

SETH J. WENGER - CURRICULUM VITAE

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RESEARCH FOCUS

My work consists of several distinct but related areas: (1) research on the effects of urbanization and other anthropogenic land uses on freshwater aquatic ecosystems, especially on imperiled fish species; (2) development of practical land use management policies to minimize impacts to freshwater aquatic ecosystems; (3) development of statistical methods for estimating populations and forecasting species population status; (4) monitoring and assessing the biotic integrity of communities. I am also interested in decision analysis and adaptive management, especially decision-making that makes optimal use of limited information. At present I work mainly in Georgia, USA, but I am beginning to work in the Northern Andes region of South America and eventually hope to work primarily in that region.

EDUCATION

- PhD Degree in Ecology** 2006
University of Georgia, Athens, GA
Dissertation: Predicting and Preventing Losses of Imperiled Fish Species in an Urbanizing Environment
GPA: 3.9
- MS Degree in Conservation Ecology and Sustainable Development** 1999
University of Georgia, Athens, GA
Thesis: Developing Science-Based Riparian Buffer Protection Policies
GPA: 4.0
- BS Degree in Environmental Science & BA Degree in English** 1994
Lebanon Valley College, Annville, PA
GPA: 3.7 (graduated *magna cum laude*)

PROFESSIONAL EXPERIENCE

- Associate Director, University of Georgia River Basin Center** 2007-present
Position Classification: Public Service Assistant (faculty)
- Position is 25% administrative and 75% research.
 - Responsible for managing day-to-day internal operations.
 - Manage projects, budgets and personnel.
 - Conduct original scientific and policy research.
 - Write peer-reviewed publications in academic journals, as well as reports published by the Center.
- Conservation Ecologist & Policy Analyst** 2005-2007
Position classification: Research Coordinator/Research Professional 3 1999-2003
Institute of Ecology/River Basin Center, University of Georgia, Athens, GA
- Coordinated projects ranging from applied ecological research to development of regional conservation policies.
 - Served as coordinator of the Etowah Habitat Conservation Plan.
 - Conducted original scientific and policy research.
 - Supervised staff and students; managed multiple complex projects.
 - Delivered talks and presentations to citizens, governments, professionals and academics.

- Co-authored and edited over 30 reports, fact sheets and outreach pieces for the Etowah HCP.
- Prepared successful grant proposals totaling over \$1.25 million as of 2007.

Graduate Assistant

2003-2005

Institute of Ecology, University of Georgia, Athens, GA

1998-1999

- Conducted research in support of the Etowah Habitat Conservation Plan.
- Developed guidelines for riparian buffer protection that have been widely disseminated and used by federal agencies, local governments and advocacy organizations nationwide.
- Created model ordinances and a guidebook to help local governments protect riparian buffers.

Communications Coordinator

1997

Link-to-Learn Program, Harrisburg, PA

- Directed internal communications for Link-to-Learn, a \$127 million state education technology initiative.
- Provided coordination among government agencies, executive offices and educational institutions.

Press Secretary

1996

Ruth C. Rudy for Congress Campaign, Bellefonte, PA

- Managed press/public relations for a Congressional campaign in a district covering five media markets.
- Wrote press releases and speeches. Organized press conferences, interviews, and meetings.
- Oversaw staff members and volunteers.

PUBLICATIONS

Wenger, S.J. 2008. The use of surrogates to predict the stressor response of imperiled species. *Conservation Biology* (in press).

Roy, A.H., S.J. Wenger, T.D. Fletcher, C.J. Walsh, A.R. Ladson, W.D. Shuster, H.W. Thurston and R.R. Brown. 2008 Impediments and solutions to sustainable, watershed-scale urban stormwater management: lessons from Australia and the United States. *Environmental Management* (in press; available online at www.springerlink.com/content/n6324621286q2173/fulltext.pdf).

Wenger, S.J. and M.C. Freeman. 2008. Estimating species occurrence, abundance and detection probability using zero-inflated distributions. *Ecology* (in press).

Wenger, S.J., J.T. Peterson, M.C. Freeman, B.J. Freeman and D.D.Homans. 2008. Stream fish occurrence in response to impervious cover, historic land use and hydrogeomorphic factors. *Canadian Journal of Fisheries and Aquatic Sciences* 65:1250-1264.

Wenger, S.J., T.L. Carter, R. A. Vick and L.A. Fowler. 2008. Runoff limits: an ecologically-based stormwater management program. *Stormwater* 9(2):45-58.

Wenger, S.J. and J. Baker Roskie. 2007. *City of Jefferson Curry Creek Water Supply Watershed: Estimate of Existing and Projected Impervious Cover and Assessment of Watershed Protection Provisions*. UGA River Basin Center, Athens, GA.

Freeman, B.J., M. Hagler, S.J. Wenger, G.B. Anderson and R.A. Katz. 2007. *Identification and Mapping of Critical Habitats in the Conasauga River Corridor of Georgia and Tennessee: 2006 Annual Report to the Georgia Department of Natural Resources, Atlanta*. UGA Odum School of Ecology / Georgia Museum of Natural History, Athens, GA.

Freeman, B.J., M. Hagler, S.J. Wenger and R.A. Katz. 2007. *Identification and Mapping of Critical Habitats in the Etowah River System with an Emphasis on the Distribution of Sensitive Species of Fishes: 2006-2007 Annual Report to the Georgia Department of Natural Resources, Atlanta*. UGA Odum School of Ecology / Georgia Museum of Natural History, Athens, GA.

- UGA River Basin Center. 2007. *Draft Etowah Aquatic Habitat Conservation Plan*. UGA River Basin Center, Athens, GA. Available online: www.etowahhbc.org. [Primary author of pp 11-97.]
- Wenger, S.J. and Byron J. Freeman. 2007. *Impacts of the Proposed Russell Creek Reservoir on Imperiled Fish Species and Potential Mitigation Options*. UGA River Basin Center, Athens, GA.
- Wenger, S.J. 2006. *Predicting and Preventing Losses of Imperiled Fish Species in an Urbanizing Environment (PhD Dissertation)*. University of Georgia, Athens, GA.
- Wenger, S.J. and M.C. Freeman. 2006. *Stressors to Imperiled Fishes in the Etowah Basin: Mechanisms, Sources and Management under the Etowah HCP*. UGA River Basin Center, Athens, GA.
- Wenger, S.J., T.L. Carter, E. Dreelin and C. Gervich. 2006. *Etowah HCP Stormwater Management Policy, including the Runoff Limits Program*. UGA River Basin Center, Athens, GA.
- Norman, J., E. Franzen, H. Millington, B. Ensign, S. Wenger, M. Freeman and M. Hagler. 2006. *Etowah HCP Stream Crossing and Culvert Design Policy*. UGA River Basin Center, Athens, GA.
- Roy, A.H., M.C. Freeman, B.J. Freeman, W.E. Ensign, S.J. Wenger and J.L. Meyer. 2006. Importance of streamside riparian forests in urban areas contingent on sediment and hydrologic regime. *Environmental Management* 37(4): 523-539.
- Carter, T.L., E. Franzen, C. Gervich, B. Bumback and S. Wenger. 2005. *Standard Operating Procedure for Erosion and Sedimentation Control and Grading Ordinance*. UGA River Basin Center, Athens, GA.
- Roy, A.H., M.C. Freeman, B.J. Freeman, S.J. Wenger, W.E. Ensign and J.L. Meyer. 2005. Investigating hydrologic alteration as a mechanism of fish assemblage shifts in urbanizing streams. *Journal of the North American Benthological Society* 24(3): 656-678.
- Freeman, B.J., S. Wenger, C. Straight and M. Hagler, 2003. *Prioritization of Watersheds in the Upper Chattahoochee River Basin for Preservation of Sensitive Fish and Crayfish Species*. Report for the Upper Chattahoochee Riverkeeper. University of Georgia, Athens, Georgia.
- Wenger, S.J., J. Roskie and L.A. Fowler. 2003. *Recommendations for Managing Growth and Protecting Water Quality in the Curry Creek Watershed*. Report for the City of Jefferson, GA. University of Georgia, Athens, GA.
- Fowler, L.A., B.J. Freeman and S.J. Wenger. The Etowah Regional Habitat Conservation Plan. *Proceedings of the 2003 Georgia Water Resources Conference*, K.J. Hatcher, ed. University of Georgia, Athens, GA.
- Freeman, B.J., S.J. Wenger, J.E. Rogers and M.M. Hagler. 2003. *Fish Community Analysis of Allatoona, Butler and Proctor Creek Watersheds, Etowah River Basin, Cobb County, GA*. University of Georgia, Athens, GA.
- Freeman, B.J., S.J. Wenger, J.E. Rogers. 2003. *Identification and Mapping of Critical Habitats in the Conasauga River Corridor of Georgia and Tennessee: 2001-2002 Annual Report*. University of Georgia, Athens, GA.
- Freeman, B.J., M.M. Hagler, M.C. Scott and S.J. Wenger. 2003. *Identification and Mapping of Critical Habitats in the Etowah River System with an Emphasis on the Distribution of Sensitive Species of Fishes: 2002 Annual Report*. University of Georgia, Athens, GA.
- Freeman, B.J., C.A. Straight, P.A. Marcinek, S.J. Wenger, M.M. Hagler and M.C. Freeman. 2003. Distribution and Status of the "Coosa" Madtom (*Noturus* sp. cf. *N. munitus*) and Freckled Darter (*Percina lenticula*) in Georgia. University of Georgia, Athens, GA.
- Freeman, B.J., S. J. Wenger, S.E. McClurg and C.A. Straight. 2002. *Etowah River Basin Stressors Analysis*. Report for the U.S. Fish and Wildlife Service. University of Georgia, Athens, GA.
- Lose and Associates, Inc., University of Georgia and Greenways Inc., 2002. *Gwinnett County Open Space and Greenway Master Plan*. Available from Gwinnett County, Georgia, Parks and Recreation Department (primary author of Sections 3 and 4, plus other components).
- Wenger, S. and L. Fowler. 2001. *Conservation Subdivision Ordinances*. Atlanta Regional Commission, Atlanta, GA..

- Freeman, B.J. and S.J. Wenger. 2001. *Identification and Mapping of Critical Habitats in the Conasauga River Corridor of Georgia and Tennessee: 2001 Annual Report*. University of Georgia Institute of Ecology, Athens, GA.
- Ruhlman, M. and S. Wenger. 2001. "The Alcovy Watershed Protection Plan: A regional approach to watershed protection." Pp. 286-290 in *Proceedings of the 2001 Georgia Water Resources Conference*, K.J. Hatcher, ed. University of Georgia, Athens, GA.
- Brown and Caldwell, Limnotech, Inc. and the University of Georgia. 2001. *The Alcovy Watershed Protection Plan*. Atlanta, GA: Brown and Caldwell. Primary author of chapters 2, 3, 5, 6, 11 and 12.
- Freeman, B.J. and S.J. Wenger. 2000. *Identification and Mapping of Critical Habitats in the Etowah River System with an Emphasis on the Distribution of Sensitive Species of Fish: 2001 Annual Report*. Athens, GA: University of Georgia.
- Freeman, B.J. and S.J. Wenger. 2000. *Prioritizing Streams for Buffer Preservation and Restoration in the Etowah River Basin (Report for the U.S. Fish and Wildlife Service)*. University of Georgia, Athens, GA.
- Wenger, S.J. and L. Fowler. 2000. *Protecting Stream and River Corridors: Creating Effective Local Riparian Buffer Ordinances*. University of Georgia, Athens, GA.
- Ache, B.W. and S.J. Wenger. 1999. *A Survey of Onsite Wastewater Treatment Systems: Identifying Alternatives Appropriate to Coastal Louisiana Based on Performance and Cost*. A publication of the Barataria-Terrebonne National Estuary Program, Thibodaux, Louisiana.
- Wenger, S.J. 1999. *A Review of the Scientific Literature on Riparian Buffer Width, Extent and Vegetation*. University of Georgia, Athens, GA.
- Wenger, S.J. 1999. *Developing Science-Based Riparian Buffer Protection Policies* (MS thesis). University of Georgia, Athens, GA.

PUBLICATIONS IN PREPARATION

- Wenger, S.J., M.C. Freeman, L.A. Fowler and B. J. Freeman. Managing for imperiled species by integrating predictive modeling and land use policy. To be submitted to *Ecology and Society*.
- Wenger, S.J. Estimating abundances and detection probabilities without repeat site visits.
- Wenger, S.J., M.C. Freeman, M. Hagler and B.J. Freeman. Populations and population trends of percid fishes in the Conasauga River, Georgia, estimated by spatial subsampling.
- Anderson, E.P., S.J. Wenger, M.C. Freeman, B.J. Freeman, J.-F. Rivadeneira and D. Buñay. Spatial trends in fish, macroinvertebrate and water quality in the Pastaza River Basin, Ecuador: implications for conservation priorities in the eastern slope of the Northern Andes region.

SELECTED MEETING AND CONFERENCE PRESENTATIONS

Note: only meetings for which I was first author or presenter are listed

- Wenger, S. J., L.A. Fowler and B.J. Freeman. 2007. *The Etowah Aquatic Habitat Conservation Plan*. Southeastern Fishes Council Annual Meeting. November 8, 2007.
- Wenger, S.J. *Introduction to aquatic habitat conservation plans*. The Nature Conservancy Efrogmson Workshop. August 30, 2007.
- Wenger, S.J., L.A. Fowler and B.J. Freeman. *Integrating predictive modeling and land use policy to manage for imperiled stream fishes*. 2007 North American Benthological Society Annual Meeting. June 5, 2007.
- Wenger, S.J., T.L. Carter, M.C. Freeman, L.A. Fowler and B.J. Freeman. *Stormwater management: the key to protecting the imperiled fishes of the Etowah*. 2007 Georgia Water Resources Conference, March 28, 2007.
- Wenger, S.J., M.C. Freeman and B.J. Freeman. *Predicting persistence of imperiled fish species in an urbanizing landscape*. Ecological Society of America Annual Meeting, August 10, 2006.

- Wenger, S.J., M.C. Freeman, J.T. Peterson, B.J. Freeman and D.D. Homans. *Estimating effects of impervious cover on occurrence of stream fishes to guide management policies*. 2006 North American Benthological Society Annual Meeting. June 5, 2006.
- Wenger, S.J., M.C. Freeman, T.L. Carter and L.A. Fowler. *Using runoff limits to protect imperiled fish species*. 2005 Georgia Water Resources Conference. April 26, 2005.
- Wenger, S.J., M.C. Freeman, B.J. Freeman, N.M. Burkhead and A.H. Roy. *Changes in fish assemblages in urbanizing watersheds*. 2004 American Fisheries Society Annual Meeting, August 25, 2004.
- Wenger, S.J., M.C. Freeman, B.J. Freeman and A.H. Roy. *Identifying a metric of sensitive fish species for assessing impacts of urbanization on fish assemblages*. 2004 North American Benthological Society Annual Meeting, June 7, 2004.
- Wenger, S.J. *Directing patterns of growth: greenspace preservation*. 2003 Conference, Association of County Commissioners of Georgia. September 29, 2003.
- Wenger, S.J. and A. Roy. *Riparian offers in urban areas: what they can do, what they can't do, and how to protect them*. Georgia Urban Forest Council Third Quarterly Meeting, August 13, 2003.
- Wenger, S.J., B.J. Freeman, M.C. Freeman, A.Roy and W.E. Ensign, 2003. *Assessing effects of development on imperiled fish communities for the Etowah Regional Habitat Conservation Plan*. Ecological Society of America 2003 Annual Conference, August 6, 2003.
- Fowler, L.A., B.J. Freeman and S.J. Wenger (presenter). *The Etowah Regional Habitat Conservation Plan*. 2003 Georgia Water Resources Conference, April 24, 2003.
- Wenger, S.J. *Where do we want to go and how do we get there?* "Inside the Loop" Meeting on Growth Management, Oconee County, GA. March 19, 2003
- Wenger, S.J. *Directing patterns of growth: greenspace preservation*. 2003 Mayor's Day Conference, Georgia Municipal Association, Cobb County, GA. January 25, 2003
- Wenger, S.J., S. Kidd and C. Stoughton. *A regional approach to greenspace protection*. Citizens Summit for Livable Communities, Atlanta, GA. November 10, 2001.
- Wenger, S.J. *Protecting streams with buffers and watershed management*. Citizens Summit for Livable Communities, Atlanta, GA. November 10, 2001.
- Wenger, S.J. *Conservation subdivisions*. Georgia Planning Association Annual Meeting, Jekyll Island, GA. October 24, 2001.
- Wenger, S.J. *Managing growth to protect natural resources*. Coastal Decision Maker Workshop, Sapelo Island Visitors Center, GA. October 23, 2001.
- Wenger, S.J. *Protecting drinking water supply watersheds*. Soque Watershed Association Drinking Water Protection Workshop, Clarksville, GA. September 14, 2001.
- Wenger, S.J. *Effective local policies for protecting natural resources*. EPD Environmental Compliance Officer Training Program, Savannah, GA. August 22, 2001.
- Wenger, S.J. *Stormwater quality management: a model ordinance for Georgia*. 2000 Georgia River Network Annual Conference, Milledgeville, GA. October 28, 2000.
- Wenger, S.J. *Riparian buffers: function, performance and laws in Georgia*. 2000 Georgia River Network Annual Conference, Milledgeville, GA. October 28, 2000.
- Freeman, B.J. and S.J. Wenger (presenter). 2000. *A rapid prioritization method for protecting imperiled streams*. Society for Conservation Biology Annual Meeting, Missoula, MT. June 9-12, 2000.
- Wenger, S.J. *Technical aspects of buffers*. Coastal Decision Makers Workshop on Riparian Buffers. Charleston, SC. May 31, 2000.
- Wenger, S.J. and L.A. Fowler. 1999. *Developing science-based riparian buffer protection policies in Georgia*. Society for Conservation Biology Annual Meeting, College Park, MD. June 17-21, 1999.

GRANTS AND CONTRACTS

- 2008-2009. Water Balance: A Freshwater Conservation Initiative in the Etowah River Basin. Contract from World Wildlife Fund. T.L. Carter and S.J. Wenger, P.I.s. \$38,000. Awarded.
- 2008-2010. Assessment of Urban, Suburban and Transitional Watersheds in Athens-Clarke County. Contract from Athens-Clarke County. A.D. Rosemond and S.J. Wenger, P.I.s. \$94,444. Awarded.
- 2008-2009. Development of Wetlands Protection Ordinances for Coastal Georgia. University of Georgia Scholarship of Engagement Grant Program. S.J. Wenger and L.A. Fowler, P.I.s. \$5,000. Awarded.
- 2008-2009. Development of a Habitat Conservation Plan for Imperiled Aquatic Species of the Etowah River Basin: Funding for Transition to Implementation. US Fish and Wildlife Service/GA Department of Natural Resources. S.J. Wenger, B.J. Freeman and L.A. Fowler, P.I.s. \$217,772. Awarded.
- 2008-2009. Assessing Conservation Improvements in the Conasauga River system. Georgia Department of Natural Resources. B.J. Freeman and S.J. Wenger, P.I.s. \$27,000. Awarded.
- 2008-2009. Assessing Baseline Ecological Conditions in the upper Etowah River system. Georgia Department of Natural Resources. B.J. Freeman and S.J. Wenger, P.I.s. \$27,260. Awarded.
- 2007-2008. Assessing Conservation Improvements in the Conasauga River system. Georgia Department of Natural Resources. B.J. Freeman and S.J. Wenger, P.I.s. \$27,000. Completed.
- 2007-2008. Assessing Baseline Ecological Conditions in the upper Etowah River system. Georgia Department of Natural Resources. B.J. Freeman and S.J. Wenger, P.I.s. \$27,260. Completed.

Note: Prior to receiving a PhD I could not serve as a P.I., but prepared the following successful grant proposals:

- 2006-2007. Development of a Habitat Conservation Plan for Imperiled Aquatic Species of the Upper Etowah River Basin. US Fish and Wildlife Service / GA Department of Natural Resources. Prepared for B.J. Freeman and L.A. Fowler, P.I.s. \$98,398. Completed.
- 2005-2006. Development of a Habitat Conservation Plan for Imperiled Aquatic Species of the Upper Etowah River Basin. US Fish and Wildlife Service / GA Department of Natural Resources. Prepared for B.J. Freeman and L.A. Fowler, P.I.s. \$392,608. Completed.
- 2004-2005. Development of a Habitat Conservation Plan for Imperiled Aquatic Species of the Upper Etowah River Basin. US Fish and Wildlife Service / GA Department of Natural Resources. Prepared for B.J. Freeman and L.A. Fowler, P.I.s. \$355,634. Completed.
- 2003-2004. Development of a Habitat Conservation Plan for Imperiled Aquatic Species of the Upper Etowah River Basin. US Fish and Wildlife Service / GA Department of Natural Resources. Prepared for B.J. Freeman and L.A. Fowler, P.I.s. \$281,934. Completed.
- 2002-2003. Development of a Habitat Conservation Plan for Imperiled Aquatic Species of the Upper Etowah River Basin. US Fish and Wildlife Service / GA Department of Natural Resources. Prepared for B.J. Freeman and L.A. Fowler, P.I.s. \$158,050. Completed.

AWARDS

- Co-recipient, US Fish and Wildlife Service Regional Director's Conservation Award for development of the Etowah Aquatic Habitat Conservation Plan, 2007
- UGA Institute of Ecology Solitary Glove Award for Community Service, 2004
- Co-recipient, Georgia Planning Association Outstanding Planning Award for the Gwinnett County Open Space and Greenways Master Plan, 2003
- UGA Institute of Ecology Best Student Paper Award (applied category), 2000

UGA Institute of Ecology Environmental Policy Award for outstanding contributions to environmental policy research and development, 2000

UGA University-wide fellowship (2-year scholarship), 1997

Lebanon Valley College Anthony Neidig Award for Outstanding Graduating Senior, 1994

SERVICE

Reviewed articles for Journal of Environmental Quality, Urban Ecosystems, and the US Environmental Protection Agency. Reviewed proposals for the Center for Water Sciences.

Co-Coordinator, Second Symposium on Urbanization and Stream Ecology (SUSE2), May 23-24, 2008, Salt Lake City, Utah.

Athens Grow Green Coalition. Founding Member/Board Member, 2000-present.

Interim Coordinator, EcoCiné Environmental Film Festival, Athens, GA, 2007.

Coordinator, Special Session on Aquatic Habitat Conservation Plans, 2007 NABS Annual Meeting.

Institute of Ecology Executive Committee, 2004-2006.

Upper Oconee Watershed Network. Board Member, 2002-2003.

Georgia Environmental Planning Criteria Stakeholders Group. Member, 2001-2002 (official state committee to develop environmental protection rules that achieve goals while respecting property rights).

Georgia Stream Buffer Variance Criteria Technical Advisory Committee. Member, 2000 (official state committee to develop variance criteria for state riparian buffer regulations).

SKILLS

Experience with a range of frequentist and Bayesian statistical methods. Proficiency in various software packages, including R, *WinBUGS SAS*, *JMP*, and *PCord*.

Proficiency with Geographic Information Systems, including *Arcview 3.x* and *ArcInfo/ArcGIS 9.x*, and various extensions. Experienced in scripting and customization.

Proficiency with various other software applications, including *MS Word*, *MS Excel*, *MS Powerpoint*, *Filemaker Pro*. Experienced with graphics and layout applications, including *Adobe Pagemaker*, *Quark Express*, and *Adobe Photoshop*.

Knowledgeable of computer hardware and operating systems, including basic *Linux* setup and management.

Knowledge of local, state and federal environmental laws and policy development in the U.S.

Experienced in various aquatic ecology field research methods.

Knowledge of Spanish, including reading proficiency and conversational skill.

Experience with photography, photographic equipment and film processing.