

## **CONTACT INFORMATION**

Sally L. Benjamin, Ecologist  
USGS Northern Prairie Wildlife Research Center  
8711 37th Street Southeast, Jamestown, North Dakota 58401  
701-253-5574  
Fax: 701-253-5553  
[slbenjamin@usgs.gov](mailto:slbenjamin@usgs.gov)

2 Riverview Lane, Jamestown ND 58401 USA  
701-252-4412  
[slbenjamin@yahoo.com](mailto:slbenjamin@yahoo.com)

## **EMPLOYMENT HISTORY**

*September 2008 to present:* Ecologist, Science Program Development, Northern Prairie Wildlife Research Center, USGS, Jamestown, North Dakota, USA

*January to September 2008:* Chief, Research Branch, Northern Prairie Wildlife Research Center, USGS, Jamestown, North Dakota, USA

*2004-2008:* National Wildlife Biologist, Farm Service Agency, U.S. Department of Agriculture, Washington, D.C., USA

*2003-2004:* U.S. Geological Survey Liaison, Association of Fish & Wildlife Agencies, Washington, D.C., USA

*2001-2003:* Attorney Editor, West Group, St. Paul, Minnesota, USA

*1999-2000:* Land Use Planner, City of Minneapolis Planning Department, Minneapolis, Minnesota, USA

*1993-1996:* Attorney, Merritt, Furber & Timmer, Minneapolis, Minnesota, USA

*1990-2004:* Litigation Consultant, President, Risk Writers, Ltd., Minneapolis, Minnesota, USA

*1990-1991:* Groundwater Policy Analyst, Minnesota Pollution Control Agency, St. Paul, Minnesota, USA

*1989-1990:* Project Scientist, Low-Level Radioactive Waste Siting Project, R. F. Weston, Albany, New York, USA

*1985-1990:* Citizen Involvement Coordinator, Wisconsin Department of Natural Resources, Madison, Wisconsin, USA

1983-1985: Fisheries Research Technician, Pennsylvania Fish Commission, Pleasant Gap, Pennsylvania, USA

1979-1980: Wildlife Research Technician, National Park Service, Isle au Haut, Acadia National Park, Maine, USA

1978-1981: Wildlife Research Technician, Pennsylvania Game Commission, Northcentral, Pennsylvania, USA

## RESEARCH

*Undergraduate Research:* Production potential of tub-aquaculture for fat-head minnows. Internship on Wild turkey reproduction with the Pennsylvania Game Commission. Internship on Wild trout populations with the Pennsylvania Fish Commission.

*Graduate Research:* Trained in aquatic entomology, particularly identifying *Trichoptera* to the species level. Lead on data-mining publications and files to conduct a historic water quality assessment of Black Earth Creek watershed, using the Hilsenhoff Index; this work was integrated into a nonpoint source assessment of Black Earth Creek, published by the Wisconsin Department of Natural Resources; recommendations of the research team were integrated into WDNR management of the watershed. I also served on the data collection coordinating team and the report quality control and editing team for this multidisciplinary project.

*Graduate Research:* University of Maine at Orono – trained in energetics and digestibility techniques; applied these techniques to digestibility studies of Rockweed (*Ascophyllum nodosum*), a seaweed commonly ingested by White-tailed deer (*Odocoileus virginianus*) living on Acadia National Park. I also assisted with energetics studies on Black ducks (*Anas rubripes*), moose (*Alces alces*), and coyotes (*Canis latrans*).

*Research Technician:* Pennsylvania Game Commission, Wild Turkey Project, Northcentral, Pennsylvania – radiotracked Wild turkey (*Meleagris gallopavo*) hens during nesting and brood rearing; performed habitat assessment of home range of wild turkey hens; mapped telemetry data.

*Research Technician:* Pennsylvania Game Commission, Furbearer Project, Northcentral, Pennsylvania – conducted sex, age, condition and reproductive assessment of harvested furbearers.

*Research Technician:* Pennsylvania Fish Commission, Wild Trout Project, Pennsylvania – conducted electroshocking surveys of wild brook trout (*Salvelinus fontinalis*), brown trout (*Salmo trutta*), and rainbow trout (*Oncorhynchus mykiss*) populations in Class A stream sections across the state; developed mark/recapture estimates of trout populations; determined condition and age of captured trout. This project was the basis of new fishing regulations and resulted in wild trout regulations, including catch-and-release and slot-sizes. It also led to more careful

targeting of the release of hatchery-reared fish into publically accessible areas and away from stream sections capable of supporting wild trout populations.

### **Significant Professional Achievements:**

*Agricultural Conservation / National Policy:* Served as the first National Biologist for Farm Service Agency, U.S. Department of Agriculture; established conservation practices on retired agricultural private lands for the Conservation Reserve Program (CRP) to:

- Provide upland nesting habitat for waterfowl in the Prairie Pothole Region (100,000 acres of wetland complexes in five states that are located outside of the recognized 100-year floodplain. The practice will enhance duck nesting habitat on the most duck productive areas of Iowa, Minnesota, Montana, North Dakota, and South Dakota).
- Reforest up to 250,000 acres of longleaf pine forests in nine southern states (Alabama, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Texas and Virginia).
- Restore wildlife habitat on 500,000 acres across all fifty states to benefit species of highest conservation concern, including game species, endangered/threatened/at-risk species, and other popular or otherwise important species. This practice was revolutionary in that it invited proposals for SAFE projects from State, Federal and nonprofit partners and encouraged multi-state projects to benefit species of conservation concern.

*Litigation / Environmental Science:* Established and managed a successful litigation / environmental services consulting firm for a decade. Projects included multi-million dollar liability cases for insurance defense groups, groundbreaking awards for plaintiffs, including the first negotiated settlement for Wisconsin Migrant workers for pesticide exposure and the largest jury award in Wisconsin legal history for historical contamination of soil and water. Coined the term 'historical toxicology' and founded the practice of historical toxicology, a field of expertise now in common use in environmental litigation.

*Administrative Rule-making:* Contracted with the Wisconsin Department of Justice to develop expert testimony regarding the environmental fate and toxicology of atrazine and its metabolites. On the strength of that testimony, Wisconsin adopted the only atrazine rule that accounts for metabolites as well as the parent compound.

*Citizen Involvement / Environmental Dispute Resolution:* Established and led citizen involvement program for the Wisconsin Department of Natural Resources; trained and mentored staff and management in citizen involvement principles and techniques; led / mentored staff in more than sixty contentious projects (such as regulatory changes, Native American rights, endangered species recovery, park planning, and contaminated site remediation) during five year tenure.

## **EDUCATION**

### **Degree Programs**

*Juris Doctorate:* Law, University of Minnesota Law School, Minneapolis, Minnesota; conferred with honors, 1994; emphasis environmental law.

*Master of Science:* Water Resources Management, University of Wisconsin-Madison, Madison, Wisconsin; conferred with honors, 1985; interdisciplinary science program.

*Bachelor of Arts:* Biology, Mansfield State University, Mansfield, Pennsylvania; conferred with honors, 1979; emphasis field biology.

### **Non-degree Programs**

Wildlife Management at Pennsylvania State University, University Park, Pennsylvania

Wildlife Research at University of Maine – Orono, Maine

### **Professional training**

#### Group problem-solving:

Structured Decision-Making, 40-hour training, U.S. Fish and Wildlife Service, Northern Prairie Wildlife Research Center, June 2009.

Environmental Dispute Resolution, University of Minnesota Law School, 1994.

Small group facilitation, The Humphrey Institute, 1994.

Mediator Certification Training, 40-hour training, Minnesota Bar Association, 1994.

Citizen Involvement in Government Decision-making, University of Minnesota Law School, 1993

Citizen Involvement Training, 40-hour training, Wisconsin Department of Natural Resources, 1985.

Citizen Participation, 40-hour training, Wisconsin Department of Natural Resource, 1985.

#### GIS:

GIS for Wildlife Managers, 40-hour training, September 2009, National Conservation Training Center, Shepherdsville, West Virginia

EROS Introduction to GIS, online training, July 2009

International:

*USDA Representative – US / Mexico / Canada, NABCI Committee Meeting, Mexico City, Mexico, August 21-22, 2007.*

*Lecturer –NATO Advanced Study Institute, Phytoremediation of Metal Contaminated Soils, Poland, 2006.*

*Lecturer –NATO Advanced Study Institute, Environmental Security and Risk Assessment, Poros, Greece, 2005.*

*Attendee – International Symposium on Health Effects of Particulate Matter in Ambient Air, Prague, Air & Waste Management Association, Prague, Czech Republic, 1997.*

*Lecturer –NATO Advanced Study Institute, Cytotoxic, Mutagenic and Carcinogenic Potential of Metals Related to the Human Environment, NATO Advanced Study Institute, Karpacz, Poland, 1996.*

Computer Skills:

Adept in Word and Wordperfect, Excel, PowerPoint and HTML

Competent in WebEx, Wiki development, and online collaboration tools

Intermediate skills in ARC-GIS

**PROFESSIONAL QUALIFICATIONS**

Certified Wildlife Biologist, The Wildlife Society

Licensed attorney in Wisconsin, since 1994

Licensed attorney in Minnesota, since 1995

**AWARDS**

Secretary of USDA, Achievement Award, 2004

Cum laude, Juris Doctorate, 1994

Minnesota Pollution Control Agency Outstanding Achievement Award, 1990

Wisconsin DNR Outstanding Achievement Award, 1989

Writer's Award, Environmental Educators, 1985

Cum laude, Master of Science, 1985

Cum laude, Bachelor of Arts, 1979

Outstanding Biology Major Award, 1979

Sigma Zeta, honors society, membership 1978-1979.

## **PUBLICATIONS**

### **Books**

Benjamin, S.L., and D.A. Belluck, 1994. *State Groundwater Regulation: Guide to Laws, Standards, and Risk Assessment*, BNA Books, Washington, D.C. 629 pp.

Benjamin, S.L., and D.A. Belluck, 2001. *A Practical Guide to Understanding, Managing, and Reviewing Environmental Risk Assessment*, CRC Press, 680 pages.

### **Book Chapters**

Benjamin, S.L., Impacts of Peak Oil Production on Wildlife of the Great Plains, in *Peak Oil, Economic Growth, and Wildlife Conservation*, J. Edward Gates, David L. Trauger, and Brian Czech (Eds.), Island Press, *in preparation*.

Belluck, D.A., R.N. Hull, S.L. Benjamin, J. Alcorn, I. Linkov, 2007. Environmental Security, Critical Infrastructure and Risk Assessment: Definitions and Current Trends, pp. 3-18, in *Environmental Security in Harbors and Coastal Areas*, Linkov, I. and G.A. Kiker (Eds.), Springer, Netherlands, 492 pages.

D.A. Belluck, R.N. Hull, S.L. Benjamin, J. Alcorn and I. Linkov, 2007. Environmental Security and Environmental Management: The Role of Risk Assessment, pp. 329-341, in *Environmental Security in Harbors and Coastal Areas*, Linkov, I. and G.A. Kiker (Eds.), Springer, Netherlands, 492 pages.

Belluck, D.A., Benjamin, S.L. and S. David, 2006. Why Remediate?, pp. 1-24, in *Phytoremediation of Metal Contaminated Soils*, Morel J., L., Echevarria, G., and N. Goncharova

(Eds.), NATO Science Series, IV, Earth and Environmental Sciences, Vol. 68. Springer, The Netherlands, 360 pages.

Belluck, D.A., R.N. Hull, S.L. Benjamin, J. Alcorn, and I. Linkov, 2005. Are Standard Risk Acceptability Criteria Applicable to Critical Infrastructure Based on Environmental Security Needs? pp. 93-102, in *Environmental Security and Risk Assessment*, Linkov, I., Morel, B., (Eds.), Kluwer Academic Publishers. 325 pages.

Gray, R. L., S.L. Benjamin, and C.A. Rewa, 2005. Fish and Wildlife Benefits of the Wildlife Habitat Incentives Program, in *Fish and Wildlife Benefits of Farm Bill Conservation Programs: 2000-2005 Update*. Technical Review, 05-2. The Wildlife Society, Washington, D.C.

Belluck, D.A., R.N. Hull, S.L. Benjamin, J. Alcorn, and I. Linkov, 2005. Environmental Security, Critical Infrastructure and Risk Assessment: Definitions and Current Trends, pp. 3-16, in *Environmental Security and Environmental Management: The Role of Risk Assessment*, Morel, B. and I. Linkov (Eds.), Springer, Netherlands, 325 pages.

Belluck, D.A., R.N. Hull, S.L. Benjamin, J. Alcorn, and I. Linkov. 2005. Are Standard Risk Acceptability Criteria Applicable to Critical Infrastructure Based on Environmental Security Needs?, pp. 93-102, in *Environmental Security and Environmental Management: The Role of Risk Assessment*, Morel, B. and I. Linkov (Eds.), Springer, Netherlands, 325 pages.

Belluck, D.A. and S.L. Benjamin, 2000. Environmental Sampling and Analysis of Coal Fly Ash Intended for Use in Roads: Potential Impacts on Environmental Health Decision-Making, pp. 227-236, in *Radionuclides and Heavy Metals in Environment*, Fronteasheva, M.V., Perelygin, V.P. and P. Vater (Eds.), NATO Science Series, IV. Earth and Environmental Sciences, Volume 5. Dubna, Russia, 408 pages.

Belluck, D.A., S.L. Benjamin, et al., 1997. Human and Ecological Health Risks from Heavy Metals and Other Substances Released to the Environment from Metal Shredders, pp. 363-373, in *Cytotoxic, Mutagenic and Carcinogenic Potential of Metals Related to Human Environment*, NATO Advanced Study Institute Series, N.D. Hadjiliadis (Ed.), Kluwer Academic Publishers, The Netherlands, 652 pages.

Belluck, D.A., Hull, R.N., Benjamin, S.L., French, R.D., and R.M. O'Connell, 1993. Defining Scientific Procedural Standards for Ecological Risk Assessment, pp. 440-450, in *Environmental Toxicology and Risk Assessment: 2nd Volume*, STP 1216, J.W. Gorsuch, Dwyer, F.J., Ingersoll, C.G., and T.W. La Point (Eds.), American Society for Testing and Materials, Philadelphia, 744 pages.

Belluck, D.A., S.L. Benjamin, and T. Dawson, 1991. Groundwater Contamination by Atrazine and Its Metabolites: Risk Assessment, Policy, and Legal Implications, pp. 254-273, in *Pesticide Transformation Products: Fate and Significance in the Environment*, L. Somasundaram and Joel R. Coats (Eds.), American Chemical Society Symposium Series 459, ACS Press, Washington, D.C. 308 pages.

Belluck, D. A., Benjamin, S. L., and Dawson, T. 1991. Groundwater Contamination by Atrazine and Its Metabolites: Risk Assessment Policy and Legal Implications. Chap 18 in *Pesticide Transformation Products. Fate and Significance in the Environment*. Somasundaram, L.; Coats, J.R. (Eds.), ACS Symp. Ser. 459, American Chemical Society. 308 pp.

## **Presentations**

Benjamin, S.L., Stone Soup – Partnering for Water Quality in an Agricultural Landscape, *accepted*, From Dust Bowl to Mud Bowl: Sedimentation, Conservation Measures and the Future of Reservoirs, Soil and Water Conservation Society, Kansas City, Missouri, USA, September 14-16, 2009.

Benjamin, S.L., Linking Uplands to Wetlands: Science – Based Policy and the Conservation Reserve Program’s Duck Nesting Habitat Initiative *presented* at SWS-WWA-WBS 2009 Joint Annual Meeting Madison, Wisconsin, USA, June 21-26, 2009.

Benjamin, S.L., Wind and Wildlife: USGS Capabilities and Common Interests, *presented* at American Wind and Wildlife Institute, Minneapolis, Minnesota, May 12, 2008.

Benjamin, S.L. Fields of Gold: Wind Energy on CRP Acres, *presented* at Pennsylvania Chapter of The Wildlife Society, State College Pennsylvania, March 16, 2007.

Benjamin, S.L., The Human Factor in Wildlife Management: Private Lands Lessons from the Conservation Reserve Program, *presented* at Virginia Tech, Natural Resources Program, Alexandria, Virginia, October 24, 2005.

Benjamin, S.L., Threatened & Endangered Species, *presented* at New State Environmental Coordinators Training, Farm Service Agency, USDA, Atlanta, Georgia. March 21-22, 2005.

Benjamin, S.L., Environmental Security, *presented* at Ecotoxicology, Ecological Risk Assessment and Multiple Stressors. NATO Advanced Research Workshop, Poros, Greece, 13-16 October 2004.

Benjamin, S.L. and D.A. Belluck, Lost Science, *presented* at NATO Advanced Study Institute on Environmentally-acceptable pollution and reclamation endpoints: Scientific issues and policy development, Visegrad, Hungary, September 3 - 14, 2000.

Benjamin, S.L. What Do You Worry About?, *presented* at Environmental Risks: What Goes Bump in the Night? 15th Annual Minnesota Solid Waste Seminar, Radisson Hotel South, Bloomington, Minnesota, February 26, 1998.

Benjamin, S.L. Citizen Participation in Environmental Review in the United States and Minnesota, *presented* at NATO Advanced Study Institute Series, Poland, September 1997.

Benjamin, S.L., 1991. Risk Assessment, Policy and Legal Implications of Groundwater Contamination by Atrazine and its Metabolites, *presented at* North American Association For Environmental Education Conference Proceedings, St. Paul, Minnesota, September 27-October 2, 1991.

## Posters

Benjamin, S.L., Sedimentation and Contaminated Sediments Registry to Map Sediment Quality, Wildlife and Human Health Exposure, Risks, and Impacts, *accepted*, From Dust Bowl to Mud Bowl: Sedimentation, Conservation Measures and the Future of Reservoirs, Soil and Water Conservation Society, Kansas City, Missouri, USA, September 14-16, 2009.

Benjamin, S.L., Defining Data Sufficiency for Resource Management and Decision Making: Application of SDM and Adaptive Management to Biotechnology Risk Assessment of GMOs, *accepted*, From Dust Bowl to Mud Bowl: Sedimentation, Conservation Measures and the Future of Reservoirs, Soil and Water Conservation Society, Kansas City, Missouri, USA, September 14-16, 2009.

## Papers

Linkov, I., K. Satterstrom, G. Kiker, T. Bridges, S. L. Benjamin, D. Belluck, 2006. From Optimization to Adaptation: Shifting Paradigms in Environmental Management and Their Application to Remedial Decisions, *Integrated Environmental Assessment and Management* 2(1):92-98.

Belluck, D.A., S.L. Benjamin, P. Baveye, J. Sampson, and B. Johnson, 2003. Widespread arsenic contamination of soils in residential areas and public spaces: an emerging regulatory or medical crisis? *International Journal of Toxicology*, 22(2):109-128.

Belluck, D.A. and S. L. Benjamin, 1993. Communicating Carcinogenic Risks from "Low-Level" Exposures: The Myth of the Vanishing Zero, *J. Environ. Health*, 56(3): 33-34.

Belluck, D.A., S.L. Benjamin, and M.A. Kiamos, 1992. Breaking the Reactive Paradigm: A Proactive Approach to Risk Assessment Management, *Total Quality Environmental Management*, 1(3): 253-260.

Belluck, D.A. and S.L. Benjamin, 1990. Groundwater Contamination, *Wisconsin Lawyer*, 63(12): 17-78.

Belluck, DA, and S.L. Benjamin, 1990. Pesticides and Human Health: Defining Acceptable and Unacceptable Risk Levels, *J. Environ. Health*, 53:11-13.

Benjamin, S.L. and D.A. Belluck, 1990. Risk Feedback: An Important Step in Risk Communication, *American Water Works Association*, 82(11): 50-55.

Belluck, D.A. and S.L. Benjamin, September 1992. Improving Risk Assessment Credibility, U.S. Water News, page 23.

Belluck, D.A. and S.L. Benjamin, May 1991. Groundwater Initiatives and Challenges in the Great Lakes Region, U.S. Water News.

Belluck, D.A. and S.L. Benjamin, 1990. Groundwater Monitoring For Pesticide Metabolites and Formulation Materials: Lessons From Wisconsin, *Journal of Pesticide Reform* 9(4): 28-31.

Belluck, D.A. and S.L. Benjamin, 1990. Discussion of "Toxicological Risk Assessment Distortions" Editorial, *Ground Water*, 28(4): 616-617.

Belluck, D.A. and S.L. Benjamin, Groundwater Contamination, *Wisconsin Lawyer*, 63(12): 17-78, 1990.

Belluck, D.A. and S.L. Benjamin, 1990. Pesticides and Human Health, Defining Acceptable and Unacceptable Risk Levels, *Journal of Environmental Health* 53(1): 11-13.

Belluck, D.A. and S.L. Benjamin, May 1990. Challenges For Groundwater Risk Assessment in the 1990s, U.S. Water News, page 7.

### **Legal Publications**

Benjamin, S.L., May 1999. Evaluating a Pesticide Exposure Case, YLD Newsletter, Wisconsin Young Lawyers' Division of the Wisconsin Bar Association.

Benjamin, S.L., Nov. 1996. Environmental Notes, Minnesota Bench and Bar.

### **Proceedings**

Benjamin, S.L., 1992. Defining Scientific Procedural Standards for Ecological Risk Assessment, Abstract, pages 83-84, in *Second Symposium on Environmental Toxicology and Risk Assessment: Aquatic, Plant, and Terrestrial*, Pittsburgh, Pennsylvania, April 26-29, 1992.

Belluck, D.A. and S.L. Benjamin, 1990. Exposure to Pesticide Groundwater Contaminants: Defining Acceptable and Unacceptable Risk Levels, pp. 387-396, in *Proceedings, National Environmental Health Association Midyear Conference*, Hyatt Orlando, Orlando, Florida, January 21-23, 1990.

Benjamin, S.L., 1990. Comprehensive Approach To Monitoring For Pesticide Parent, Formulation Materials and Breakdown Products In and Around Landfills, pp. 241-250, in *Proceedings of the Annual Meeting of The Association of State and Territorial Solid Waste Management Officials (ASTSWMO)*, Atlantic City, New Jersey, July 16-18, 1990.

## **PROFESSIONAL MEMBERSHIPS**

The Wildlife Society (TWS)

The North Dakota Chapter, The Wildlife Society

Society for Conservation Biology

Society of Wetland Scientists

Soil and Water Conservation Society

State Bar Association, Wisconsin

State Bar Association, Minnesota

## **LANGUAGES**

English (native language)

German (introductory speaking)

## **INTERESTS**

Writing (nonfiction and fiction), archeology, pre-history and ancient cultures, travel, gardening, bicycling, fishing, camping, and cooking.