# <u>Curriculum Vitae for Byron J. Freeman</u>

Georgia Museum of Natural History University of Georgia Athens, Georgia Cell: (706) 201-9814

Work: (706) 542-1663 Email: budfree@uga.edu

# Research Activities and Objectives

Efforts focus on measuring, describing and preserving native species diversity and animal abundance in southeastern streams and rivers, in service to resource managers and community planners, as well as providing training in applied ecology. Primary activities involve describing distributions and abundances of fishes endemic to southeastern systems, in the context of preserving species diversity and function in streams and rivers increasingly affected by human population development. Associated activities include the use of remote sensing and other technologies to quantify basin characteristics in southeastern watersheds harboring remnant endemic communities, and systematics and taxonomy of southeastern freshwater fishes. On a daily basis I serve as an expert point of contact for federal (U.S. Fish and Wildlife Service, U. S. Geological Survey, U. S. Army Corps of Engineers, U. S. Environmental Protection Agency) and state (Georgia Department of Natural Resources, GA Department of Transportation, Tennessee Wildlife Resources Agency) resource management and regulatory agencies, community governments and private consultants. Ongoing projects include investigation of effects of water supply development on threatened and endangered species, studies of systematics and recovery of threatened populations of catostomid fishes, and development of distributional databases of fishes in the Apalachicola and Mobile Basins in Georgia. My research and service activities provide opportunities for undergraduate and graduate student involvement in conservation related projects.

# Personal

Birthplace—28 July 1950, Newnan, GA
Address—1061 Bud Freeman Road, Royston, Georgia 30662

# Education

**Ph. D. Zoology**—1980 University of Georgia, Athens, Georgia **MS. Biology**—1974 Samford University, Birmingham, Alabama **BS. Microbiology**—1972 University of Georgia, Athens, Georgia

# **Current Professional Experience**

Senior Public Service Associate 2001 to present, Odum School of Ecology

# Previous Professional Experience

Director and Curator of Zoology 2004 to 2024, Georgia Museum of Natural History

Assistant Director and Curator of Zoology 2002 to 2003, Georgia Museum of Natural History

Curator of Zoology 2000 to 2002 Georgia Museum of Natural History

Assistant Research Scientist—1987 to 2001 Institute of Ecology

Acting Curator Vertebrates—1997 to 2000 Georgia Museum of Natural History, University of Georgia

 $Research\ Associate\ and\ Data\ Manager - 1982-1986\ Okefenokee\ Ecosystems\ Investigations, Institute\ of\ Ecology$ 

Research Associate—1981 Museum of Natural History, University of Georgia

Assistant Project Director—1979 to 1980 Endangered Species Investigations, Museum of Natural History, UGA

Assistant Curator of Zoology—1976 to 1978 Museum of Natural History, University of Georgia

Research and Teaching Assistant—1974 to 1976 Department of Zoology, University of Georgia

Laboratory Instructor—1972 to 1973 Department of Biology, Samford University, Birmingham, Alabama

**Previous Contracts and Grants** 

- 1980-83. Status survey of the trispot darter and the amber darter. Contract from USFWS. Contract No 14-16-0004-81-048. Byron J. Freeman PI.
- 1985. Status survey of the trispot darter. Contract from USFWS Unit cooperative agreement No: 14-16-0009-1551. Byron J. Freeman PI.
- 1987-1990. Development of an ecological risk assessment database. U.S. Environmental Protection Agency. Byron J. Freeman PI.
- 1987-1990. Survey of selected freshwater sites at Cape Romain National Wildlife Refuge, in relation to air quality. U.S. Fish and Wildlife Service. Byron J. Freeman PI.
- 1987-1991. Population and life history studies on the amber darter and the Conasauga logperch. Georgia Department of Natural Resources and Tennessee Wildlife Resources Agency. Byron J. Freeman PI.
- 1990. Survey of fishes of the Tallapoosa and Little Tallapoosa River systems in Georgia. Georgia Department of Natural Resources. Byron J. Freeman PI.
- 1992-1993. Identification of Chattahoochee River fishes. Georgia Department of Natural Resources. Byron J. Freeman PI.
- 1993. Fishes of the Apalachicola basin. 6 months. U.S. Geological Survey. Byron J. Freeman PI.
- 1991-1994. Population and life history studies on the amber darter and the Conasauga logperch. 3 years. Tennessee Wildlife Resources Agency. Byron J. Freeman PI.
- 1991-1995. Studies of air quality and amphibian populations at Cape Romain National Wildlife Refuge. U.S. Fish and Wildlife Service. Byron J. Freeman PI.
- 1994-1996. Studies on spawning behavior and early development of the amber darter and Conasauga logperch. Georgia Department of Natural Resources. Byron J. Freeman PI.
- 1994-1996. Status of the undescribed Halloween darter in the ACF basin. U. S. Fish and Wildlife Service. Byron J. Freeman PI. \$11,000.
- 1994-1999. Threat Analysis and Solution Development for the Conasauga River of Tennessee and Georgia—
  Identification and Mapping of Critical Habitats in the Conasauga River Corridor. Tennessee Wildlife Resources Agency, Georgia Department of Natural Resources. Byron J. Freeman PI. \$62,000.
- 1994. Identification of Oconee River fishes. Georgia Department of Natural Resources. Byron J. Freeman PI.
- 1995-1996. Culture Techniques and Ecological Studies of the Robust Redhorse *Moxostoma robustum*. C. A Jennings, J. L. Shelton Jr., B. J. Freeman and G. L. Looney. Co-PIs Georgia Power Company.
- 1995-1996. Suspended sediments and Georgia's fishes: an analysis of existing information. J. L. Meyer, and B. J. Freeman. Co-PIs. USDI-USGS Ga Wat Res Prog.
- 1995-1998. Status of the goldline darter in the Coosawattee River system. 3 years. Georgia Department of Natural Resources. Byron J. Freeman PI. \$46,500.
- 1995-1998 Identification and Mapping of Critical Habitats in the Etowah River Corridor. 3 years. Georgia Department of Natural Resources. B. J. Freeman PI. \$46,500
- 1996-1999 Status of the introduced population of the robust redhorse in the Broad River system, Georgia. 3 years. Georgia Department of Natural Resources. B. J. Freeman PI. \$55,300.
- 1997-1998. Survey of threatened and endangered fishes in the Oostanaula, Coosawattee and Etowah Rivers. U. S. Fish and Wildlife Service. Byron J. Freeman PI. \$52,300.
- 1997-1998. Ecological studies on the robust redhorse (*Moxostoma robustum*) in the Oconee and Broad River systems, Georgia. US Fish and Wildlife Service. Byron J. Freeman PI. \$65,000.
- 1997-1998. Effects of sedimentation on biodiversity in rivers and streams of the southeastern United States. J.L. Meyer, and B. J. Freeman. Co-PIs. USDI-USGS Ga Wat Res Prog.
- 1997-2000. Status of the Asian rice eel, *Monopterus albus*, in the Chattahoochee River system, Fulton County, Georgia. Byron J. Freeman PI. \$30,000.
- 1997. Preparation of accounts for aquatic species for <u>A Guide to Protected Animals</u>. Georgia Department of Natural Resources. Byron J. Freeman PI. \$11,000.
- 1999-2000. Study and production of prioritized list of Etowah watershed streams for restoration and preservation, based on location of listed fish/species of concern populations. US Fish and Wildlife Service. Byron J. Freeman PI. \$20,500

- 1999-2000. Identification and Mapping of Critical Habitats in the Etowah River Corridor.. Georgia Department of Natural Resources. Byron J. Freeman PI. \$21,500
- 1999-2000. Status of the introduced population of the robust redhorse in the Broad River system, Georgia. Georgia Department of Natural Resources. Byron J. Freeman PI. \$18,554.
- 1999-2000. Threat Analysis and Solution Development for the Conasauga River of Tennessee and Georgia. Identification and Mapping of Critical Habitats in the Conasauga River Corridor. Georgia Department of Natural Resources. Byron J. Freeman PI. \$21,500
- 1999-2000. Studies on in stream flow requirements for Georgia streams and rivers. Georgia Department of Natural Resources. Byron J. Freeman PI. \$14,000.
- 1998-2002. Land Use and Geomorphic Indicators of Biotic Integrity in Piedmont Streams. U. S. Environmental Protection Agency. D. S. Leigh, B. J. Freeman, M. C. Freeman, E. A. Kramer, C. M. Pringle, and A. D. Rosemond. Co-PIs. \$781,000.
- 2000-2001. Conservation status and life history aspects of benthic, spring, and large river fishes in the upper Coosa River System, Georgia and Tennessee. N.M.Burkhead, H. L. Jelks, S. J. Walsh, M. C. Freeman [USGS], B. J. Freeman [UGA], C S Skelton [GDNR] \$79,960. multi-agency cooperator proposal submitted to USGS-BRD Species at Risk Program.
- 2001-2002. Assessing conservation improvements in the Conasauga River System of Georgia and Tennessee. Georgia Department of Natural Resources. Byron J. Freeman PI. \$21,000
- 2001-2002. Assessing baseline ecological conditions in the Upper Etowah River system of Georgia. Georgia Department of Natural Resources. Byron J. Freeman PI. \$22,000.
- 2001-2002. Assessing distributions of fishes and mussels in the upper Mobile River Basin in Georgia. Georgia Department of Natural Resources. Byron J. Freeman PI. \$20,650.
- 2001-2002. Conservation status of fish and other aquatic resources in the upper Tallapoosa River system, Georgia and Alabama. US Fish and Wildlife Service. Byron J. Freeman PI. \$25,967.
- 2001-2002. Development of a Habitat Conservation Plan for Imperiled Aquatic Species of the Upper Etowah River Basin. Georgia Department of Natural Resources. Laurie Fowler and Byron J. Freeman Co-Pls. \$158,050.
- 2000-2003. Status surveys for frecklebelly madtom and freckled darter in the Etowah River watershed. US Fish and Wildlife Service. Byron J. Freeman PI. \$23,667.
- 2000-2003. Water withdrawals in the Upper Conasauga and Etowah River Basins: Are they a threat to recovery of listed aquatic species? US Fish and Wildlife Service. Byron J. Freeman PI. \$20,000.
- 2002-2003. Responses of aquatic fauna to cumulative effects. Byron J. Freeman, PI. USDA Forest Service \$40,000.
- 1999-2004. Threat Analysis and Solution Development for the Conasauga River of Tennessee and Georgia. Identification and Mapping of Critical Habitats in the Conasauga River Corridor. Tennessee Wildlife Resources Agency. Byron J. Freeman PI. \$62,000.
- 2003-2004. Development of a Habitat Conservation Plan for Imperiled Aquatic Species of the Upper Etowah River Basin. Georgia Department of Natural Resources. Laurie Fowler and Byron J. Freeman Co-Pls. \$281,934.
- 2001-2004. Aquatic Gap: Regional analysis of biodiversity in the ACT/ACF basins. US Geological Survey. James. T. Petersen, Byron J Freeman, Elizabeth A. Kramer Co-PIs. \$248,000.
- 2003-2004. Assessing baseline ecological conditions in the upper Etowah River system. Georgia Department of Natural Resources. B. J. Freeman P.I. \$22,000.
- 2003-2004. Effects of surface water withdrawals and water supply reservoirs on stream fish assemblages in the Georgia Piedmont during non-drought. Georgia Department of Natural Resources. B. J. Freeman and M. C. Freeman [USGS] Co-PIs. \$43,869.
- 2004-2005. Assessing conservation improvements in the Conasauga River system. Georgia Department of Natural Resources. B. J. Freeman P.I. \$25,000.
- 2004-2005. Assessing baseline ecological conditions in the upper Etowah River system. Georgia Department of Natural Resources. B. J. Freeman P.I. \$30,000.
- 2004-2005. Development of a Habitat Conservation Plan for Imperiled Aquatic Species of the Upper Etowah River Basin. Georgia Department of Natural Resources. Laurie Fowler and Byron J. Freeman Co-Pls. \$355,634.
- 2000-2005. Ecological importance and conservation status of river shoal habitat in the southeastern U.S., including habitat requirements of selected shoal-dependent species. U.S. Fish and Wildlife Service. Byron. J. Freeman and Mary. C. Freeman [USGS] Co-PIs. \$40,000.

- 2001-2005. Genetic structure and life history studies on the federally threatened Cherokee darter. US Fish and Wildlife Service. Byron J Freeman and Brady Porter Co-PIs. \$128,327.
- 2001-2005. Conservation status of shoal dependent aquatic communities of the Flint River GA. US Fish and Wildlife Service. Byron J Freeman and Mary Freeman [USGS] Co-PIs. \$60,000.
- 2003-2004. Assessing conservation improvements in the Conasauga River system. Georgia Department of Natural Resources. B. J. Freeman P.I. \$21,000.
- 2003-2005. Ecological investigations of the Asian Rice Eel, *Monopterus albus*, in the Chattahoochee River system, Fulton County, Georgia. US National Park Service. B. J. Freeman and J. Shelton Co-PIs. \$150,000.
- 2004-2005. Listed Fishes In the Upper Coosa, Upper Chattahoochee, Upper Savannah and Upper Tennessee River Basins of Georgia. B. J. Freeman P.I. Georgia Department of Natural Resources. \$12,257.
- 2004-2005. Survey for the bluenose shiner, *Pteronotropis welaka*. Georgia Department of Natural Resources. B. J. Freeman P.I. \$7,075.
- 2004-2005. Assistance in field sampling and identification of fishes. US Geological Survey. B. J. Freeman, P.I. \$5000.
- 2005-2006. Genetic integrity of shoal bass (*Micropterus cataractae*) isolated by Morgan Falls dam, Chattahoochee River, NRA. US National Park Service. B.J. Freeman P.I. \$28,974.
- 2004-2006. Assessing genetic population structure of the federally protected Etowah darter. Georgia Department of Natural Resources. Byron J Freeman and Brady Porter Co-PIs. \$45,245.
- 2005-2006. Assessing conservation improvements in the Conasauga River system. Georgia Department of Natural Resources. B. J. Freeman P.I. \$25,000.
- 2005-2006. Assessing baseline ecological conditions in the upper Etowah River system. Georgia Department of Natural Resources. B. J. Freeman P.I. \$25,000.
- 2005-2006. Development of a Habitat Conservation Plan for Imperiled Aquatic Species of the Upper Etowah River Basin. Georgia Department of Natural Resources. Laurie Fowler and Byron J. Freeman Co-PIs. \$392,608.
- 2004-2007. Invasion Dynamics of the Red Shiner (*Cyprinella lutrensis*) in Southeastern U.S. Watersheds. US EPA. B. J. Freeman P.I. \$71,085.
- 2006-2007. Assessing conservation improvements in the Conasauga River system. Georgia Department of Natural Resources. B. J. Freeman P.I. \$22,260.
- 2006-2007. Assessing baseline ecological conditions in the upper Etowah River system. Georgia Department of Natural Resources. B. J. Freeman P.I. \$27,260.
- 2006-2007. Development of a Habitat Conservation Plan for Imperiled Aquatic Species of the Upper Etowah River Basin. Georgia Department of Natural Resources. Laurie Fowler and Byron J. Freeman Co-Pls. \$98,398.
- 2007-2008. Assessing conservation improvements in the Conasauga River system. Georgia Department of Natural Resources. B. J. Freeman and Seth Wenger, PIs \$27,000.
- 2007-2008. Assessing baseline ecological conditions in the upper Etowah River system. Georgia Department of Natural Resources. B. J. Freeman and Seth Wenger, PIs \$27,260.
- 2005-2008. Atlas of Georgia Freshwater Fishes. Georgia Department of Natural Resources. B. J. Freeman P.I. \$76,914.
- 2006-2008. Herpnet 5th Year Award to GMNH. National Science Foundation. Byron J Freeman, PI. \$16,749.
- 2008-2009. Assessing conservation improvements in the Conasauga River system. Georgia Department of Natural Resources. B. J. Freeman and Seth Wenger, PIs \$27,000.
- 2008-2009. Assessing baseline ecological conditions in the upper Etowah River system. Georgia Department of Natural Resources. B. J. Freeman and Seth Wenger, PIs \$27,260.
- 2009-10 Assessing causes of Decline of Aquatic Species in the Conassauga River, Georgia. Georgia Department of Natural Resources. B. J. Freeman PI \$47,001.
- 2007-2010 Development Of A Habitat Conservation Plan For Imperiled Aquatic Species of the Etowah River Basin: Funding For Transition To Implementation. Georgia Department of Natural Resources (DOI). Seth Wenger- PI, David Radcliffe, David Leigh, Catherine Pringle, Timothy Carter, Byron Freeman, Amy Rosemond Co-PIs. \$217,772.
- 2009-10. Development Of A Marine Mammal Stranding Database. Georgia Department of Natural Resources. B. J. Freeman PI \$35,363.

- 2006-2011. GEPR: Maize Transposable Elements: Discovery, Description and Functional Characterization. National Science Foundation. S. Wessler, J. Bennetzen, R. Dawe, N. Jiang, P. SanMiguel, B. Freeman Co-PIs. \$3,982,101. Subaward to B.J. Freeman \$147,848 Year 1 and 2.
- 2011. Development Of A Marine Mammal Stranding Database. Georgia Department of Natural Resources. B. J. Freeman PI \$29,555.
- 2010-11. Assessing causes of decline of aquatic species in the upper Etowah River system fishes and identification of targets for conservation improvements. Georgia Department of Natural Resources. B. J. Freeman PI \$47,000.
- 2011-12. Assessing Causes Of Decline Of Aquatic Species In The Conasauga River System. Georgia Department of Natural Resources. B. J. Freeman, PI \$53,130.
- 2006-2012. Genetic structure and gene flow between isolated habitats of the federally endangered amber darter (*Percina antesella*). U.S. Fish and Wildlife Service., B. J. Freeman and Brady Porter, PIs. \$95,000.
- 2008-2012. Assessing population status and recruitment of *Moxostoma robustum* in the Broad River, Georgia. Georgia Department of Natural Resources. B. J. Freeman, PI \$243,039.
- 2008-2012. Determining current threats to protected and rare aquatic species of the Conasauga River system. Georgia Department of Natural Resources. B. J. Freeman PI \$90,000.
- 2011-12 Development Of A Standardized Sampling Protocol For Endangered And Threatened Fishes--How Do We Assess Population Status When Electrofishing May Harm The Species. B.J. Freeman, PI. U.S. Department of the Interior. \$20,000.
- 2012-2013 Early detection of exotic bark beetles north zone. B.J. Freeman, PI. US Department of Agriculture. \$19,000.
- 2011-13. Assessing Status of Fish Species In The Upper Etowah River System And Identification Of Targets For Conservation Improvements. Georgia Department of Natural Resources. B. J. Freeman, \$56,522.
- 2015-2016. Assessing status of fish species in the upper Etowah River system and identification of targets for conservation improvements. Georgia Department of Natural Resources. B. J. Freeman, \$50,000.
- 2013-2016. Enhanced Emerald Ash Borer monitoring in New England. B. J. Freeman, Pl. USDA Forest Service, \$22,500.
- 2014-2017. Assessing status of aquatic species in the Conasauga River system. Georgia Department of Natural Resources. B. J. Freeman, \$29,000.
- 2013-16. WSC category 3: collaborative research: water sustainability under near-term climate change: a cross-regional analysis incorporating socio-ecological feedbacks and adaptations. National Science Foundation. Subaward to B Freeman, \$40,000.
- 2017-2017. Utilizing existing eDNA technology to document the existence of Frecklebelly Madtom in the Conasauga and Coosawattee River systems, Georgia. Georgia Department of Natural Resources. B. J. Freeman, \$10,000.
- 2017-2017. Review of Special Provisions and Other Conditions Placed on GDOT Projects for Imperiled Aquatic Species Protection (Scoping Phase). Georgia Department of Transportation. Seth Wenger, Brian Bledsoe, B.J. Freeman, \$82,248.
- 2018-2019. Assessing status of aquatic species in the Conasauga River system. Georgia Department of Natural Resources. B. J. Freeman. \$25,000.
- 2013-2018. Early detection of exotic bark beetles north zone. B. J. Freeman, PI. US Department of Agriculture. \$46,000.
- 2013-2018. Georgia caps survey: targeting specific exotic plant pests identified as threats to U.S. agriculture and forestry. B. J. Freeman, Pl. Georgia Dept. of Agriculture, \$43,000.
- 2017-2018. Assessing persistence of federally listed species and proposed candidate species of fishes in the Etowah River system and baseline ecological conditions in the upper Etowah River System. Georgia Department of Natural Resources. B. J. Freeman, \$29,000.
- 2018-2019 Georgia caps survey: targeting specific exotic plant pests identified as threats to U.S. agriculture and forestry. B. J. Freeman, Pl. Georgia Dept. of Agriculture, \$13,000.
- 2018-2020. Wenger, S., B. Bledsoe, B. Freeman, R. Bringolf, K. Hill, J. Calabria, R. Vick. P/E Review of Special Provisions and Other Conditions Placed on GDOT Projects for Imperiled Aquatic Species Protection (Main Project Phase). Georgia Department of Transportation. \$658,492.
- 2019-2020. Assessing persistence of federally listed species and proposed candidate species of fishes in the Etowah River system and baseline ecological conditions in the upper Etowah River System. Georgia Department of Natural Resources. B. J. Freeman, \$29,000.

- 2019-2020. Revamping the Georgia Museum of Natural History Internship Program. 2018. S. Birch and B. Freeman. Office of University Experiential Learning. UGA. \$26,720.
- 2020-2021. GMNH Marine Mammal Website. Georgia Department of Natural Resources, B. J. Freeman PI. \$8,500.
- 2020-2021. Assessing persistence of federally listed species and proposed candidate species of fishes in the Etowah River system and baseline ecological conditions in the upper Etowah River System. Georgia Department of Natural Resources. B. J. Freeman, \$28,000
- 2019-2021. Assessing status of aquatic species in the Conasauga River system and evaluating causes of decline. Georgia Department of Natural Resources. B. J. Freeman, \$28,000.
- 2019-2022. Development of eDNA markers for detecting the rare Robust Redhorse (*Moxostoma robustum*). Submitted to GDNR and SCDNR. \$38,864.
- 2021-2022. Assessing Dissolved Oxygen Concentrations in the Conasauga River. Ga Institute of Technology, Water Resources Institute. B. Freeman, S. Wenger, and P. Bumpers, P., Co-PIs. \$17,996

# **Current Contracts and Grants**

- 2022-2023. Assessing status of aquatic species in the Conasauga River system and evaluating causes of decline. Georgia Department of Natural Resources. B. J. Freeman, \$32,000.
- 2020-2024. Basin-wide planning for "Bartram's" Redeye Bass in the Savannah River. PIs: Mark Scott, Tanya Darden, Brett Albanese, Brandon Peoples, Byron Freeman. Multi State USFWS State Wildlife Grants Program. University of Georgia Component, B. J. Freeman, PI \$94,181.
- 2023-2024. Early detection of exotic bark beetles north zone. B. J. Freeman, PI. US Department of Agriculture. \$45,000.
- 2022-2024. Nature-Based Restoration of Shoals in the Conasauga River (GA, TN). National Fish and Wildlife Foundation. \$213,340. S.J.Wenger, B. Bledsoe, B.J.Freeman, Co-PIs.
- 2022-2023. Assessing Persistence of Federally Listed Species of Fishes & Baseline Ecological Conditions In The Upper Etowah River System. Georgia Department of Natural Resources. B. J. Freeman, \$37,000.
- 2023-2024. Marine Mammal Stranding Database Maintenance. Georgia Department of Natural Resources. B. J. Freeman. \$22,300.
- 2017-2023. Identification, analysis, and reporting of faunal remains excavated from sites excavated by the AMNH on St. Catherine's Island, GA (continuation). American Museum of Natural History. \$30,992.

  This project is BJF serving as PI of Record for administrative purposes.
- 2023-2023. Georgia CAPS Survey: Targeting Specific Exotic Plant Pests Identified As Threats To U.S. Agriculture And Forestry. Ga Department of Agriculture. B. J. Freeman, \$15,000.
- 2023-2026. Assessment and Monitoring of the Garwood Dam Removal on Imperiled Aquatic Organisms and their Habitats. Ga Department of Transportation. Seth Wenger- PI, Rhett Jackson, Jon Calabria, B.J.Freeman, J.P.Schmidt Co-PIs, \$226,295.

# **Submitted Contracts and Grants**

2023-2026. Implementation of monitoring and research-related recovery actions for Upper Coosa species. \$287,963. submitted to USFWS. S.J. Wenger PI. Co-Pi's M.C. Freeman, B. J. Freeman, P. Hazelton, B. Irwin, K. Robinson, J.P. Wares.

Submitted Grants with Notice of Award from Agency

Submitted Grants with Notice of Rejection

### 2021

2020-2024. Conserving Southeastern Biodiversity through Digitizing the Georgia Museum of Natural History Vertebrate Collections. National Science Foundation. Birch, S., B. Freeman. 1,804,679.

## *2020.*

- 2020-2022. Prioritizing Nutrient and Sediment Management for Aquatic Conservation in the Upper Conasauga Basin. Seth J. Wenger PI, B.J. Freeman, B. Bledsoe, A. Rosemond Co-PIs. \$154,338.
- 2020-2022. Conasauga River Shoal Restoration NATL FISH & WILDLIFE FDN S. Wenger, Bledsoe, B., Bumpers, P., Freeman, B. Co-PIs \$216,100.

### 2019

- 2019-2023. Digitization TCN: Conserving Southeastern Biodiversity through Digitizing the Georgia Museum of Natural History Vertebrate Collections. National Science Foundation. Birch, S., B. Freeman, C. Hadden Co-PIs. 1,826,040.
- 2019-2021. Assessing eDNA Methods and Detection for *Moxostoma robustum* in Rivers in Georgia. Submitted to GDNR. \$61,596. USFWS Funding withheld from GDNR
- 2005-2008. Consortium for Maize Genomics: a combined strategy to sequence and annotate the maize genome.

  National Science Foundation. J. Bennetzen, P. Rabinowicz, B. Barbazuk, B. Freeman Co-PIs. \$30,443,519.

  DECLINED.
- 2006-2010. Biological Indicators of Land Use and Climate Change: Next-Generation GLOBE as the Integrating and Instructional Framework. National Science Foundation. Marguerite Madden PI, E. Kramer, T. Jordan, D.A.Crossley, Jr., B.J. Freeman, R. Hill Co-PIs. \$1,301,673. DECLINED.
- 2010-2011. Project Climate Change (Pc2): Changing Learning And Instructional Models As Teachers And The Public Explore Climate Change In The SE US. NSF. Sally Walker PI, Rene Bobe, Byron Freeman, Tommy Jordan Co-PIs. \$963,869. DECLINED.
- 2017-2019. Assessing persistence of federally listed species and proposed candidate species of fishes and mussels, baseline ecological conditions and their response to improvements from adoption of Best Management Practices in the upper Coosa River System of Georgia and Tennessee. USFWS/GDNR. PI Byron Freeman. \$870,609. DECLINED.
- 2017-2019. Needs Statement: eDNA detection of Aquatic Species. Submitted to Georgia Department of Transportation. B. J. Freeman and J.P. Wares, \$500,000. REQUESTED RESUBMISSION
- 2018-2019. Development of eDNA markers for detecting the rare Robust Redhorse (*Moxostoma robustum*). Submitted to GDNR and SCDNR. \$82,600.

# **Publications**

- Laerm, J., B. J. Freeman, L. Vitt, and L. Logan. 1980. Vertebrates of the Okefenokee Swamp. Brimleyana, December: 47-73.
- Freeman, B. J., H. S. Greening, and J. Douglas Oliver. 1984. Comparison of three methods for sampling fishes and macroinvertebrates in a vegetated freshwater wetland. J. Freshwater Ecology 2(6): 603-609.
- Laerm, J., B. J. Freeman, L. Vitt, and L. E. Logan. 1984. Checklist of the vertebrates of the Okefenokee Swamp. pp 682-701. In A. D. Cohen, D. J. Cassagrande, M. S. Andrejko, and G. R. Best, eds. Okefenokee Swamp: Its natural History, geology, and geochemistry. Wetland Surveys. Los Alamos.
- Freeman, Byron J. and Mary C. Freeman. 1985. Production of fishes in a subtropical blackwater ecosystem: the Okefenokee Swamp. Limnology and Oceanography 30:686-692.
- Laerm, J. and B. J. Freeman. 1986. Fishes of the Okefenokee Swamp. University of Georgia Press. 128 pp. Athens, Georgia.
- Freeman, B. J. 1989. Okefenokee Swamp Fishes: abundance and production dynamics in an aquatic macrophyte prairie. pp 529-540. In: Freshwater Wetlands and Wildlife, R. R. Sharitz and J. W. Gibbons (Eds.). CONF-8603101, DOE Symposium Series, No. 61.
- Wiegert, Richard G. and Byron J. Freeman. 1990. Tidal salt marshes of the SE. Atlantic Coast: A community profile. USFWS Biological Report 85(7.29) 70 pp.
- Winkler, K., M. Freeman, and B. Freeman. 1990. Studies under way to recover two Conasauga River fishes. Endangered Species Technical Bulletin. Vol. XV, No. 2.
- Burkhead, N. M., J. D. Williams, and B. J. Freeman. 1992. A river under siege. Georgia Wildlife 2(2):10-17.
- Freeman, B. J. and M. C. Freeman. 1994. Habitat use by an endangered riverine fish and implications for species protection. Ecology of Freshwater Fish. 3:49-58.
- Freeman, B. J., G. W. Benz, D. E. Collins. 1996. A stakeholder's guide to the Conasauga River of Georgia and Tennessee. Cons. Bull No. 1. Southeast Aquatic Research Institute, Chatt. TN.
- Bryant, Richard T., J. W. Evans, R. E. Jenkins, and B. J. Freeman. 1996. The Mystery Fish. Southern Wildlife. 1(2): 27-35.
- Anderson, P. G., B. G. H. Browne, and B. J. Freeman. 1997. Monitoring the effects of reservoir creation on federally listed fish species in the southeast. pp 337-341. IN Proceedings of the 1997 Georgia Water Resources Conference. K. Hatcher (ed). Institute of Ecology University of Georgia, Athens, Georgia.
- Barnes, K. H., J. L. Meyer, and B. J. Freeman. 1997. Suspended sediments and Georgia's fishes: an analysis of existing information and future research. pp 139-143. IN Proceedings of the 1997 Georgia Water Resources Conference. K. Hatcher (ed). Institute of Ecology University of Georgia, Athens, Georgia.
- DeVivo, J. C., C. A. Couch, and B. J. Freeman. 1997. Use of a preliminary index of biotic integrity in urban streams around Atlanta, Georgia. pp 119-122. IN Proceedings of the 1997 Georgia Water Resources Conference. K. Hatcher (ed). Institute of Ecology University of Georgia, Athens, Georgia.
- Burkhead, N. M., S. J. Walsh, B. J. Freeman, J. D. Williams. 1997. Status and restoration of the Etowah River, an imperiled southern Appalachian ecosystem. in G.W. Benz and D.E. Collins (ED) Aquatic Fauna in Peril: The Southeastern Perspective. Special publication 1, Southeast Aquatic Research Institute, Lenz Design and Communications, Decatur, Georgia.
- Jenkins, R. E., and B. J. Freeman. 1997. "Sicklefin Redhorse" Moxostoma sp., p. 89. In: Endangered, threatened, and rare fauna of North Carolina. Part IV. A reevaluation of the freshwater fishes. E. F. Menhinick and A. L. Braswell 9eds.). Occasional Papers of the North Carolina Museum of Natural Sciences and the North Carolina Biological Survey No. 11.

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- Dakin, Elizabeth, Brady Porter, Bud Freeman. 2008. Genetic structure and gene flow between isolated habitats of the federally endangered amber darter (*Percina antesella*). Interim Report for Project 033991-01, Georgia Department of Natural Resources, Atlanta, Pages 11. Department of Biological Sciences, Duquesne University, Athens, Institute of Ecology and Georgia Museum of Natural History, University of Georgia.

- Freeman, B.J., G. B. Anderson, M. M. Hagler and N. A. Pontzer. 2009. Assessing Baseline Ecological Conditions in the Etowah River System of Georgia 2008. Annual report to the Georgia Department of Natural Resources, Atlanta, Pages 90. Athens, Institute of Ecology and Georgia Museum of Natural History, University of Georgia.
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- Freeman, B. J. and M. M. Hagler. 2010. Assessing causes of decline of aquatic species in the upper Etowah River system and identification of targets for conservation improvements. Interim report to the Georgia Department of Natural Resources, December 2010.
- Freeman, B. J., M. M. Hagler, and C.L. Baker. 2011. Assessing causes of decline of aquatic species in the Conasauga River system. Report to the Georgia Department of Natural Resources, March 2011.
- Freeman, B. J. and M. M. Hagler. 2011. Preliminary report with the results of reconnaissance at 25 locations and fish surveys at four locations within the proposed Highway 411 corridor near Cartersville, Georgia. July 2011.
- Hagler, M.M and B. J. Freeman. 2012 Assessing Causes of decline of aquatic species in the Conasauga River system. Final Report to the Georgia Department of Natural Resources, Report to the Georgia Department of Natural Resources, December 2012.
- Freeman, B. J. and M. M. Hagler. 2012. Report on the federally protected aquatic species and results of 2011 stream surveys within the proposed Highway 411 corridor near Cartersville, Georgia, December 2012.
- Straight, C.A. and B. J. Freeman. 2013. Status and Assessment of Robust Redhorse (*Moxostoma robustum*) in the Broad River System, Georgia. Final Report to Georgia Department of Natural Resources, January 2013.
- Hagler, M. and B. Freeman. 2014. Brief Review of the Effects of Anti-ice and Deicing Chemicals used at Airports on Surface Waters and Aquatic Biota.
- Hagler, M. and B. Freeman. 2014. Summary of Fish Survey Results for Streams in the vicinity of the Paulding Northwest Atlanta Airport, Bluffy Creek watershed.

- Freeman, B. J., M.M. Hagler, and P. M. Bumpers. 2015. Assessing Causes of decline of aquatic species in the Conasauga River system. Final Report to Georgia Department of Natural Resources, December 2015.
- Byron J. Freeman, Karen Bobier, Kelly Petersen and John Wares. 2016. Status of *Nothonotus* darters in the Lower Etowah River and Raccoon Creek. Report Submitted To CH2M Hill, Birmingham, AL 21pp.
- P. M. Bumpers and B. J. Freeman. 2016. Assessing the status and trends of fishes and water quality in the Etowah River. Final Report to Georgia Department of Natural Resources, December 2016.
- P. M. Bumpers and B. J. Freeman. 2016. Assessing status of Aquatic Species in the Conasauga River system. Interim Report to Georgia Department of Natural Resources, December 2016.
- P.M. Bumpers and B. J. Freeman. 2017. Assessing causes of decline of aquatic species in the Conasauga River system. Final report to Georgia Department of Natural Resources, December 2017.
- Freeman, B.J. and P.M. Bumpers. 2018. Development of an eDNA protocol for the Coosa Madtom, *Noturus* sp. cf. *munitus*. Report to Georgia Department of Natural Resources, December 2018.
- P.M. Bumpers and B. J. Freeman. 2018. Assessing status of aquatic species in the Conasauga River system Interim Report to Georgia Department of Natural Resources, December 2018.
- P. M. Bumpers, J. Skaggs and B. J. Freeman. 2019. Assessing the status and trends of fishes and water quality in the Conasauga River. Final Report to Georgia Department of Natural Resources. May 2019.
- P. M. Bumpers, M. Hallmark, and B. J. Freeman. 2022. Assessing persistence of federally listed and petitioned fishes and baseline ecological conditions in the upper Etowah River system. Final Report to Georgia Department of Natural Resources. October 2022.

## Affiliations

American Fisheries Society
American Society of Ichthyologists and Herpetologists
Georgia Chapter American Fisheries Society
Puerto Rico Chapter American Fisheries Society
Southeastern Fishes Council
Robust Redhorse Conservation Committee

# **Recent Presentations**

1993

Freeman, B. J. 1993. Suckers I have known, or Georgia's protected fishes. Departmental Seminar, Institute of Ecology, May 1993.

Freeman, B. J. 1993. Georgia's protected fishes: the need for basin-wide management Presentation at the 1993 Georgia Water Resources Conference, held April 20 and 21, 1993, at The University of Georgia, Athens, Georgia.

Jenkins, R. E. and B. J. Freeman. 1993. Systematics of the molar-toothed redhorse suckers *Moxostoma carinatum* and the rediscovered *Moxostoma robustum* (Pisces, Catostomidae). Paper presented at the annual meeting of ASIH in Austin, TX, May 1993.

#### 1994

Freeman, B. J. 1994. Status of the robust redhorse. Paper presented at the annual meeting of the Georgia Chapter of the American Fisheries Society.

Freeman, B. J. 1994. Siltation and threats to aquatic communities in the southern Appalachians. Invited Speaker at the 1994 Siltation Symposium of the Southeast Region of Trout Unlimited, held in Dillard Georgia.

Freeman, B. J. 1994. Endangered and Threatened Species Protection: ESA Reauthorization and other Current Issues. Invited Panelist at the 1994 Red Clay Conference, University of Georgia School of Law. held in Athens, Georgia.

Jenkins, R. E., B. J. Freeman and J. W. Evans. 1994. Case History: Robust Redhorse *Moxostoma robustum*, of the south-Atlantic slope-rediscovered just before extinction? Paper presented at the Tennessee Aquarium Symposium on Aquatic Fauna in Peril, the Southeastern Perspective, held in Chattanooga, TN.

Burkhead, N. M., S. J. Walsh, B. J. Freeman, and J. D. Williams. 1994. The Etowah River as a model for riverine ecosystem restoration. Paper presented at the Tennessee Aquarium Symposium on Aquatic Fauna in Peril, the Southeastern Perspective, held in Chattanooga, TN.

Couch, C. A. and B. J. Freeman. 1994. Patterns in fish distributions in watersheds having various land uses in the Apalachicola-Chattahoochee-Flint River basin. Paper presented at the annual meeting of the Association of Southeastern Biologists held in Orlando, FL.

### 1995

DeVivo, J. C., and B. J. Freeman. 1995. Impact of introduced *Cyprinella lutrensis* on stream fish assemblages in Georgia. Paper presented at the annual meeting of the Association of Southeastern Biologists held in Greenville, SC.

## 1996

Freeman, B. J. 1996. Spawning behavior of the robust redhorse. Paper presented at the annual meeting of the Georgia Chapter of the American Fisheries Society, Brunswick, GA.

Freeman, B. J. 1996. Ecosystem management in the headwaters of the Coosa: Involving all the players. Paper presented at the annual meeting of the Alabama Fisheries Association, Gulf Shores, Alabama.

Couch, C.A., J. C. DeVivo, and B. J. Freeman. 1996. The role of floodplain wetlands in the short-term response of a coastal plain stream fish assemblage to flooding caused by tropical storm Alberto. Paper presented at the annual meeting of the Association of Southeastern Biologists held in Statesboro, Georgia.

Freeman, B. J. and D. M. Walters. 1996 Burying behavior in the percid subgenus *Imostoma*. Paper presented to the American Fisheries Society midyear meeting. Mobile, Alabama.

Walters, D. M. and B. J. Freeman. 1996. Spawning behavior of the amber darter, *Percina antesella*. Paper presented to the American Fisheries Society midyear meeting. Mobile, Alabama.

Walters, D. M. and B. J. Freeman. 1996. Spawning behavior of the Robust Redhorse, Moxostoma robustum. Poster Presentation for the American Society of Ichthyologists and Herpetologists. New Orleans, Louisiana. USA.

#### 1997

Freeman, B. J. 1997. Jewels of the Appalachians-North Georgia's Fishes. Invited Presentation for Weekend for Wildlife, Georgia Department of Natural Resources. February 1997

J. W. Evans, B. J. Freeman, C. A. Jennings, G. L. Looney, T. L. Shelton 1997. Distributional and population status of the robust redhorse, *Moxostoma robustum*. Paper presented at the annual meeting of the GA Academy Science April 1997.

Walters, D. M. and B. J. Freeman. 1997. Status of Gambusia in the Conasauga River system of Georgia and Tennessee.

Paper presented at the annual meeting of the American Society of Ichthyologists and Herpetologists. June 1997.

### 1999

Jenkins, R. E., B. J. Freeman, and J. W. Evans. 1999. Discovery, rediscovery, and distribution of the robust redhorse *Moxostoma robustum*. Paper presented at the annual meeting of the American Fisheries Society in Charlotte, NC August 1999.

Jenkins, R. E., M. D. Clements, S. C. Moore, J. W. Evans, G. L. Looney, and B. J. Freeman. 1999. Age, growth, and maturation of the River and Robust Redhorses *Moxostoma carinatum* and *M. robustum*. Paper presented at the annual meeting of the American Fisheries Society in Charlotte, NC August 1999.

Meyer, Judy, Andrew Sutherland, Kevin Barnes, David Walters and Byron Freeman. 1999. A scientific basis for erosion and sediment standards in the Blue Ridge physiographic province. IN Proceedings of the 1999 Georgia Water Resources Conference. K. Hatcher (ed). Institute of Ecology University of Georgia, Athens, Georgia.

Rosemond, Amy D., David S. Leigh, Byron J. Freeman, Mary C. Freeman, Elizabeth A. Kramer, Michael J. Paul, and Catherine M. Pringle. 1999. Development of a scientific understanding of the effects of changing landuse on stream ecosystems. IN Proceedings of the 1999 Georgia Water Resources Conference. K. Hatcher (ed). Institute of Ecology University of Georgia, Athens, Georgia.

Leigh, David S., Mary C. Freeman, Byron J. Freeman, Elizabeth A. Kramer, Catherine M. Pringle, Amy D. Rosemond, Michael J. Paul, David M. Walters, Allison Roy, and C. P. Lo. Overview of land cover and geomorphic indicators of biotic integrity in the Etowah River basin, Georgia. IN Proceedings of the 1999 Georgia Water Resources Conference. K. Hatcher (ed). Institute of Ecology University of Georgia, Athens, Georgia.

### 2000

Freeman, M. C., E. R. Irwin and B. J. Freeman. Native fishes below dams: working with what we have. Invited symposium paper, American Fisheries Society, Midyear Meeting of the Southern Division, Savannah, GA, February 2000.

Warren, M. L. Jr., B. M. Burr, S. J. Walsh, H. L. Bart, Jr., R. C. Cashner, D. A. Etnier, B. J. Freeman, B. R. Kuhajda, R. L. Mayden, H. W. Robison, S. T. Ross, W. C. Starnes. 2000. Diversity, distribution and conservation status of freshwater fishes of the southern United States. Paper presented at the southern division of American Fisheries Society mid-year meeting. February 2000.

Leigh, D.S., D. M. Walters, M.J. Paul, C.P. Lo, B. J. Freeman, and M.C. Freeman. Geomorphology and land cover as indicators of fishes in Piedmont streams. 2000. Paper presented at annual meeting of Association of American Geographers, New York, NY. April 2000.

Jenkins, R. E., M. D. Clements, B. J. Freeman. 2000. Hybridization in redhorse suckers, genus Moxostoma. Paper presented at Ethology, Evolutionary Ecology and Conservation of Fishes. May 2000.

Walters, D. M., B. J. Freeman, M. C. Freeman, E. A. Kramer, D. l. Leigh, M. J. Paul, C. M. Pringle, and A. D. Rosemond. 2000. A mulit-scale approach to predicting stream fish assemblages. Paper presented at Ethology, Evolutionary Ecology and Conservation of Fishes. May 2000.

Leigh, D. S., B. J. Freeman, M. C. Freeman, E. A. Kramer, M. J. Paul, C. M. Rosemond, R. Cifaldi, A. Roy, and D. Walters. 2000. Land use and geomorphic indicators of biotic integrity in piedmont streams. Paper presented at 2000 STAR Ecosystem Indicators Progress Review Workshop, May 2000.

Freeman, B. J. and S. J. Wenger. A rapid prioritization method for protecting imperiled streams. Poster presented at annual meeting of Society for Conservation Biology. June 2000.

Leigh, D.S., D. M. Walters, M. C.Freeman, B. J. Freeman, and M. J. Paul. 2000. Stream slope and bed sediment as indicators of fish communities in the Etowah River Basin, North Georgia. Paper presented at the Geological Society of America National Meeting Reno NV. November 2000.

#### 2001

Freeman, M. C., C. M. Pringle, E. A. Greathouse and B. J. Freeman. 2001. Ecosystem-level effects of dams resulting from losses of diadromous fishes and other organisms. Shad 2001: A conference on the status and conservation of shads worldwide. May 20-23, Baltimore, MD.

Freeman, M. C., M. D. Merrill and B. J. Freeman. Ecological considerations for reservoir planning in north Georgia . 2001 Georgia Water Resources Conference, Athens, GA March 2001.

Merrill, M.D., M.C.Freeman, B.J.Freeman, E.A.Kramer and L.M. Hartle. 2001. Stream loss and fragmentation due to impoundments in the upper Oconee watershed. IN Proceedings of the 2001 Georgia Water Resources Conference. K. Hatcher (ed). Institute of Ecology University of Georgia, Athens, Georgia.

Walters, D.M., M.C. Freeman, D.S. Leigh, B.J. Freeman, M.J. Paul, and C.M. Pringle. 2001. Bed texture and turbidity as indicators of fish biotic integrity in the Etowah River system. IN Proceedings of the 2001 Georgia Water Resources Conference. K. Hatcher (ed). Institute of Ecology University of Georgia, Athens, Georgia.

Walters, D.M., M.C. Freeman, D.S. Leigh, B.J. Freeman, M.J. Paul, and C.M. Pringle. 2001. Sediment and stream fishes in the Etowah River system. Georgia Chapter of the American Fisheries Society. Athens, GA.

Pringle, C. M., M. Freeman, and B. Freeman. 2001. The transmission of disturbance in streams and emerging biotic patterns on landscape scales. Invited paper in special session on "landscape perspectives in fish ecology" held at the Annual meetings of the North American Benthological Society, LaCrosse, WI. June 2001.

Porter, B. A. and B. J. Freeman. 2001. Investigation of potential hybrid origin of the "Sicklefin Redhorse" (*Moxostoma* sp.). Paper presented at annual SEEPAGE meeting in NC. July 2001.

#### 2002

Freeman, B. J. 2002. Environmental Perspective: Savannah River Compact Summit. Invited Speaker, Savannah River Compact Meeting held in Augusta Georgia April 2002.

Burkhead, N. M., B. Freeman, S. J. Walsh, H. L. Jelks, C. Skelton, M. E. Freeman. 2002. Death by hybridization? Crevice cuckoldry? *Cyprinella lutrensis* (red shiner) inundates the Upper Coosa River System. Paper presented at the annual meeting of the American Society of Ichthyologists and Herpetologists. July 2002.

Storey, C., B. A. Porter, B. J. Freeman. 2002. A preliminary genetic investigation of the Cherokee darter: implications for conservation and Management. Paper presented at the annual meeting of the American Society of Ichthyologists and Herpetologists. July 2002.

Storey, Jesslyn C., Carrie A. Straight, Byron J. Freeman, James Peterson, Elise R. Irwin, and Mary C. Freeman. 2003. Distribution of Endemic and Imperiled Fauna of the Tallapoosa River System of Georgia. Proceedings of the 2003 Georgia Water Resources Conference, held April 23-24 2003, at the University of Georgia. Kathryn J. Hatcher, editor, Institute of Ecology, The University of Georgia, Athens, Georgia.

Straight, Carrie A. and Byron J. Freeman. 2003. Status of Robust Redhorse (*Moxostoma robustum*): Reintroduction efforts and preliminary results of sonic-tracking in the Ocmulgee River. Proceedings of the 2003 Georgia Water Resources Conference, held April 23-24 2003, at the University of Georgia. Kathryn J. Hatcher, editor, Institute of Ecology, The University of Georgia, Athens, Georgia.

Marcinek, Paula A., Mary C. Freeman, Byron J. Freeman. 2003. Distribution and abundance of three endemic fishes in shoals of the upper Flint River system. Proceedings of the 2003 Georgia Water Resources Conference, held April 23-24 2003, at the University of Georgia. Kathryn J. Hatcher, editor, Institute of Ecology, The University of Georgia, Athens, Georgia.

Wenger, Seth, Laurie Fowler, Byron Freeman. 2003. Etowah Habitat Conservation Plan. Proceedings of the 2003 Georgia Water Resources Conference, held April 23-24 2003, at the University of Georgia. Kathryn J. Hatcher, editor, Institute of Ecology, The University of Georgia, Athens, Georgia.

Hrabovsky, Steven, R. Harvey, C. Jernigan, I. Bergerson, G. Coffee, D. Jones, P. Leonard, E. Dilts, A. Bearden, B. Freeman, D. Dilks and T. Naperala 2003. USACE Section 206 ecosystem restoration program and development of restoration alternatives to support projects in Cobb County, Georgia. Proceedings of the 2003 Georgia Water Resources Conference, held April 23-24 2003, at the University of Georgia. Kathryn J. Hatcher, editor, Institute of Ecology, The University of Georgia, Athens, Georgia.

#### 2004

Wenger, Seth J, Freeman, Mary C; Freeman, Byron J; Burkhead, Noel M; Roy, Allison H. 2004. Changes in fish assemblages in urbanizing watersheds. Paper presented at the annual Meeting of the American Fisheries Society, August 2004, Madison, WI.

Roy, Allison H, Freeman, Mary C, Freeman, Byron J; Wenger, Seth J., Ensign, William E. 2004. Evaluating fish assemblages along a gradient of hydrologic alteration in small, urbanizing streams. Paper presented at the annual Meeting of the American Fisheries Society, August 2004, Madison, WI.

## 2005

Reinert, T.R., C. A. Straight, and B.J. Freeman. 2005. Status of the Asian Swamp Eel at the Chattahoochee Nature Center and adjacent marshes of the Chattahoochee River, GA. Paper presented at the annual meeting of the Georgia Chapter of the American Fisheries Society, January 2005, George Bagby State Park, Georgia.

D.M. Walters, M. Blum, N.M. Burkhead, B.J. Freeman, B. Rashleigh, and B.A. Porter. Invasion Dynamics of Red Shiner (*Cyprinella lutrensis*) in Southeastern Rivers. Paper presented at the annual Meeting of the American Fisheries Society, September 2005, Anchorage, AK.

### 2006

Burkhead, N. M., M. Blum, D. M. Walters, B. A. Porter, B. J. Freeman, and J. A. Billmeier, 2006. Hybrid Swarms, Aggressive Hybridization, and the Red Shiner: Miscues or Mystery? American Fisheries Society XX 2006. NY.

Freeman, B. J., C. A. Straight, T.R. Reinert. 2006. An update on the status of the Asian swamp eel in Georgia. Gulf and South Atlantic Regional Panel on Aquatic Invasive Species. April 2006, Atlanta Georgia.

Dakin, Elizabeth E., Brady A. Porter, James M. Long, and Byron J. Freeman. 2006. Population structure of shoal bass (*Micropterus cataractae*) in the Chattahoochee River System. American Society of Ichthyologists and Herpetologists, July 2006.

Gabel, Jennifer M., Brady A. Porter, Elizabeth E. Dakin, and Byron J. Freeman. 2006. Gene flow and population fragmentation analysis of the federally threatened Cherokee Darter. American Society of Ichthyologists and Herpetologists, July 2006.

Shane B. Ritchea, Brady A. Porter, and Byron J. Freeman. 2006. Phylogeographic analysis of the federally endangered Etowah Darter. American Society of Ichthyologists and Herpetologists, July 2006.

Straight, C.A., B. J. Freeman, B. Albanese. M. C. Freeman. 2006. Fishes of Georgia Atlas Project. American Society of Ichthyologists and Herpetologists, July 2006.

Straight, C.A., B. J. Freeman, and T. Reinert. 2006. Control and containment options for a Georgia population of Asian swamp eels (*Monopterus* sp. cf. *M. albus*). American Society of Ichthyologists and Herpetologists, July 2006.

Wenger, S. J., M.C. Freeman, J.T. Peterson, B.J. Freeman<sup>1</sup>, and D.D. Homans. 2006. Estimating effects of impervious cover on occurrence of stream fishes to guide management policies. Annual Meeting North American Benthological Society, June 2006.

Gabel, J. M., B. E. Dakin, B. J. Freeman, and B. A. Porter. 2006. Population genetics of the federally threatened Cherokee darter using microsatellite analysis. Annual SouthEastern Population Ecology and Evolutionary Genetics meeting, NC. September 2006.

#### 2007

Hagler, Megan and B. J. Freeman. 2007. Effects of Natural Flow Variability on the Occurrence of Shoal-Dependent Fishes Over Nine Years in the Etowah River, Georgia, USA. Annual Meeting North American Benthological Society, June 3-7, Columbia, SC...

Wenger, S. J. L. Fowler and B. J. Freeman. 2007. Integrating predictive modeling and land use policy to manage for imperiled stream fishes. Annual Meeting North American Benthological Society, June 3-7, Columbia, SC.

Freeman, M. C., S. J. Wenger, L. A. Fowler and B. J. Freeman. 2007. Adaptive management in the HCP context. Annual Meeting of the North American Benthological Society, June 3-7, Columbia, SC.

Dakin, Elizabeth E., Brady A. Porter, Byron J. Freeman, and James M. Long 2007. Genetic integrity of an isolated population of shoal bass (*Micropterus cataractae*) in the upper Chattahoochee River Basin. POSTER presented at Piedmont – South Atlantic Coast Cooperative Ecosystem Studies Unit, Annual Meeting September 2007.

Freeman, Byron J., Carrie A. Straight, Thomas R. Reinert, and Jay Shelton. 2007. Asian swamp eel, *Monopterus* sp. *cf. M. albus*, in the Chattahoochee Nature Center and adjacent marsh, Fulton County, Georgia. POSTER presented at Piedmont – South Atlantic Coast Cooperative Ecosystem Studies Unit, Annual Meeting September 2007.

Hagler, Megan M., Byron J. Freeman, Seth J. Wenger, and Mary C. Freeman. 2007. Declines of several shoal-dependent fish species in the Conasauga River over the last Decade - potential mechanisms and future research needs. Annual meeting of the Southeastern Fishes Council, Chattanooga, TN. November 2007.

Wenger, Seth J., Laurie A. Fowler, Byron J. Freeman. 2007. The Etowah Aquatic Habitat Conservation Plan. Annual meeting of the Southeastern Fishes Council, Chattanooga, TN. November 2007.

### 2008

George, Anna L., David A. Neely, Megan Hagler, Byron J. Freeman. 2008. SFC Desperate Dozen: Conasauga Logperch (*Percina jenkinsi*). Annual meeting of the Southeastern Fishes Council, Chattanooga, TN. November 2008.

Porter, Brady, Jennifer Gabel, Shane Ritchea, Beth Dakin, Casey Storey and Byron J. Freeman. 2008. Comparative phylogeography of three imperiled darter species in the upper Coosa River system. Annual meeting of the

Southeastern Fishes Council, Chattanooga, TN. November 2008.

Hagler, Megan Mary Freeman, and Bud Freeman. 2008. Using occupancy to estimate population status of the Conasauga logperch *Percina jenkinsi*. Annual meeting of the Southeastern Fishes Council, Chattanooga, TN. November 2008.

Straight, Carrie A., Byron J. Freeman, and Mary C. Freeman. 2008. Fishes of Georgia: Coming Soon to an Internet Connection Near You!! Annual meeting of the Southeastern Fishes Council, Chattanooga, TN. November 2008.

2009

Freeman, Byron J. and Andrew Taylor. 2009. Taxonomy of the redeye bass complex. *Special symposium Endemic Black Bass Species in Southern U.S.* Annual meeting of the American Fisheries Society, Nashville, TN September 2009.

Quattro, Joseph, Kenneth Oswald, Jean Leitner, and Byron Freeman. 2009. Molecular systematic relationships of redeye bass. *Special symposium Endemic Black Bass Species in Southern U.S.* Annual meeting of the American Fisheries Society, Nashville, TN September 2009.

Porter, Brady, Jennifer Gabel, Casey Storey, Elizabeth Dakin, and Byron J. Freeman. 2009. Comparative phylogeography of three imperiled darter species in the upper Coosa River system. Annual meeting of the American Fisheries Society, Nashville, TN September 2009.

Anderson, Gregory B., Mary C. Freeman and Byron J. Freeman. 2009. Occupancy estimation and modeling of the *Etheostoma brevirostrum* species complex within the Etowah River system of Northern Georgia. Annual meeting of the Southeastern Fishes Council, Chattanooga, TN. November 2009.

#### 2010

Freeman, B. and Carrie Straight. Update on robust redhorse populations and reproduction in the Broad River (Georgia). Annual Meeting of Robust Redhorse Conservation Committee, Webb Center, South Carolina, September 2010.

### 2011

Albanese, B., D. Weiler, M. Camp, and B. Freeman. Status and habitat use of the goldline darter (*Percina aurolineata*) in the Coosawattee River system of northwest Georgia. Annual Meeting Southern Division American Fisheries Society, Tampa FL. January 2011.

### 2013

Hagler, Megan, M. Freeman, B. Freeman. The difficult problem of detecting population trends of rare fishes that occur in big rivers. Annual Meeting Southern Division American Fisheries Society, Nashville, Tennessee, February 8-10, 2013.

Dakin, E.E., B. A. Porter, B. J. Freeman, and J. M. Long. Hybridization threatens Shoal Bass populations in the upper Chattahoochee River basin. Annual Meeting Southern Division American Fisheries Society, Nashville, Tennessee, February 8-10, 2013.

Freeman, B. J., A. Taylor, K. J. Oswald, J. Wares, M. C. Freeman, J. Quattro, and J. Leitner. Shoal basses, a clade of cryptic identity. Annual Meeting Southern Division American Fisheries Society, Nashville, Tennessee, February 8-10, 2013.

Oswald, K. J. Leitner, B. Freeman, and J. Quattro. Evolutionary Conservation Genetics and Historical Demography of Bartram's Bass (Micropterus sp. cf. M. coosae)

. Annual Meeting Southern Division American Fisheries Society, Nashville, Tennessee, February 8-10, 2013.

Freeman, B. J., A. Taylor, K. J. Oswald, J. Wares, M. C. Freeman, J. Quattro, and J. Leitner. Shoal basses, a clade of cryptic identity. Annual Meeting American Fisheries Society, Little Rock, Arkansas, September 8-12, 2013.

Straight, C.A., C.R. Jackson, M.C.Freeman, and B.J.Freeman. Using Passive Acoustic Monitoring to Assess Diel Patterns and Temporal Trends in Spawning Rates of Robust Redhorse (*Moxostoma robustum*). Annual Meeting Southern Division American Fisheries Society, Savannah, Georgia, January 29-February 1st, 2015.

2016

Freeman, B. J. and T. Kwak—Status of the Chattahoochee Bass in Puerto Rico. Annual Meeting Puerto Rico Chapter of the American Fisheries Society. Jan 8 2016 Ponce, Puerto Rico.

Freeman, B.J. Black Bass. Presentation to the UGA Student Chapter of the American Fisheries Society. September 15 2016.

2017

Bumpers, Phillip M., Mary C. Freeman, Megan M. Hagler, Byron J. Freeman, Seth J. Wenger. High summer flows correlate with lower population growth of shoal fishes in the current year, but higher growth in the next year. Presentation to Annual Meeting of Southeastern Fishes Council held in Chattanooga TN, 16-17 November 2017.

Stowe, Edward, Seth Wenger, Mary Freeman, Byron Freeman. Assessing fish species declines from 1996 to 2016 in the Conasauga and Etowah rivers, GA. Presentation to Annual Meeting of Southeastern Fishes Council held in Chattanooga TN, 16-17 November 2017.

Wheeler, Kit, James H. Roberts, Mary C. Freeman, Byron J. Freeman, Paul L. Angermeier. How well does the flow-trait framework predict short-term fish community dynamics in unregulated rivers? Presentation to Annual Meeting of Southeastern Fishes Council held in Chattanooga TN, 16-17 November 2017.

2018

Freeman, Byron J. Black Bass Diversity in Georgia. Invited presentation to the annual meeting of the North American Native Fish Association held in Young Harris, GA.

2019

Bennett, Jared and B. J. Freeman. 2019. Identification and Distribibution of Greenbreast (*Etheostoma jordani*) and Etowah Darters (*Etheostoma etowahae*) in the Etowah River System in Georgia. CURO Symposium Poster, Athens, GA. 8-9 April 2019.

Dwoskin, Elijah and B. J. Freeman. 2019. Hybridization in Chattahoochee Bass. CURO Symposium Poster, Athens, GA. 8-9 April 2019.

McPherson, Megan, S.P. Birch and B. J. Freeman. 2019. Mysteries of the Museum: Uncovering the History of the Georgia Museum of Natural History. CURO Symposium Poster, Athens, GA. 8-9 April 2019.

Freeman, M. C. and B. J. Freeman. 2019. Evidence of spatial and temporal changes in benthic habitat conditions in the Conasauga River mainstem. Georgia Water Resources Conference, Athens, GA, 16-17 April 2019.

2021

Bayona, N. J. and B. J. Freeman. Exploratory species delimitations among cryptic black basses. Virtual Black Bass Symposium, Southern Division American Fisheries Society, 7 April 2021.

# **Undergraduate Student Education**

2016 Research Mentor for Chris Tucker, Warnell School of Forestry and Natural Resources

Senior Thesis Research Mentor for Chris Tucker, WSFNR

CURO Advisor Spring 2016 Guy Eroh, Odum School of Ecology

2017 Senior Thesis Research Mentor for Steven Meyer, Warnell School of Forestry and Natural Resources Research Advisor for Steven Meyer (ECOL 4960), WSFN undergraduate Research Advisor for Sean Kelley (ECOL 4960), OSE undergraduate.

Research Advisor for Kaitlyn Chambers (GENE 4960) deceased

2018 Research Adviser for Alana Hagley (BIOL 4960), BIOL undergraduate

2019 Research Advisor for Jared Bennett (ECOL 4960) Spring, Fall, CURO Advisor Spring, Summer, Fall

Research Advisor for Elijah Dwoskin (ECOL 4960) Spring, CURO Advisor Spring

Research Advisor for Emily Noakes (ECOL 4960) Summer

Museum of Natural History Internship Advisor (ECOL 4261)

**Emily Noakes** 

**Ivy Francis** 

Diane Klement

2020 Research Advisor for Jared Bennett (ECOL 4960) Spring

2021-Senior Thesis Research Mentor Jamon Jordan, WSFNR

Curo Advisor Spring 2021-Jamon Jordan —

Co-Graduate Advisor Double Dawg Jared Bennett

Honors Option Advisor- James Secor Ichthyology Fall 2021GA

2022 Young Dawg Advisor Spring 2022. Chloe Graham

## **Graduate Student Education**

# Graduate students I have provided primary or secondary support for

1995 Joe DeVivo

1996 Kevin Barnes, Joe Devivo, David Walters, Andy Willats

1997 Kevin Barnes, David Walters, Andy Willats, Deborah Kane

1998 Andy Willats, David Walters

1999 David Walters, Lee Hartle

2000 David Walters, Lee Hartle, Michael Merrill

2001 David Walters, Casey Storey, Paula Marcinek, Wendy Parisi

2002 David Walters, Casey Storey, Paula Marcinek, Allison Roy

2003 Allison Roy, Seth Wenger

2004 Allison Roy, Seth Wenger, Jane Rogers, James Norman, Will Duncan

2005 Seth Wenger, Jane Rogers, James Norman, David Homans, Justin Ellis

2006 Seth Wenger, Jane Rogers, James Norman, David Homans

2007 Greg Anderson, Rachel Katz, Carrie Straight

2008 Greg Anderson, Rachel Katz, Carrie Straight

2009 Greg Anderson, Rachel Katz, Carrie Straight, Christina Baker

2010 Rachel Katz, Carrie Straight, Christina Baker

2011 Carrie Straight, Christina Baker

2012 Carrie Straight, Christina Baker

2013 Carrie Straight

2014 Carrie Straight

2021- Jared Bennett

2022- Jared Bennett

Graduate students on whose committees I have served or provided substantial guidance on research

#### Graduated

Patrick Pierce, Joe DeVivo, Kevin Barnes, David Walters, Andy Willats, Michael Merrill, Casey Storey, Paula Marcinek, Megan Hagler, Jane Rogers, David Homans, Seth Wenger, Wendy Parisi, Greg Anderson, Sarah Bergh, Christina Baker, Carrie Straight, Rachel Katz, Katie Bockrath, Nick Troendle, Adam Clause, Karen Bobier, Will White, Jacob Tyler, Jared Bennett

Current 2024 Bryson Hilburn

### **Committees and Assignments**

Previous

Member, Seminar Committee Odum School of Ecology

Chair, Facilities Committee, Odum School of Ecology

Co-Chair Search Committee for River Basin Center Science Policy Director 2013

Chair, University Facilities Committee as Representative of Odum School of Ecology 2016-2023

Member University Facilities Committee as Representative of Odum School of Ecology 2023-2026

Member, University Council Executive Committee, Representative of Odum School of Ecology 2023-2026

Member, University Facilities Committee Representative of Odum School of Ecology

Member, Precinct Plan Steering Committee, GMNH, Interdisciplinary Stem Building One. 2017-2021

Member, University Wide Committee to hire Facilities AVP. 2021.

Member Search Committee— Curator UGA Herbarium 2022-23.

## Post-Doctoral Fellows

**Brady Porter** 

Mark Scott

Tom Reinert

# Service Requests

# Reviews 2020

Conservation Genetics Resources Freshwater Biology Marine and Freshwater Research

Reviews 2021

**Conservation Genetics** 

Served as endangered species expert at Georgia House of Representatives Committee hearing summer 1992 at request of GDNR Fisheries.

Served as endangered species expert at GDNR Board of Natural Resources meeting, August 1992 at request of Department of Natural Resources. Served as endangered species expert and testified at GDNR Board of Natural Resources meeting, October 1992 at request of Department of Natural Resources.

Appointed to Committee to propose legislative changes to Georgia's protected species legislation. January 1993, by Joe Tanner, GDNR commissioner.

Testified at Georgia Senate Committee hearing on Soil Erosion and Sedimentation Legislation summer 1993 at request of State Senate.

Panel Member, Technical Advisory Group for the West Georgia Regional Water Supply Project. 1993. at request of Georgia Department of Natural Resources.

Alabama Sturgeon Scientific Review Panel member, at the request of the U.S. Department of the Interior. 1993.

Panel Member, Robust Redhorse Recovery Team. at request of Georgia Department of Natural Resources. 1994 through 2002.

Appointed to Regents Committee to determine statutory changes to Georgia's Soil Erosion and Sedimentation Legislation. 1994, at request of the Georgia State Senate.

Chairman, Fisheries Workgroup, Rivercare 2000 River Assessment Team, at request of Georgia Department of Natural Resources. 1996-1998

Panel Member, Minimum In-stream Flow Workgroup, 1996-1998, at request of Georgia Department of Natural Resources.

Expert Witness at the request of Georgia Attorney General and Georgia Department of Natural Resources. 1998.

Member, Technical Advisory Committee, Southeastern Fishes Council 1998-2001.

Member, Georgia Nongame Advisory Committee, at request of Georgia Department of Natural Resources. 1998-2001

Member Special committee to evaluate "DeadHead" logging in Georgia, at request of Georgia Department of Natural Resources. 1999-2001

Member, Executive Committee, River Basin Science and Policy Center 2000-2002

Invited Speaker, Savannah River Compact Meeting held in Augusta Georgia April 2002.

Invited participant, ACT-ACF Biological Monitoring Planning Workshop at request of The Nature Conservancy and US Geological Survey, held in Albany Georgia April 2002.

Invited resource specialist, Institute for Georgia Environmental Leadership, sponsored by Governor's Environmental Advisory Council and J.W. Fanning Institute for Leadership, November 2002.

Invited resource specialist, Georgia DNR State Wildlife Assessment Program Technical meeting, held at Georgia Wildlife Federation Office, January 2014.

Member, Executive Committee, Robust Redhorse Conservation Committee 2016-2025.

# **Community Service**

Member, Board of Directors, Madison County Chamber of Commerce 1990-1992
Founder and Member, Board of Directors Broad River Watershed Association 1992-1998, 2008-2011
Member, Citizens Task Force to develop the Madison County Comprehensive Land Use Plan 1992-1998
Solid Waste and River Corridor Consultant to Madison County Planning Commission 1992-1998
Chairman, Board of Directors Broad River Watershed Association 1997-1998
Member, Board of Directors, Broad River Watershed Association 2009-2016

# **Honors and Awards**

Co-Recipient Alec Little Environmental Award

2011

Faculty Recognition Award from Franklin College for working with Deans Council

2018

Selected as a participant in the Special Collections Libraries Faculty Fellows Program

2019

Completed Special Collections Libraries Faculty Fellows Program