Southeastern Louisiana University

Fall 2007: GBIO 439/539 (Freshwater & Estuarine Biology), Southeastern Louisiana University

January 2006: Student Teaching Assistant, Tropical Biology (with trip to Costa Rica)

with Dr. Janice Haldeman, Erskine College, Dept. of Biology

Fall 2004-Spring 2007: Biological Outreach Program Instructor

January 2004: Guest lecturer, Tropical Biology (with trip to Costa Rica)

Fall 2003, 2004: Guest lecturer, General Biology (for non-majors)

Society Memberships: American Society of Ichthyologists and Herpetologists, Society for Systematic Biologists, Southeastern Fishes Council, Sociedad de Ictiología Mexicana, Neotropical Biogeography Network

Service:

BIOS mentor, program for incoming freshmen biology majors at Louisiana State University (Fall 2013)

Seminar coordinator, LSU Museum of Natural Science (2011-2012)

Guest, What The Fish blog, The Field Museum (2012)

American Society of Ichthyologists and Herpetologists:

- Workshop sub-committee chair (2008-2009)
- Chair-elect and chair of graduate student committee (2009-2011)
- Long Range Planning and Policy committee (2011-2013)
- Committee on *Copeia* (2012-present)
- Collections Committee (2014-present)

University Graduate Council, Southeastern Louisiana University (2009-2010)

President, Biology Graduate Student Association, Southeastern Louisiana University (2 terms, 2008-2010)