

Patrick J. Ciccotto, Ph.D.

Warren Wilson College
Swannanoa, NC 28778
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PROFESSIONAL APPOINTMENTS

Instructor, Warren Wilson College, 2021-present
Biology Department

Courtesy Adjunct Professor, Florida Museum of Natural History, 2018-present
Ichthyology Division

Adjunct Assistant Professor, University of North Carolina Asheville, 2019-2021
Biology Department

Adjunct Professor, Warren Wilson College, 2018-2021
Biology Department

Postdoctoral Research Associate, North Carolina State University, 2016-2018
Department of Biological Sciences, Program in Genetics
Mentor: Reade Roberts

Postdoctoral Research Associate, Florida Museum of Natural History, 2015-2016
Division of Ichthyology
Mentor: Lawrence Page

Visiting Research Scholar, University of North Carolina at Chapel Hill, 2015-2016
Department of Biology
Host: Maria Servedio

Natural Resources Biologist, 2007-2010
Maryland Department of Natural Resources

EDUCATION

Ph.D., University of Maryland, Baltimore County, Biological Sciences, December 2014
Advisor: Tamra Mendelson

M.S., Pennsylvania State University, Wildlife and Fisheries Sciences, August 2008
Advisor: Jay R. Stauffer, Jr.

B.A., Bucknell University, Animal Behavior, May 2005

PUBLICATIONS

DeLorenzo, L., V. DeBrock, A.C. Baez, **P.J. Ciccotto**, E.N. Peterson, C. Stull, N.B. Roberts, R.B. Roberts, and K.E. Powder. 2022. Morphometric and genetic description of tropic adaptations in cichlid fishes. *Biology* 11:1165.

Ciccotto, P.J. and T.C. Mendelson. 2022. Body size is not correlated with the evolution of male coloration in darters (Percidae: Etheostomatinae). *Biological Journal of the Linnean Society* 136:436-442.

- Moore, E.C., **P.J. Ciccotto**, E.N. Peterson, M.S. Lamm, R.C. Albertson, and R.B. Roberts. 2022. Polygenic sex determination produces modular sex polymorphism in an African cichlid fish. *Proceedings of the National Academy of Sciences* 119:e2118574119.
- Ciccotto, P.J.**, F. Lin, and X-Y. Chen. 2021. Taxonomic revisions of *Altigena laticeps* and *A. lippa* (Cyprinidae: Labeoninae) from the Mekong River basin. *Zootaxa* 4941:271-280.
- Ciccotto, P.J.** and L.M. Page. 2020. Revision of the genus *Henicorhynchus*, with a revised diagnosis of *Gymnostomus* (Cyprinidae: Labeoninae). *Copeia* 108:485-502.
- Page, L.M., W.-J. Chen, and **P.J. Ciccotto**. 2018. Papers on fishes of Asia, including those presented at international conferences of the Asian Society of Ichthyologists in Taipei, Taiwan in 2016, and in Ho Chi Minh City, Vietnam in 2017. *Zootaxa* 4476:1-181.
- Ciccotto, P.J.** and H.H. Tan. 2018. A new species of *Lobocheilos* (Teleostei: Cyprinidae) from East Kalimantan, Indonesian Borneo. *Zootaxa* 4399:543-552.
- Mendelson, T.C., J.M. Gumm, M.D. Martin, and **P.J. Ciccotto**. 2018. Preference for conspecifics evolves faster in males than females in a sexually dimorphic radiation of fishes. *Evolution* 72:337-347.
- Ciccotto, P.J.**, J.M. Pfeiffer, and L.M. Page. 2017. Revision of the cyprinid genus *Crossocheilus* (Tribe Labeonini) with a description of a new species. *Copeia* 2017:269-292.
- Ciccotto, P.J.** and T.C. Mendelson. 2017. The evolution of male nuptial colour in a sexually dimorphic group of fishes (Percidae: Etheostomatinae). *Journal of Fish Biology* 90:1768-1784.
- Ciccotto, P.J.** and L.M. Page. 2017. Comment on "On *Gonorynchus*, *Gonorhynchus*, *Gonorinchus*, *Gonorhinchus*, and *Gonorrhynchus*, and some other names of labeonine fishes (Teleostei: Gonorhynchidae and Cyprinidae)" by Kottelat (2016). *Zootaxa* 4226:447-448.
- Ciccotto, P.J.** and L.M. Page. 2016. From 12 to One species: Variation in *Lobocheilos rhabdoura* (Fowler 1934) (Cyprinidae: Labeonini). *Copeia* 2016:879-889.
- Ciccotto, P.J.** and L.M. Page. 2016. Revised diagnosis of the genus *Gonorhynchus* McClelland 1839 (Teleostei: Cyprinidae: Labeonini) with the redescription of *G. latius* (Hamilton 1822) and revalidation of *G. wattanah* (Sykes 1839). *Zootaxa* 4127:471-492.
- Ciccotto, P.J.** and T.C. Mendelson. 2016. Ecological variation predicts the presence of male nuptial coloration in darters (Percidae: Etheostomatinae). *Evolution* 70:745-756.
- Ciccotto, P.J.** and T.C. Mendelson. 2016. Phylogenetic correlation between male nuptial color and behavioral responses to color across a diverse and colorful genus of freshwater fish (*Etheostoma* spp., Teleostei: Percidae). *Ethology* 122:245-256.
- Ciccotto, P.J.** and T.C. Mendelson. 2015. Evolution of the premaxillary frenum and substrate in snubnose darters and allies (Percidae: *Etheostoma*). *Journal of Fish Biology* 87:1090-1098.
- Kilian, J.V. and **P.J. Ciccotto**. 2014. Factors associated with the distributions and densities of three native and one non-native crayfish in streams of Maryland, USA. *Freshwater Crayfish* 20:27-40.
- Smith, T.A., **P.J. Ciccotto**, T.C. Mendelson, and L.M. Page. 2014. Dense taxon sampling using AFLPs leads to greater accuracy in phylogeny estimation and classification of darters (Percidae: Etheostomatinae). *Copeia* 2014:257-268.

- Ciccotto, P.J.**, D.A. Dressner, T.C. Mendelson. 2014. Association between male nuptial coloration and parasite load in *Etheostoma caeruleum* (Teleostei: Percidae). *Journal of Fish Biology* 84:1590-1598.
- Ciccotto, P.J.**, J.M. Gumm, and T.C. Mendelson. 2014. No evidence for color or size preference in either sex of a dichromatic stream fish, *Percina roanoka*. *Environmental Biology of Fishes* 97:187-195.
- Ciccotto, P.J.** 2013. Morphometric distinctness of an isolated population of *Percina peltata* (Shield Darter) on the Atlantic Coastal Plain of Maryland, USA. *Copeia* 2013:622-626.
- Ciccotto, P.J.**, J.M. Gumm, and T.C. Mendelson. 2013. Male association preference for conspecifics in the Redband Darter, *Etheostoma luteovinctum* (Teleostei: Percidae) based on visual cues. *Copeia* 2013:153-158.
- Maloney, K.O., D.E. Weller, D.E. Michaelson, and **P.J. Ciccotto** 2013. Species distribution models of freshwater stream fishes in Maryland and their implications for management. *Environmental Modelling and Assessment* 18:1-12.
- Graves, P.H. and **P. Ciccotto**. 2011. The nymphal odonate fauna of two watersheds in the lower Potomac River basin, Maryland, with emphasis on rare taxa. *The Northeastern Naturalist* 18:445-456.
- Kilian, J.V. and **P. Ciccotto**. 2011. First record of the invasive *Orconectes rusticus* (Rusty Crayfish) from the Potomac River, Maryland USA. *The Southeastern Naturalist* 10:553-556.
- Ciccotto, P.J.** 2011. Water Chemistry and landscape patterns in the distribution of Banded Sunfish (*Enneacanthus obesus*) in streams of the Atlantic Coastal Plain in Maryland. *Copeia* 2011:463-469.
- Ciccotto, P.** and S. Stranko. 2011. Patterns of shield darter, *Percina peltata*, distribution in the Eastern Piedmont of Maryland, USA. *Environmental Biology of Fishes* 92:141-150.
- Ciccotto, P.**, A. Konings, and J.R. Stauffer, Jr. 2011. Descriptions of five new species in the genus *Metriaclima* (Teleostei: Cichlidae) from Lake Malaŵi, Africa. *Zootaxa* 2738:1-25.
- Stranko, S.A., S.E. Gresens, R.J. Klauda, J.V. Kilian, **P.J. Ciccotto**, M.J. Ashton, and A.J. Becker. 2010. The different effects of urbanization and non-natives on imperiled stream species. *The Northeastern Naturalist* 17:593-614.
- Ashton, M. and **P. Ciccotto**. 2010. First records of Oriental Weatherfish (*Misgurnus anguillicaudatus*) in Maryland, USA. *The Northeastern Naturalist* 17:671-672.
- Ashton, M., and **P. Ciccotto**. 2010. Preliminary checklist of freshwater snails by river basins of the Chesapeake Bay, Maryland. *Ellipsaria* 12:14-15.
- Ciccotto, P.** and S. Stranko. 2009. Distributions and habitat associations of four state imperiled freshwater fish species in Zekiah Swamp, Prince George's and Charles Counties, Maryland. *The Maryland Naturalist* 50:1-10.
- Kilian, J.V., S.A. Stranko, R.L. Raesly, A.J. Becker, and **P.J. Ciccotto**. 2009. *Enneacanthus chaetodon* (Blackbanded Sunfish): An imperiled element of the Maryland's Coastal Plain ichthyofauna. *Southeastern Naturalist* 8:267-276.

TECHNICAL REPORTS

Graves, P. and **P. Ciccotto**. 2009. Rare, threatened, and endangered odonate species of the Breton Bay and Fifteen Mile Creek watersheds, Maryland. Prepared for: Maryland Department of Natural Resources, Wildlife and Heritage Division, Annapolis, Maryland.

Kilian, J., R. Bourquin, K. Laycock, and **P. Ciccotto**. 2009. Inventory and status assessment of Maryland's crayfishes. Prepared for: Maryland Department of Natural Resources, Wildlife and Heritage Division, Annapolis, Maryland.

Ciccotto, P. and S. Stranko. 2008. Comprehensive protection guidelines and baseline monitoring for the state's highest priority watersheds: identifying gaps in high priority watersheds and results of imperiled fish sampling in Western Branch and Zekiah Swamp during 2008. Prepared for: Maryland Department of Natural Resources, Wildlife and Heritage Division, Annapolis, Maryland.

Ciccotto, P.J. and S.A. Stranko. 2008. Predictive models of freshwater fish species in the Coastal Plain of Maryland. Technical Memorandum submitted to: Maryland Department of Natural Resources Coastal Zone Management Program.

Ciccotto, P.J. and S.A. Stranko. 2008. Ecological characteristics of imperiled freshwater fish species of Maryland. Technical Memorandum submitted to: Maryland Department of Natural Resources Coastal Zone Management Program.

Graves, P., E. Friedman, **P. Ciccotto**, S. Stranko, and N. Dziepak. 2008. Distribution of rare, threatened, and endangered odonate species in the Zekiah Swamp and Western Branch watersheds, Maryland. Prepared for: Maryland Department of Natural Resources, Wildlife and Heritage Division, Annapolis, Maryland.

Kilian, J.V., J.P. Gerber, M.J. Ashton, A.J. Becker, S.A. Stranko, and **P.J. Ciccotto**. 2007. Inventory and status assessment of Maryland crayfishes (2006-2009): 2007 report. Prepared for: Maryland Department of Natural Resources, Wildlife and Heritage Division, Annapolis, Maryland.

INVITED PRESENTATIONS

Ciccotto, P. 2019. Female color preferences, ecological selection, and the evolution of male coloration in darters (Percidae: Etheostomatinae). NSURS seminar, Warren Wilson College.

Ciccotto, P. and L. Page. 2016. Diversity of *Crossocheilus* (Cyprinidae: Labeonini), with a focus on species from the Mekong River basin. Fish Diversity of the Mekong River Symposium; Asian Society of Ichthyologists Annual Meeting, Taipei, Taiwan.

Ciccotto, P., and L. Page. 2015. A systematic overview of the cyprinid genera *Crossocheilus* and *Lobocheilos* (Tribe Labeonini) from Southeast Asia. Symposium on the Cypriniformes Species Inventory, an International Project; Joint Meeting of the Ichthyologists and Herpetologists, Reno, Nevada.

Ciccotto, P.J. 2014. Female color preferences, ecological selection, and the evolution of male coloration in darters (family Percidae). Biology Department seminar, University of North Carolina, Chapel Hill.

Ciccotto, P.J., and T.C. Mendelson. 2013. A synopsis of darter (Percidae: Etheostomatinae) diversity and the evolution of male nuptial coloration in the genus *Etheostoma*. Diversity, Conservation, Education, and Management of the Lesser Known Freshwater Fishes of North America; Annual Meeting of the American Fisheries Society, Little Rock, Arkansas.

PRESENTATIONS

- Ciccotto, P.J.** 2021. Systematic overview of *Altigena*, *Bangana*, and *Incisilabeo* (Cyprinidae: Labeoninae) in Southeast Asia. Joint Meeting of Ichthyologists and Herpetologists, Phoenix, Arizona.
- Ciccotto, P.**, C. Stull, S. P. Nandamuri, K. Carleton, and R. Roberts. 2017. The genetic basis of otolith size in Lake Malaŵi cichlids. W. M. Keck Center for Behavioral Biology Annual Symposium, Raleigh, North Carolina.
- Ciccotto, P.J.**, and T.C. Mendelson. 2014. Female color preferences, ecological selection, and the evolution of male nuptial coloration in darters (Percidae: Etheostomatinae). Evolution, Raleigh North Carolina.
- Ciccotto, P.J.**, and T.C. Mendelson. 2013. Comparative analysis of female color preferences in darters (genus *Etheostoma*). Animal Behavior Society Conference, Boulder, Colorado.
- Ciccotto, P.J.**, J.M. Gumm, and T.C. Mendelson. 2012. No evidence for color or size preference in either sex of a dichromatic stream fish, *Percina roanoka*. Southeastern Ecology and Evolution Conference, Clemson, South Carolina.
- Ciccotto, P.**, J. Thompson, S. Stranko, M. Ashton, R. Klauda, S. McClain, and M. Andrews. 2010. Assessment of the fish assemblages of the Patapsco River basin in Maryland prior to dam removals. Annual Meeting of the American Fisheries Society Tidewater Chapter, Annapolis, Maryland.
- Ashton, M., S. Stranko, **P. Ciccotto**, M. Kashiwagi, A. Becker, and R. Klauda. 2009. The influence of land alteration on headwater stream fishes in Maryland. Annual Meeting of the American Fisheries Society, Nashville, Tennessee.
- Ciccotto, P.J.** and S.A. Stranko. 2009. Patterns in the distribution of banded sunfish on the Maryland Coastal Plain. 65th Annual Northeast Fish and Wildlife Conference, Lancaster, Pennsylvania.
- Ciccotto, P.**, A. Konings and J.R. Stauffer, Jr. 2008. Descriptions of five new species in the genus *Metriaclima* (Teleostei: Cichlidae) from Lake Malawi, Africa. Joint Meeting of Ichthyologists and Herpetologists, Montreal, Canada.

POSTERS

- Ciccotto, P.J.**, and T.C. Mendelson. 2013. Comparative analysis of female color preferences in darters (genus *Etheostoma*). American Genetics Association Annual Symposium, Ithaca, New York.
- Ciccotto, P.**, R. Rasesly, and S. Stranko. 2010. A checklist of the freshwater fishes of the Patapsco River basin in Maryland. Southeastern Fishes Council Meeting, Athens, Georgia.
- Graves, P.H. and **P.J. Ciccotto**. 2010. Rare, threatened, and endangered odonate fauna of two watersheds in the lower Potomac River. Joint Meeting with American Society of Limnology and Oceanography and the North American Benthological Society, Santa Fe, New Mexico.
- Ciccotto, P.**, S.A. Stranko, and R.J. Klauda. 2008. Ecological characteristics of Maryland's stream fishes and connections with abiotic variables for imperiled species management. Annual Meeting of the American Fisheries Society, Ottawa, Canada.

Stranko, S.A., A.J. Becker, R.J. Klauda, **P.J. Ciccotto**, J.V. Kilian, and D.M. Boward. 2008. Prioritizing areas for conservation of stream biodiversity. Maryland Water Monitoring Council, Linthicum, Maryland.

Ciccotto, P. and S. Stranko. 2007. Imperiled stream fish species of Western Branch. Maryland Water Monitoring Council, Linthicum, Maryland.

GRANTS AND AWARDS

Museum of Comparative Zoology, Harvard University Ernst Mayr Travel Grant in Animal Systematics "Resolving the taxonomy of carps of the subfamily Labeoninae (Teleostei: Cyprinidae) of mainland Southeast Asia," December 2019.

W. M. Keck Center Research Award "Comparative morphological analyses of cichlid trophic groups using micro-CT scans," April 2017.

Washington Biologists' Field Club Research Award "Morphological and distributional assessments of *Cyprinella analostana* and *C. spiloptera* in the Potomac River and Mid-Atlantic states," January 2015.

American Genetics Association Travel Award graduate student travel award, July 2013.

Washington Biologists' Field Club Research Award "Quantifying the relative contributions of natural and sexual selection on male ornamentation across darter (Teleostei: Percidae) lineages," January 2012.

American Rivers: Patapsco River Restoration Project awarded to Maryland Biological Stream Survey working group for biological monitoring of Patapsco River during course of dam removals, April 2010.

Katherine Mabis McKenna Summer Internship undergraduate research award, May 2004.

TEACHING EXPERIENCE

Instructor

Warren Wilson College

BIO 1120: Field Natural History (for non-majors); Spring 2019, 2020, and 2022

BIO 1160: General Biology (for majors); Spring and Fall 2019 and 2022; Spring 2020

BIO 2340: General Zoology; Fall 2021

BIO 2350: Vertebrate Zoology; Fall 2018

BIO 2410: Invertebrate Zoology; Fall 2019

BIO 3190: Biology of Fishes; Fall 2021

BIO 4020: Evolutionary Biology; Fall 2020 and 2022

University of North Carolina Asheville

BIOL 136L: Principles of Cellular and Molecular Biology Lab; Spring 2021

BIOL 210L: Principles of Zoology Lab; Spring 2019 and 2020

University of Maryland, Baltimore County

BIOL 468: Ecology of Rivers and Streams; Summer 2012 and 2013

Pennsylvania State University

WFS 453: Ichthyology Lab; Spring and Fall 2006

Graduate Teaching Assistant

University of Maryland, Baltimore County,
 BIOL 252L: Human Anatomy and Physiology II; Spring 2014
 BIOL 251L: Human Anatomy and Physiology I; Fall 2010
 Pennsylvania State University
 WFS 454: Field Ichthyology; Summer 2006
 WFS 447: Wildlife Management; Fall 2005

Undergraduate Teaching Assistant

Bucknell University
 BIOL 208: Principles of Ecology and Evolution; Spring 2004 and 2005

Guest Lecturer

University of North Carolina Asheville, ENVR 373: Topics in Fish Ecology, 2018
 North Carolina State University, AEC 441: Biology of Fishes, 2016
 North Carolina School of Science and Mathematics, Evolution, 2015 and 2016
 University of Maryland, Baltimore County, BIOL 142: Ecology and Evolution, 2013

Teaching Development Workshops

North Carolina State University, Introduction to Teaching, 2016
 North Carolina State University, Classroom Management, 2016
 North Carolina State University, Effective Questioning Techniques, 2016
 North Carolina State University, Learning Styles, 2016

MENTORSHIP**Undergraduate Theses Advised****2022 Warren Wilson College**

Emma Latendresse, "Visual estimation survey of wild Steelhead Trout (*Oncorhynchus mykiss*) and wild salmonid populations associated with extreme weather events and environmental protections in southern Oregon"
Pamela Moore, "Monitoring the presence of microplastics within fishes in the Swannanoa River"
Aimee Shafer, "Morphological variation in *Osteochilus vittatus* throughout its range"
Kassidy Stoneburg, "Comparing the efficiency of a natural swine anthelmintic to conventional dewormers on the Warren Wilson College Farm"
Anna Vertefeuille, "Seasonal color variation in minnows"

2019 Warren Wilson College

Kayla Pekny, "Seabird populations at two contrasting beach locations"

Undergraduate Non-thesis Research Advised

Hanitua Teai, University of North Carolina Asheville. Population genetics of Rosyside Dace in the French Broad and Catawba River basins (2018)
Clare Stull, North Carolina State University. Comparative otolith morphology in East Africa cichlids (2017)
Daniel Dressner, University of Maryland, Baltimore County. Correlations between spectral properties of male coloration and parasite load in Rainbow Darters (2012)
Fen Zheng, University of Maryland, Baltimore County. Aquaculture of zebrafish (2011-2013)
Bradley Burford and Laurie Grant, Penn State University. Identification of benthic macroinvertebrates of Marshalls Creek (2006-2007)
Daniel Gill, Penn State University. Aquaculture of the state-endangered Bridle Shiner (2006-2007)

INSTITUTIONAL SERVICE (WARREN WILSON COLLEGE)

Winter Showcase Organizing Committee, Fall 2022

Auspex (interdisciplinary journal of undergraduate research) Review Committee, Fall 2022

Capstone Carnival Organizing Committee, Spring 2022

Natural Sciences Graduate Celebration Committee, Spring 2022

Alumni Career Panel Faculty Liaison, Fall 2021

ACADEMIC/OUTREACH ACTIVITIES

Assistant Editor: Journal of Fish Biology (2019-present)

Fish Taxonomy Workshop Instructor: Warren Wilson College Conservation Land Exchange (2022)

Student Judge: Joint Meeting of the Society of Ichthyologists and Herpetologists (2015, 2021)

Editor: Zootaxa; Southeast and East Asian freshwater fishes (2017-2019)

Guest Writer: Southern Appalachian Highlands Conservancy (2017)

Biomonitoring Volunteer: MountainTrue (2017-2018)

Aquarium Setup and Maintenance: Asheville Jewish Community Center (2017-present)

Ad Hoc Reviewer: Environmental Biology of Fishes, American Midland Naturalist, Ecology and Evolution, Animal Behaviour, Zootaxa, Ethology, Journal of Zoology, Diversity, Journal of Fish Biology, Current Zoology, Evolution, Cybium, NSF proposal review (2007-present)

Collections Volunteer: North Carolina Museum of Natural History Fish Division (2015-2017)

Volunteer Coordinator: Maryland Department of Natural Resources Stream Waders Program (2007-2010)

Guest Speaker: New Market Elementary School (New Market, Maryland; 2009)

PROFESSIONAL AFFILIATIONS

American Association for the Advancement of Science

American Society of Ichthyologists and Herpetologists

Asian Society of Ichthyologists