

DEBRA S. BAKER

The Central Plains Center for BioAssessment
Kansas Biological Survey
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EDUCATION:

Master of Historical Administration and Museum Studies , Natural History	University of Kansas , Lawrence, KS	May 2000
Master of Science , Wildlife Biology	University of Nebraska , Lincoln, NE	May 1997
Bachelor of Science , Biology	Grove City College , Grove City, PA	May 1994

TRAINING:

Univ. KS School of Education classes:

2017 C&T 806 Instructional Strategies and Models
2016 C&T 807 Multicultural Education
2015 C&T 709 Foundations of Curriculum and Instruction
C&T 707 Project Based Instruction

Educator Academy in the Amazon Rainforest Workshop – 90+ hours of instruction and experience in teaching ecology, Iquitos, Peru, July 2016

MidAmerica GIS Consortium (MAGIC) workshops – ESRI Best Practices for Implementing ArcGIS Online; GIS and Mapping A to Z, April 2014

Introduction to Tropical Agricultural Development – 40-hour course by Educational Concerns for Hunger Organization (ECHO), Ft. Myers, FL, May 2010.

USEPA field procedures – May 2012 National Lakes Survey; May 2011 National Wetland Condition Assessment (NWCA); May 2010 and 2013 National Rivers and Streams Assessment (NRSA); May 2008 Ecological Monitoring and Assessment Program (EMAP) field procedures for National Wadeable Streams Assessment (WSA).

Ohio EPA Qualitative Habitat Evaluation Index - A standardized method of evaluating fish habitat, Hosted by USEPA R7, Kansas City, KS, 2008.

USEPA Quality Assurance Training: Orientation to Quality Assurance, Systematic Planning Process and Quality Assurance Project Plans, Data Quality Assessment, Kansas City, KS, 7-9 Nov. 2006.

Bioassessment of streams in Mongolia – One month survey of aquatic habitat and macroinvertebrates of Mongolian streams, NSF grant with Dr. Barbara Hayford and Dr. Jon Gelhaus, July 2005.

Data Management Tools Workshop (Ecological Metadata Language and metadata software Morpho and Metacat) – Knowledge Network for Biocomplexity/Long Term Ecological Research Network, Albuquerque, NM, 2005.

USEPA Ecological Monitoring and Assessment Program (EMAP) field procedures – for the National Wadeable Streams Assessment –TetraTech (hosted by CPCB), Lawrence, KS, 2004.

Prescribed Burning Workshop – Kansas State University, Manhattan, KS, 2004.

ArcMap10, DreamWeaver, Database Design, CMS web design – Univ. Kansas computer training workshops.

Access2000 Advanced – ExecuTrain, Kansas City, MO, 2002.

Specify (specimen data software) – Univ. Kansas Natural History Museum, 1999, 2011.

Disaster Response Workshop – 1999 Southeastern Museums Conference, Mobile, AL.

WORK EXPERIENCE:

KANSAS BIOLOGICAL SURVEY (KBS), UNIVERSITY OF KANSAS (KU)

Central Plains Center for BioAssessment (CPCB)

Assistant Director and Informatics Specialist August 2000 – present

- Continue Database Manager duties described below, utilizing MSAccess, NCSS statistical software, and ArcMap10.2 to build and analyze water chemistry and specimen databases.
- Manage day-to-day activities of the CPCB: hire employees, purchase equipment, write and implement employee and workplace policies, respond to data and other requests, update and maintain the CPCB website (<http://biosurvey.ku.edu/cpcb>).

- Research activities: prepare proposals, write quarterly reports, develop and manage budgets, prepare Quality Assurance Project Plans (QAPP), oversee field and lab activities, analyze data.
- Field activities (lakes, streams, and wetlands): crew leader, water chemistry (Horiba U-10, U-52), physical habitat measurements, riparian habitat measurements, macroinvertebrate and fish collecting, boat driving.
- Lab activities: Process chlorophyll *a* samples using bench-top fluorometer, analyze TSS/VSS, calibrate water quality instruments.
- Organize regional water quality and sampling methodologies workshops.
- Support other KBS programs: assist with prescribed burns and mammal and fish surveys; coordinate computer workshops at the workplace; advise on data management and MSAccess.
- Lead CPCB outreach in Haiti: government and university aquatic ecology workshops, lake and stream studies.

Graduate Research Assistant: Database Manager *August 1999 – August 2000*

- Developed and maintained water quality databases using Microsoft Access to facilitate the exchange of information among scientists and governmental agencies in US Environmental Protection Agency Region 7.
- Analyzed data using NCSS statistical software and prepared reports of analyses.
- Collected stream and lake water chemistry data.
- Trained and supervised data-entry assistants.
- Maintained the CPCB website using html code.

NATURAL HISTORY MUSEUM AND BIODIVERSITY RESEARCH CENTER, UNIVERSITY OF KANSAS

Herbarium, Collection Manager Assistant *June 1999 – August 2000*

- Participated in managing a 350,000-specimen herbarium collection.
- Developed and tested a disaster preparedness and recovery plan specific for the herbarium (www.nhm.ku.edu/herbarium/herbinfo.html).
- Developed collection management policies (such as an herbarium-specific mission statement).
- Collected, dried, mounted, and filed specimens and sent and reinstalled loans.
- Monitored the herbarium for pests.
- Managed specimen data in Specify software program (developed by the University of Kansas Natural History Museum, MS Access platform).

Administration Department, Graduate Research Assistant *August 1998 – May 1999*

- Developed a disaster preparedness and recovery plan for the museum.
- Attended collection managers meetings.
- Attended the 1999 Southeastern Museums Conference Disaster Response Workshop in Mobile, Alabama.

Division of Entomology, Collection Manager Assistant *January 1999 – May 1999*

- Participated in managing a 3.3 million-specimen entomology collection.
- Sent and reinstalled loans; pinned insects; created labels.
- Used FoxPro 3.0b database and barcode scanner to manage specimen information.

Division of Herpetology, Collection Manager Assistant *August 1998 – December 1998*

- Participated in managing a 280,000-specimen herpetology collection consisting of fluid- preserved, skeletal, and cleared and stained specimens.
- Sent and reinstalled loans; created and replaced specimen and jar labels; monitored hygromographs.
- Used FoxPro 2.0 database to manage specimen information and attended a training session for the Specify database software developed by the University of Kansas.

Division of Public Education, Assistant Instructor *June 1999 – March 2000*

- Assisted various day- and week-long children's educational programs.

NEBRASKA GAME AND PARKS COMMISSION***Field Research Technician****Summers 1997 and 1998*

- Weighed, measured, sexed, and marked ornate box turtles (*Terrapene ornata ornata*) at Crescent Lake National Wildlife Refuge in the Nebraska sandhills.
- Tracked turtles with radiotelemetry equipment and GPS.
- Assembled and monitored drift fences.
- Drove a four-wheel-drive truck and John Deere Gator through rough terrain.
- Volunteer activities at the refuge: assisted in collecting age and gender data of yellow mud turtles (*Kinosternon flavescens*); planted blowout penstemon (*Penstemon haydenii*).

DEPARTMENT OF ENTOMOLOGY, UNIVERSITY OF KANSAS***Lab Technician****January 1998 – May 1998*

- Sorted stream samples of aquatic invertebrates.

PIONEERS PARK NATURE CENTER, Lincoln, NE***Teacher/Naturalist, Visitor Service, Animal Care****September 1997 – November 1997*

- Led elementary school groups on hikes, interpreting the natural history of the surrounding land, flora, and fauna.
- Staffed buildings and interacted with the public.
- Cared for animals housed at the nature center.

HASTINGS MUSEUM, Hastings, NE***Volunteer****September 1997 – November 1997*

- Updated species names and general information about the ornithology collection and exhibit.

DEPARTMENT OF FORESTRY, FISHERIES AND WILDLIFE, UNIVERSITY OF NEBRASKA***Graduate Research Assistant****June 1994 – May 1997*

- Thesis: The effects of plains pocket gophers on two varieties of alfalfa.
- Live-trapped, anesthetized, sexed, weighed, and tattooed gophers (*Geomys bursarius*).
- Sampled, dried, and ground alfalfa to determine biomass and forage quality.
- Maintained contact with landowners.
 - Supervised technicians.
- Sampled soil and roots.
 - Analyzed data using SAS.
- Presented results at professional meetings.

GRANTS AND AWARDS:

- 2017 Fish tissue selenium body burden study on Bull Creek for the CHS Refinery (McPherson, KS), PI, \$23,000, CHS Refinery, McPherson, KS.
- 2016 Educator Academy in the Amazon Rainforest Workshop scholarship, \$1000
- 2015 Diagnostic study of the lakes Laborde (or lake Cocoyer), Lachaux, and Douat to identify zones of protection, PI, \$14,000, Comite Interministeriel d'Aménagement du Territoire (Haiti).
- 2013 USEPA National Rivers and Streams Survey, co-PI, \$30,000, KS Dept. Environment and Health.
- 2013 University of Kansas Professional Development Fund, \$464 to perform pilot lake study in Haiti.
- 2012 USEPA National Lake Study, Co-PI, \$93,950, KS Dept. Environment and Health.
- 2011 National Wetland Condition Assessment, PI, \$142,405, TetraTech as contractee of USEPA.
- 2011 Stream Bioassessment Workshop for Nebraska Stormwater Managers, PI, \$3,160, City of Grand Island, NE.
- 2010 University of Kansas Professional Development Fund, \$450 to attend ECHO agriculture workshop.
- 2009 University of Kansas Unclassified Non-teaching Employee of the Month, May 2009, \$700.
- 2008 Developing Regional Nutrient Benchmarks for Streams and Wetlands of the Central Plains Region, Co-PI, \$16,000 Great Lakes Environmental Center as a contractee of USEPA.
- 2008 Database development for definition and assessment of nutrient levels and their biological effects in the Missouri River, Co-PI, \$15,000 Great Lakes Environmental Center as a contractee of USEPA.
- 2008 Assessment of Westar Energy Jeffrey Energy Center discharge on Lost Creek: A long-term monitoring/assessment strategy, Co-PI, \$153,000 Westar Energy.
- 2008 Environmental Stewardship of an Urban Stream in Kansas City, Kansas, Co-PI, \$20,000, USEPA.

- 2007 Assessing the condition of USEPA Region 7's large tributaries of the Missouri River: A probabilistic design approach, Co-PI, \$383,000 USEPA.
- 2007 National River and Stream Assessment Survey – 2008 and 2009, Co-PI, \$208,418 TetraTech as contractee of USEPA.
- 2006 Procurement of Field and Analytical Support for the EMAP-Great Rivers Reference Condition Research on the Missouri River in Kansas, Co-PI, \$98,000 USEPA.
- 2005 Developing Regional Nutrient Criteria for Wetlands of the Central Plains Region, Co-PI, \$40,000 USEPA.
- 2005 Reference Conditions for Wadeable Streams of the Central Plains: Characterizing Minimally Versus Least Disturbed Conditions, Co-PI, \$30,000 USEPA.
- 2005 Identification and Characterization of Reference Conditions within USEPA Region 7 using EMAP methodology, Co-PI, \$374,000 USEPA.
- 2005 Determination of Regional Reference Conditions, Tiered Aquatic Life Applications and Inter-Regional Calibration of Community Assessment Methods, Co-PI, \$30,000 USEPA.
- 2005 Continuation of nutrient criteria efforts in USEPA Region 7: Documenting lake and stream analyses and assembling a wetland database, Co-PI, \$70,000 USEPA.
- 2004 Assessment of Wadeable Streams within the South Central Semi-Arid Prairies Ecoregion using an EMAP Randomized Study Design, Co-PI, \$345,000 USEPA.
- 2003 Developing Regional Nutrient Benchmark Values for Streams, Rivers, and Wetlands Occurring in USEPA Region 7, Co-PI, \$70,000, USEPA.
- 2003 Determination of Regional Reference Conditions, Tiered Aquatic Life Applications and Inter-Regional Calibration of Community Assessment Methods, Co-PI, \$30,000, USEPA.
- 2001 The University of Kansas Outreach Partnership Grant, \$2,500 to expand one of the Central Plains Center for BioAssessment's biannual workshops into a larger symposium with published proceedings.
- 1999 Travel funding from the University of Kansas Natural History Museum, its collection managers, the Museum Studies Organization, and the College of Liberal Arts and Sciences, \$600.
- 1996 Wildwood Trust – University of Nebraska Student Travel Award, \$150.
- 1995 Nebraska Chapter of the Wildlife Society – Graduate Student Award, \$500.
- 1995 University of Nebraska-Lincoln Research Council – Research Grant-in-Aid, \$2,550.

PRESENTATIONS and LECTURES:

- 2016 Baker, D.S. and D.G. Huggins. Assessing lake protection and watershed management opportunities in Haiti's Department of the Sud. Nov. 2016 Haitian Studies Association Conference, Cap Hatien, Haiti.
- 2014 University of Kansas Field Ecology EVRN 460, Guest Lecturer Sept. 2014. Introduction to lake fieldwork.
- 2014 Haskell Indian Nations University, Lawrence, KS. Guest lecturer in Aquatic Biology – Aquatic Ecosystems in Haiti.
- 2010 Wayne State College Earth Day Forum, Wayne, NE. April 2010. Watershed issues in the Central Plains.
- 2010 Missouri River Natural Resource Conference and BiOp Forum, Nebraska City, NE. March 2010. Applications of a GIS Floodplain Mapping Model – valley identification, connectivity indexing, and emergency management (co-authors Jude Kastens, Don Huggins, Kevin Dobbs).
- 2010 University of Kansas Environmental Engineering and Science in Developing Countries CE 495/895, Guest Lecturer April 2010. Water Quality Education in Haiti.
- 2010 Water chemistry and fish and macroinvertebrate habitat. Demonstration and lecture. April 2010, University of Kansas Talent Search and Environmental Academy for 7th graders, Schlagle Library, Wyandotte Co. KS.
- 2010 Missouri River Natural Resource Conference and BiOp Forum, Nebraska City, NE. March 2010. Applications of a GIS Floodplain Mapping Model – valley identification, connectivity indexing, and emergency management (co-authors Jude Kastens, Don Huggins, Kevin Dobbs).
- 2010 Haskell Indian Nations University, Lawrence, KS. Guest lecturer in Aquatic Biology – Environmental Education in Haiti.
- 2010 Kansas Natural Resources Conference, Wichita, KS. February 2010. Estimating historic biological integrity in wadeable streams of the Central Plains – a disturbance gradient approach. (poster, co-author Don Huggins).
- 2008 USEPA Region 7 and 8 Nutrient Criteria Workgroups, Denver, CO. November 2008. Data compilation and analyses for the Missouri River. Data compilation and analyses for wetlands in USEPA Region 7.

- 2008 Missouri River Natural Resource Conference and BiOp Forum, Nebraska City, NE. February 2008. Nutrient criteria for the Missouri River – an exploration of the data (co-author Jason Koontz).
- 2007 Chadron State College Bioassessment Workshop, Chadron, NE. Approaches to evaluating streams; Data management; On-site bioassessment at Chadron Creek.
- 2006 American Fisheries Society North Central Division Rivers and Streams Technical Committee. Omaha, NE. December 2006. A tiered approach of examining measures of biological integrity and gradients of reference conditions in wadeable streams of the Central Plains (co-authors Andy Dzialowski and Don Huggins).
- 2005 Invited Speaker: Stream Bioassessment in Mongolia. November 2005. At both Kansas State University Ecology Brown Bag Lunch Lecture and University of Kansas Center for Russian, East European and Eurasian Studies.
- 2005 Thirty-second Great Plains Limnology Conference. Lawrence, KS. September 2005. USEPA Region 7 lake nutrient criteria development (co-author Val Smith).
- 2004 Invited Speaker: John Muir Institute for the Environment, University of California-Davis. November 2004. Projects of the Central Plains Center for BioAssessment.
- 2003 Guest Lecturer, Biol 701: Topics in Curation and Collection Management, University of Kansas, Lawrence, KS. November 2003. Disaster preparedness in natural history museums.
- 2003 30th Annual Great Plains Limnology Conference. Lincoln, NE. October 2003. Nutrient Trends in Reference Streams of the Central Plains.
- 2002 The Nature Conservancy Dakotas Mixed Grass Prairie Aquatic Planning Workshop. Aberdeen, SD. November 2003. Tiered Aquatic Life Use Support (coauthor Susan Jackson).
- 2002 The Great Plains Foundation Symposium 2002: Protection and Utilization of Air and Water Resources of the Great Plains, Amarillo, TX. April 2002. The Central Plains Central Plains Center for BioAssessment – Facilitating Aquatic Expertise in the Central Plains Region (poster).
- 2002 Water and the Future of Kansas Conference, Lawrence, KS. March 2002. Lake nutrient levels in Kansas and the Central Plains (poster).
- 2001 Guest Lecturer, Biol 701: Topics in Curation and Collection Management, University of Kansas, Lawrence, KS. Disaster preparedness in natural history museums.
- 2001 North American Benthological Society Annual Meeting. LaCrosse, WI. June 2001. Reference lake condition in the Central Plains: A look at nitrogen, phosphorus, and chlorophyll (poster).
- 2000 Twenty-seventh Great Plains Limnology Conference, Lawrence, KS. November 2000. Variability of total nitrogen, total phosphorus, and chlorophyll *a* in lakes of the Central Plains.
- 1996 Fifty-eighth Midwest Fish and Wildlife Conference, Omaha, NE. December 1996. The effects of pocket gophers on alfalfa yields and forage quality.
- 1996 American Society of Agronomy, Indianapolis, IN. November, 1996. The effects of pocket gophers on two varieties of alfalfa (poster).
- 1996 Nebraska Academy of Sciences, Lincoln, NE. April, 1996. The effects of pocket gophers (*Geomys bursarius*) on two varieties of alfalfa.

PUBLICATIONS:

Accepted: Baker, D.S. and D.G. Huggins. Teaching Science in Haiti – It's More Than Just Science. For book compilation about Haiti, eds. C. Accilien and V. Orlando.

Hayford, B. and D. Baker. 2011. Lakes of the Nebraska Sandhills. *Lakeline* 31(4):26-30.

Dzialowski, A.R., V.H. Smith, D.G. Huggins, F. DeNoyelles, N.C. Lim, D.S. Baker, J.H. Beury. 2009. Development of predictive models for geosmin-related taste and odor in Kansas, USA, drinking water reservoirs. *Water Research* 43:2829-2840.

Evans-White, M.A., W.K. Dodds, D.G. Huggins, and D.S. Baker. 2009. Threshold patterns in aquatic biodiversity across water quality gradients in Central Plains streams and rivers. *J. N. Am. Benthol. Soc.* 28(4):855–868.

Huggins, D.G, R.C. Everhart, A. Dzialowski, J. Kriz, and D.S. Baker. 2007. Impact of Sedimentation on Biological Resources: A Sediment Issue White Paper Report prepared for the State of Kansas. Open-file Report No. 146. Kansas Biological Survey, Lawrence, KS. 23 pp.

Huggins, D.G, R.C. Everhart, A. Dzialowski, J. Kriz, and D.S. Baker. 2007. Effects of Sedimentation on Biological Resources. p.35-46 in *Sedimentation in Our Reservoirs: Causes and Solutions*, Kansas State University, June 2008. Contribution no. 08-250-S from the Kansas Agricultural Experiment Station. 143pp.

Wang, S.H., D.G. Huggins, L. Frees, C.G. Volkman, N.C. Lim, D.S. Baker, V. Smith, F. deNoyelles, Jr. 2005. An integrated modeling approach to total watershed management: water quality and watershed assessment of Cheney Reservoir, Kansas, USA. *Water, Air and Soil*. 164:1-19.

Central Plains Center for BioAssessment (CPCB). 2004. Proceedings of the Central Plains Aquatic Bioassessment and Biocriteria Symposium, September 2002. Eds. D.S. Baker, D.G. Huggins, L. Bennett. Lawrence, KS. 128pp.

Baker, D.S. and C. Morse. 2001. Disaster recovery in the herbarium. *Collection Forum, Society for the Preservation of Natural History Collections*. 15:26-35.

Converse, S.S. and D.S. Baker. 2000. Geographic Distribution. *Lampropeltis triangulum multistrata*. *Herpetological Review* 31:186.

Brenner, F.J., D.S. Baker, and N.E. Poling. 1997. Comparison of factors determining woodcock (*Scolopax minor*) use of scrub-scrub wetlands on mined and unmined lands in western Pennsylvania. *J. Penn. Acad. Sci.* 70:113–117.

LEADERSHIP and SERVICE ACTIVITIES:

Technical Manuscript Reviewer for USEPA EMAP Western Pilot Study Fields Methods, 2011.

Manuscript reviewer for *Environmental Monitoring and Assessment*, 2011.

Unclassified Professional Staff Association Senate Member, University of Kansas, 2008-2010.

Member of animal-assisted therapy groups Delta Society and Mo-Kan Pet Partners, 2006-2010.

Sigma Xi judge for Student Presentation Competition, University of Kansas, 2003.

Unclassified Professional Staff Association: Professional Development Committee Member, KU, 2002.

Anonymous manuscript reviewer for *Collection Forum – Journal of the Society for the Preservation of Natural History Collections*, 2000–2002.

4-H Entomology Leader, Douglas County, Kansas, 2000.

Museum Studies Organization: Vice President/Treasurer, Representative to the Graduate and Professional Association; University of Kansas, spring semester 1999.

HAITI TEACHING, TRAINING, and SPEAKING Venues:

2008 – present Teach ecology and water quality in Haiti (with basic understanding of Haitian Creole):

Ecology professor at Université Chretienne de la Communauté de Caïman near Pignon

2014 – present – ECO201 Ecology and ECO401 Biodiversity; school and community outreach

Ecology professor at the American University of the Carribean in Les Cayes

2012 and 2013 fall semesters – Tropical Ecology, Forest Ecology, Project Management; directed activities of the Audubon Center of Les Cayes; lead student outreach into schools.

Teaching venues at Haitian American Friendship Foundation in Bohoc (Pignon):

2012 July – Two ecology workshops for 7th graders (birds, bats, trash pickup).

Teaching venues through Christian Veterinary Mission in Croix des Bouquets (Port au Prince):

2012 April – Ecology and ecotourism seminar for Lafiteau Women’s Program (Samaritan’s Purse), ecology guest speaker at a Merger primary school.

Teaching venues at United Christians International in Caiman (Pignon):

2014 May – One-week ecology lecturer at Université Chretienne de la Communauté de Caiman.

2011 Nov – Adult 2-day ecology & water quality workshops & primary school lecturing, 2 weeks.

2011 June – Guest speaker on ecology in 7 primary schools, one week.

2010 Jan. – Ecotourism, ecology, and water quality, one month.

2009 Jan. – Ecology and birding ecotourism business skills, two weeks.

2008 May – Created database for nutritional centers, participated in an agriculture conference.

2014 Helping Without Hurting Conference by the Chalmers Center, Lawrence, KS

- 2014 Wayne State College NE WilyCon SciFi Convention – Presentation “*Will the real zombie please stand up? Comparing the Haitian zombie to the Hollywood zombie.*”
- 2011-12 Haitian Creole 110 & 120 classes at the University of Kansas.
- 2010 Kansas City Chapter Engineers Without Borders – panel speaker about Haiti.
- 2009 Heifer International 201 workshop “*Making a World of Difference; Making a Different World: Creating Peace at the Grassroots Level.*”
- 2008 Heifer International 101 introductory workshop about world hunger issues and sustainable projects in developing countries.

REFERENCES:

Dr. Donald Huggins
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