

## W. Dean Kettle, Ph.D.

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### **CURRENT RESEARCH INTERESTS:**

Research interest in natural resources management and planning; land use history impacts on ecological communities in agricultural landscapes; ecological monitoring; use of geographical information systems in ecological research; conservation biology; and restoration ecology. Past research includes aquatic ecology, with field experience in the Great Plains, Alaska, and Canada.

### **EDUCATION:**

Ph.D., Systematics and Ecology, University of Kansas, 1982;  
M.A., Systematics and Ecology, University of Kansas, 1979;  
B.A., Biology, University of Kansas, 1975

### **PROFESSIONAL EXPERIENCE:**

1984-present Associate Director, University of Kansas Field Station and Ecological Reserves. Research and administration including: integration of research and teaching use with management planning; development of station facilities and programs; environmental monitoring; database management; supervision of personnel; and liaison for cooperative projects and proposals.

1983-present Member of Graduate Faculty, University of Kansas

1977-1983 Superintendent, University Field Facilities, University of Kansas

1975-1976 Research Assistant, Department of Systematics & Ecology, Univ. Kansas

### **PROFESSIONAL AFFILIATIONS AND SERVICE (since 2000):**

Ecological Society of America  
Natural Areas Association  
Society for Ecological Restoration

### **PUBLICATIONS:**

Alexander, H. M., N. A. Slade, W. D. Kettle, and G. L. Pittman. Detection, survival rates, and dynamics of a cryptic plant, *Asclepias meadii*: applications of mark-recapture models to long-term monitoring studies (submitted, Journal of Applied Ecology).

Kettle, W. D., E. J. Quedstedt, K. Kindscher, G. L. Pittman, and C. A. Morse. Recovery of

- vegetation in a longterm prairie restoration in Northeastern Kansas. (In preparation).
- Kettle, W. D., H. S. Fitch, and G. L. Pittman. Ecology and history of a natural area in Kansas (In preparation).
- Wang, J., P. M. Rich, K. P. Price, and W. D. Kettle. 2005. Relations between NDVI, grassland production, and crop yield in the Central Great Plains. *Geocarto International* 20:5-11.
- Wang, J., P. M. Rich, K. P. Price, and W. D. Kettle. 2004. Relations between NDVI and tree productivity in the central Great Plains. *International Journal of Remote Sensing* 25(16):3127-3138.
- Freeman, C. C., W. H. Busby, J. Delisle, W. D. Kettle, K. Kindscher, H. Loring, C. A. Morse, and V. B. Salisbury. 2003. A natural areas inventory of the Ft. Leavenworth Military Reservation, Leavenworth County, Kansas. II. Open-file Report No. 117. Kansas Biological Survey. Lawrence, KS. 199 pp.
- Slade, N. A., H. M. Alexander, and W. D. Kettle. 2003. Estimation of population size and probabilities of survival and detection in a population of Mead's milkweed. *Ecology* 84(3):791-797.
- Kettle, W. D., K. Kindscher, and J. M. Delisle. 2002. Preliminary analysis of historic vegetation along the Marais des Cygnes River (Kansas). Kansas Biological Survey Report No. 106. Final report to the Kansas Department of Wildlife and Parks. December 2002. 56 pp.
- Kettle, W. D., R. H. Hagen, F. deNoyelles, Jr., and E. A. Martinko. 2001. The University of Kansas Field Station and Ecological Reserves: a Half Century of Research and Education. Miscellaneous Publication Number 9, Kansas Biological Survey, Lawrence, KS. 68 pp.
- Kettle, W. D., P. M. Rich, K. Kindscher, G. L. Pittman, and P. Fu. 2000. Land-use history in ecosystem restoration: a 40-year study in the prairie-forest ecotone. *Restoration Ecology* 8(3):307-317.
- Kettle, W. D., H. M. Alexander, and G. L. Pittman. 2000. An 11-year ecological study of a rare prairie perennial: implications for monitoring and management. *American Midland Naturalist* 144:66-77.
- Foster, J., and W. D. Kettle. 1999. Distribution of a mound-building ant on native and restored prairies in northeastern Kansas. *Prairie Naturalist* 31:21-31.
- Alexander, H. M., N. A. Slade, and W. D. Kettle. 1997. Application of mark-recapture models to estimation of the population size of plants. *Ecology* 78(4):1230-1237.

- deNoyelles, F., S. L. Dewey, D. G. Huggins, and W. D. Kettle. 1994. Aquatic mesocosms in ecological effects testing: detecting direct and indirect effects of pesticides. *In* C. H. Ward, B. T. Walton, and T. W. LaPoint, (eds.), *Aquatic Mesocosm Studies in Ecological Risk Assessment*, SETAC Special Publication Series. Lewis Publishers, Boca Raton, FL, pp. 650-625.
- Chapman, S. B., W. D. Kettle, and P. M. Rich. 1993. Assessing shrub distribution and impact in tallgrass prairie using aerial and ground-based mapping. *American Society for Photogrammetry and Remote Sensing Technical Papers, Volume 2, Remote Sensing*, pp. 13-20.
- Howick, G. L., J. M. Giddings, F. deNoyelles, Jr., L. C. Ferrington, W. D. Kettle, and D. Baker. 1992. Rapid establishment of test conditions and trophic-level interactions in 0.04-hectare earthen pond mesocosms. *Environmental Toxicology and Chemistry* 11:107-114.
- Kettle, W. D., and D. O. Whittemore, editors. 1991. *Ecology and Hydrology of the Kansas Ecological Reserves and Baker Wetlands*. Kansas Geological Survey Open-File Report 91-35, pp. 1-125.
- Freeman, C. C., W. D. Kettle, K. Kindscher, R. E. Brooks, V. C. Varner, and C. M. Pitcher. 1991. Vascular Plants of the Kansas Ecological Reserves. *In Ecology and Hydrology of the Kansas Ecological Reserves and Baker Wetlands*, W. D. Kettle and D. O. Whittemore, (eds.), pp. 23-45. Kansas Geological Survey Open-File Report 91-35.
- Fitch, H. S., and W. D. Kettle. 1991. Mammals of the Kansas Ecological Reserves. *In Ecology and Hydrology of the Kansas Ecological Reserves and Baker Wetlands*, W. D. Kettle and D. O. Whittemore, (eds.), pp. 60-63. Kansas Geological Survey Open-File Report 91-35.
- Kettle, W. D. 1991. Kansas Ecological Reserves - an overview. *In Ecology and Hydrology of the Kansas Ecological Reserves and Baker Wetlands*, W. D. Kettle and D. O. Whittemore (eds.), pp. 20-22. Kansas Geological Survey Open-File Report 91-35.
- Kettle, W. D., and F. deNoyelles, Jr. 1990. Determination of herbicide-induced alterations of aquatic habitats in Kansas. Contribution Number 272, Kansas Water Resources Research Institute, University of Kansas, Lawrence, KS, pp. 1-53.
- deNoyelles, F., Jr., W. D. Kettle, C. H. Fromm, M. F. Moffett, and S. L. Dewey. 1989. Use of experimental ponds to assess the effects of a pesticide on the aquatic environment. *In* J. R. Voschell, Jr. (ed.), *Using Mesocosms to Assess Ecological Risk of Pesticides: Theory and Practice*. Entomological Society of America Miscellaneous Publication 75:41-56.

- Fitch, H. S., and W. D. Kettle. 1988. Kansas Ecological Reserves (University of Kansas Natural Areas). *Transactions of the Kansas Academy of Science* 9(1-2):30-36.
- Hambright, K. D., R. J. Trebatoski, R. W. Drenner, and D. Kettle. 1986. Experimental study of the impacts of bluegill (*Lepomis macrochirus*) and largemouth bass (*Micropterus salmoides*) on pond community structure. *Canadian Journal of Fisheries and Aquatic Sciences* 43(6):1171-1176.
- Kettle, W. D., M. F. Moffett, and F. deNoyelles, Jr. 1987. Vertical distribution of zooplankton in an experimentally acidified lake containing a metalimnetic phytoplankton peak. *Canadian Journal of Fisheries and Aquatic Sciences*. 44(Suppl.1):91-95.
- Kettle, W. D., F. deNoyelles, Jr., B. D. Heacock, and A. M. Kadoum. 1987. Diet and reproductive success of bluegill recovered from experimental ponds treated with atrazine. *Bulletin of Environmental Contamination and Toxicology* 38:47-52.
- Kettle, W. D., and F. deNoyelles, Jr. 1986. Effects of cadmium stress on the plankton communities of experimental ponds. *Journal of Freshwater Ecology* 3(4):433-443.
- deNoyelles, F., Jr. and W. D. Kettle. 1985. Experimental ponds for evaluating bioassay predictions. In T. P. Boyle (ed.), *Validation and Predictability of Laboratory Methods for Assessing the Fate and Effects of Contaminants in Aquatic Ecosystems*, ASTM STP 865, American Society for Testing and Materials, Philadelphia, PA, pp. 91-103.
- Drenner, R. W., S. B. Taylor, X. Lazzaro, and D. Kettle. 1984. Particle-grazing and plankton community impact of an omnivorous cichlid. *Transactions of the American Fisheries Society* 113:397-402.
- Fitch, H. S., V. R. Fitch, and W. D. Kettle. 1984. Reproduction, population changes and interactions of small mammals on a natural area in northeastern Kansas. *University of Kansas Museum of Natural History Occasional Paper* 109:1-37.
- Drenner, R. W., J. R. Mummert, F. deNoyelles, Jr., and D. Kettle. 1984. Selective particle ingestion by a filter-feeding fish and its impact on phytoplankton community structure. *Limnology and Oceanography* 29(5):941-948.
- Kettle, W. D., and H. S. Fitch. 1983. Field research and prairie investigations at the University of Kansas. In C. L. Kucera (ed.), *Proceedings of the Seventh North American Prairie Conference, 4-6 August 1980*, Southwest Missouri State University, Springfield, MO, pp. 107-112.
- Fitch, H. S., and W. D. Kettle. 1983. Ecological succession and changes in vegetation and small mammal population on a natural area of northeastern Kansas. In C. L.

- Kucera (ed.), Proceedings of the Seventh North American Prairie Conference, 4-6 August 1980, Southwest Missouri State University, Springfield, MO, pp. 117-121.
- deNoyelles, F., Jr., and W. D. Kettle. 1983. Site studies to determine the extent and potential impact of herbicide contamination in Kansas waters. Contribution Number 239, Kansas Water Resources Research Institute, University of Kansas, Lawrence, KS, pp. 1-37.
- Drenner, R. W., F. deNoyelles, Jr., and D. Kettle. 1982. Selective impact of filter-feeding gizzard shad on zooplankton community structure. *Limnology and Oceanography* 27(5):965-968.
- deNoyelles, F., W. D. Kettle, and D. E. Sinn. 1982. The responses of plankton communities in experimental ponds to atrazine, the most heavily used pesticide in the United States. *Ecology* 63(5):1285-1293.
- O'Brien, W. J., and D. Kettle. 1981. A zooplankton bioassay chamber for lab and field use. *Journal of Plankton Research* 3(4):561-566.
- Kettle, W. D., and H. S. Fitch. 1981. 22-year prairie management report (Kansas). *Journal of Restoration and Management Notes* 1:9-10.
- Kettle, W. D., F. deNoyelles, Jr., and C. H. Lei. 1980. Oxygen consumption of zooplankton as affected by laboratory and field cadmium exposures. *Bulletin of Environmental Contamination and Toxicology* 25:547-553.
- O'Brien, W. J., D. Kettle, H. Riessen, D. Schmidt, and D. Wright. 1980. Dimorphic *Daphnia longiremis*: predation and competitive interactions between the two morphs. In W. C. Kerfoot (ed.), *Evolution and Ecology of Zooplankton Communities*, The University Press of New England, pp. 497-505.
- deNoyelles, F., Jr., and W. D. Kettle. 1980. Herbicides in Kansas waters--evaluations of the effects of agricultural runoff and aquatic weed control on aquatic food chains. Contribution Number 219, Kansas Water Resources Research Institute, University of Kansas, Lawrence, KS, pp. 1-40.
- O'Brien, W. J., D. Kettle, and H. Riessen. 1979. Helmets and invisible armor: structures reducing predation from tactile and visual planktivores. *Ecology* 60(2):287-294.
- Kettle, W. D., and W. J. O'Brien. 1978. Vulnerability of arctic zooplankton species to predation by small lake trout (*Salvelinus namaycush*). *Journal of the Fisheries Research Board of Canada* 35(11):1495-1500.

## **GRANTS:**

- “Monitoring and habitat management for species of greatest conservation need: Anderson County Prairie.” Co-PI with W. Busby as PI. State Wildlife Grant, Kansas Department of Wildlife and Parks, \$90,355. 4/1/2008–12/31/2009.
- “Prairie restoration and outreach in Eastern Kansas - Phase II.” W. D. Kettle (PI), with co-PIs as W. H. Busby, H. M. Alexander, S. Ashworth, S. W. Campbell, J. M. Delisle, B. L. Foster, C. C. Freeman, K. Kindscher, and E. A. Martinko. National Fish and Wildlife Foundation. 2/1/2007-8/31/2008. \$75,953
- "Prairie Restoration and Outreach in Eastern Kansas." W. D. (PI), with co-PIs as W. H. Busby, H. M. Alexander, B. L. Foster, C. C. Freeman, K. Kindscher, and E. A. Martinko. National Fish and Wildlife Foundation. 6/1/2005-2/28/2007. \$80,000
- “Enhancement of research and education facilities at the University of Kansas Field Station.” B. Foster (PI), with co-PIs as H. Alexander, S. Billings, F. deNoyelles, W. D. Kettle, E. Martinko, K. Price, V. Smith, and J. Ward. National Science Foundation. 11/1/2004-10/31/2007. \$323,538 (plus \$97,062 in matching)
- “Field work and activities in support of integrated natural resource management planning at Ft. Leavenworth Military Reservation.” W. D. Kettle (PI), with Co-PIs W. H. Busby, C. C. Freeman, and K. Kindscher. United States Army. February - December 2004. \$39,879
- “A natural areas inventory of Ft. Leavenworth Military Reservation, Kansas: follow-up studies.” W. D. Kettle (Co-PI), with C. C. Freeman (PI), and Co-PIs as W. Busby and K. Kindscher. United States Army. July 2002 - December 2003. (\$12,000 allocated to W. D. Kettle for natural resource planning). \$98,288
- “Preliminary assessment of historic vegetation in the Marais des Cygnes ecosystem.” W. D. Kettle (PI) with K. Kindscher (Co-PI). Kansas Department of Wildlife and Parks. November 2001 - October 2002. \$4,200
- “Linking remote sensing, land use and carbon sequestration: insights from leaf to landscape scales in America's heartland.” W. D. Kettle (Co-PI), with Kevin Price (PI), and Co-PIs as E. A. Martinko, S. L. Egbert, M. E. Jakubauskas, T. Crooks, J. L. Whistler, B. Foster, C. Martin, K. Kindscher, and H. Tian. NASA. June 2001 - May 2003. (\$29,948 allocated to W. D. Kettle for land use history analyses). \$997,800
- “Wetland restoration for research, and teaching, and outreach: development of the Robinson site.” W. D. Kettle (project participant, administratively E. A. Martinko as PI). United States Fish and Wildlife Service. October 2000 - September 2001. \$10,000

- “Planning activities for the further development of the Kansas Ecological Reserves.” W. D. Kettle (project participant, administratively W. J. O’Brien as PI). National Science Foundation. 1999 - 2002. \$14,500
- “Enhancement of research facilities at the Kansas Ecological Reserves.” W. D. Kettle (Co-PI), with R. D. Holt (PI), and Co-PIs as H. M. Alexander, K. Price, and P. Rich. National Science Foundation. October 1995 - September 1997. \$84,000
- “Field stations and Marine Laboratories: Enhancement of research with experimental aquatic ecosystems at the Kansas Ecological Reserves.” W. D. Kettle (Co-PI), with J. O’Brien (PI) and 7 other collaborators. National Science Foundation. January 1998 - December 1999. \$10,705
- ”Identifying riparian buffers that function to control nonpoint source pollution impacts on instream communities: feasibility study in the Delaware River Basin, Kansas.” W. D. Kettle (Co-PI) with D. G. Huggins (PI). United States Environmental Protection Agency. September 1992 - September 1993. \$20,000
- “Laboratory building for the Kansas Ecological Reserves.” W. D. Kettle (project participant, administratively K. B. Armitage as PI). National Science Foundation. February 1991 - July 1993. \$110,000
- “Comparison of fiberglass tank study to EPA protocol mesocosm study.” W. D. Kettle (Co-I), F. deNoyelles (PI), and L. Ferrington (Co-I). Springborn Laboratories, Inc. May 1988 - March 1990. \$30,000
- “EPA protocol mesocosm study and pond development.” W. D. Kettle (Co-I), with F. deNoyelles (PI), and L. Ferrington (Co-I). Springborn Life Sciences, Inc. October 1988 - March 1990. \$350,000
- “EPA protocol study and pond development.” W. D. Kettle (Co-I), with F. deNoyelles (PI), and L. C. Ferrington (Co-I) and E. Martinko (Co-I). Springborn Life Sciences, Inc. October 1987 - March 1989. \$310,000
- “Development of experimental lake facility.” W. D. Kettle (Co-PI) with F. deNoyelles (PI) and eight collaborators. Research Improvement Award, University of Kansas. July 1987 - June 1990. \$99,950
- “Determination of herbicide-induced alterations of aquatic habitats in Kansas.” W. D. Kettle (Co-PI) with F. deNoyelles (PI). United States Geological Survey and Kansas Water Resources Institute. April 1987 - March 1988. \$17,000
- “Introduction of the eastern chipmunk, *Tamias striatus* (Linnaeus), into a portion of its former range: establishment of a free-ranging population on a nature reserve.” W. D. Kettle (PI), with K. Armitage (Co-PI) and H. S. Fitch (Co-PI). Kansas Fish and Game Commission. July 1984 - June 1985. \$1,074

“Microecosystems in toxicological research: experimentation with atrazine herbicide and aquatic food chains.” W. D. Kettle (PI) with F. deNoyelles (Co-PI). Biomedical Sciences Support Grant. February 1983 - April 1984. \$3,550

“Response of aquatic ecosystems to perturbation: patterns of response identified from experimental field studies and from literature review.” W. D. Kettle (Co-PI) with F. deNoyelles (PI). United States Environmental Protection Agency. April 1983 - March 1984. \$65,329

“Kansas Biotic Succession Facility.” W. D. Kettle (Co-I), with K. B. Armitage (PI), and several others. Research Improvement Award, University of Kansas. July 1983 - June 1986. \$99,923

“Site studies to determine the extent and potential impact of agricultural herbicides on aquatic food chains. W. D. Kettle (PI) with F. deNoyelles (Co-PI). Kansas Water Resources Research Institute. April 1982 - April 1983. \$8,500

“Studies in natural aquatic habitats on the effects of agricultural herbicides on aquatic food chains. W. D. Kettle (Co-PI) with F. deNoyelles (PI). United States Environmental Protection Agency. April 1981 - March 1983. \$123,644

“Experimental pond studies on the effects of agricultural herbicides on aquatic food chains.” W. D. Kettle (Co-PI) with F. deNoyelles (PI). United States Environmental Protection Agency. June 1979 - May 1980. \$35,000

“Herbicides in Kansas waters--evaluation of the effects of agricultural runoff and aquatic weed control on aquatic food chains.” W. D. Kettle (Co-PI) with F. deNoyelles (PI). Kansas Water Resources Research Institute. October 1978 - September 1980. \$15,000

### **PRESENTATIONS (since 1995):**

W. D. Kettle, S. M. Ashworth, W. H. Busby, S. W. Campbell, and V. B. Salisbury. 2008. Integrating conservation, research, and outreach activities: Experiences at the University of Kansas Field Station. Kansas Natural Resources Conference, Wichita, KS, February 2008.

W. H. Busby, W. D. Kettle, and V. B. Salisbury. 2008. Managing for biodiversity at the Anderson County Prairie Preserve. Kansas Natural Resources Conference, Wichita, KS, February 2008

Alexander, H. M., N. A. Slade, W. D. Kettle, and W. D. Pittman. 2006. Research on Mead’s milkweed at the Rockefeller Prairie in eastern Kansas. Symposium on ecology, evolution, and conservation of a rare prairie plant: Mead’s milkweed (*Asclepias meadii*). University of Kansas, Lawrence, KS. November 2006.

- Kettle, W. D. 2006. Prairie restoration and outreach initiative at the University of Kansas Field Station. Symposium on New Approaches in Conservation and Restoration, University of Kansas, Lawrence, KS. May 2006.
- Kettle, W. D., S. Ashworth, and V. Salisbury. 2006. Opportunities for conservation and research on Mead's milkweed at the University of Kansas Field Station and Ecological Reserves: Rockefeller Prairie and the Anderson County Prairie Preserve. Symposium on ecology, evolution, and conservation of a rare prairie plant: Mead's milkweed (*Asclepias meadii*). University of Kansas, Lawrence, KS. November 2006.
- Ashworth, S., K. Dobbs, W. D. Kettle, and W. H. Busby. 2006. Prairie restoration and outreach in eastern Kansas. North American Prairie Conference, Kearny, NE. July 2006.
- Ashworth, S., K. Dobbs, W. D. Kettle, and W. H. Busby. 2006. Prairie restoration and outreach in eastern Kansas. Kansas Academy of Science, Wichita, KS. April 2006.
- Questad, E. J., W. D. Kettle, K. Kindscher, B. L. Foster, and G. L. Pittman. 2003. Productivity in relation to burning and site quality in a 40-year prairie restoration. Fifteenth International Conference of the Society for Ecological Restoration, Austin, TX, November 2003.
- Slade, N. A., H. M. Alexander, and W. D. Kettle. 2001. Estimation of population size and probabilities of survival and detection in a population of Mead's milkweed. Ecological Society of America, Madison, WI, August 2001.
- Kettle, W. D. and H. S. Fitch. 2000. Land use history in natural area research and management: case study at the Fitch Natural History Reservation. Natural Areas Conference, Fayetteville, AR, October 2000.
- Foster, J. and W. D. Kettle. 1998. Mound-building ants on native and restored prairie. North American Prairie Conference, University of Nebraska at Kearney, Kearney, NE, July 1998.
- Fu, P., W. D. Kettle, and P. M. Rich. 1998. A GIS database for research and management of the Kansas Ecological Reserves. International Society for Conservation GIS (SCGIS) Conference, Idyllwild, CA, July 1998.
- Fu, P., W. D. Kettle, and P. M. Rich. 1998. A GIS database for research and management of the Kansas Ecological Reserves. Environmental Systems Research Institute (ESRI) User Conference, San Diego, CA, July 1998.

- Fu, P., P. M. Rich, and W.D. Kettle. 1998. Geographic data management for the Kansas Ecological Reserves. Great Plains/Rocky Mountain Division of the Association of American Geographers, University of Kansas, Lawrence, KS, September 1998.
- Alexander, H. M., N. A. Slade, and W. D. Kettle. 1996. Application of mark-recapture models to estimation of the population size of plants. Ecological Society of America, Providence, RI, August 1996.
- Foster, J. and W. D. Kettle. 1997. Distribution of *Formica subsericea* on native and restored prairies in northeastern Kansas. Prairie States Ecology Conclave, Ozark Natural Science Center, AR, October 1997.
- Kettle, W. D., G. L. Pittman, R. O'Neal, and P. M. Rich. 1996. Land-use history considerations in natural resource planning. North American Prairie and Natural Areas Conferences, Chicago, IL, October 1996.
- O'Neal, R. L., W. D. Kettle, P. M. Rich, K. P. Price, and R. D. Holt. 1996. Environmental history of the Kansas Ecological Reserves: changes in vegetation at a forest/prairie ecotone. Environmental Systems Research Institute (ESRI) User Conference, Palm Springs, CA, May 1996.
- Kettle, W. D. 1995. Overview of Kansas Ecological Reserves. Konza Prairie Research Group, Kansas State University, Manhattan, KS, January 1995.
- Kettle, W. D., G. L. Pittman, and R. O'Neal. 1995. Environmental history of the Rockefeller Prairie: implications for research. Natural Areas Conference, Fayetteville, AR, October 1995.