

W. Dean Kettle, Ph.D.

Kansas Biological Survey
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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.

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:

2015-present	Research Programs Director, University of Kansas Field Station, Kansas Biological Survey.
1984-2015	Associate Director, University of Kansas Field Station.
1983-1992	Courtesy Assistant Professor, Department of Systematics & Ecology, University of Kansas
1977-1983	Superintendent, University Field Facilities, University of Kansas
1975-1976	Research Assistant, Department of Systematics & Ecology, Univ. Kansas

PUBLICATIONS:

Alexander, H.M., C.D. Collins, A. Reed, W.D. Kettle, D. Collis, L. Christiana, and V.B. Salisbury. Long-term study of a rare annual plant (*Agalinis auriculata*) in a remnant prairie and an oldfield: effects of *Juniperus virginiana*. *Ecology and Evolution* (accepted 2018).

Shefferson RP, Kull T, Hutchings MJ, Selosse M, Jacquemyn H, Kellett KM, Menges ES, Primack RB, Tuomi J, Alahuhta K, Hurskainen S, Alexander HM, Anderson DS, Brys R, Brzosko E, Dostálik S, Gregg K, Ipser Z, Jäkäläniemi A, Jersáková J, Kettle WD, McCormick MK, Mendoza A, Miller MT, Moen A, Øien D, Püttsepp Ü, Roy M, Sather N, Sletvold N, Štípková Z, Tali K, Warren II RJ, Whigham DF. 2018. Drivers of vegetative dormancy across herbaceous perennial plant species. *Ecology Letters* 21(5):724-733. DOI: <https://doi.org/10.5061/dryad.m54358>

- Kettle, W.D. 2016. The University of Kansas Field Station: A platform for studying ecological and hydrological aspects of climate change. *Trans. Kan. Acad. Science* 119:12-20.
- Whittemore, D. and W. D. Kettle. 2016. Symposium overview: Ecology and climate change research at Kanas natural areas and field stations. *Trans. Kan. Acad. Science* 119:1-4.
- Alexander, H.M, A.W. Reed, W.D. Kettle, N.A. Slade, S.A. Bodbyl-Roels, C.D. Collins, and V.B. Salisbury. 2012. Detection and plant monitoring programs: Lessons from an intensive survey of *Asclepias meadii* with five observers. *PLOS ONE* 7(12): e52762. doi:10.1371/journal.pone.0052762.
- Ashworth, S.A. and W.D. Kettle. 2010. Response of herbaceous plant community after removal of woody vegetation in a tallgrass prairie restoration. Proceedings of the 22nd North American Conference, University of Northern Iowa, Cedar Falls (Iowa).
- Busby, W.H., W.D. Kettle, J.M. Delisle, R. Moranz, S. Roels, V.B. Salisbury. 2010. Monitoring and habitat management for species of greatest conservation need: Anderson County Prairie Preserve. Kansas Biological Survey, Lawrence, KS. Report No. 164:1-99.
- Alexander, H. M., N. A. Slade, W. D. Kettle, G. L Pittman and A. W. Reed. 2009. Detection, survival rates, and dynamics of a cryptic plant, *Asclepias meadii*: applications of mark-recapture models to long-term monitoring studies. *Journal of Applied Ecology* 97:267-276.
- 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 (SINCE 2000):

- “Forest Planning at Baldwin Woods”. PI: W.H. Busby. Co-PIs W.D. Kettle and J.M. Delisle. Kansas State University (subaward; original funding: U.S. Dept Agriculture, U.S. Forest Service). 2017-2018, \$27,972.
- “Building Data Infrastructure, Network Capacity, and Research Engagement at the KU Field Station.” Kettle, W. D. (PI), with co-PIs J.M. Delisle, H.M. Alexander, S.A. Billings, B.L. Foster, and D.R. Hirmas. University of Kansas - Research Investment Council. 02/01/14 - 10/31/2014. \$38,196.00
- “Enhancements to internet and communications systems at the KU Field Station.” B. Foster (PI), with co-PIs as W.D. Kettle, S. Billings, D. Hirmas, and V. Smith. National Science Foundation. 07/14/13 - 07/13/16. \$349,714
- “Facilities to enhance research and teaching at the University of Kansas Field Station.” S. Billings (PI), B. Foster (Co-PI) and W.D. Kettle (Co-PI). National Science Foundation. 08/1/2011 - 07/31/2014. \$329,890
- “Monitoring and habitat management for species of greatest conservation need: Anderson County Prairie.” W. H. Busby and W. D. Kettle. State Wildlife Grant, Kansas Department of Wildlife and Parks. 06/03/08 - 3/31/2010. \$90,355
- “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. 02/1/2007 - 08/31/2008. \$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. \$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

PRESENTATIONS (since 2000):

- Kettle, W.D. 2014. The University of Kansas Field Station: A platform for studying ecological and hydrological aspects of global change. Kansas Academy of Science, "Symposium on Ecohydrology and Climate Change at Kansas Natural Areas and Research Stations." Emporia State University, April 2014.
- Busby, W.H. and W.D. Kettle. 2013. Anderson County Prairie Preserve patch-burn management. Patch Burn Grazing Working Group Conference, Elmdale, KS. 28-29 August, 2013.
- Kettle, W. D., J.M. Delisle, and W.H. Busby. 2010. Using patch-burn grazing to meet conservation objectives in a working landscape. North American Prairie Conference, University of Northern Iowa, August 2010.

- Ashworth, S.M., and W.D. Kettle. Response of herbaceous plant community after removal of woody vegetation in a tallgrass prairie restoration. 2010. North American Prairie Conference, University of Northern Iowa, August 2010.
- Kettle, W. D., 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.
- Busby, W. H., 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.

REPORTS (since 2000)

Pittman, G.L., H.S. Fitch, and W.D. Kettle. 2016. Vertebrate animals on the Fitch Natural History Reservation (1948-2002). Kansas Biological Survey Report Number 188. 48 pages.

Busby, W.H., W.D. Kettle, J.M. Delisle, R. Moranz, S. Roels, V.B. Salisbury. 2010. Monitoring and habitat management for species of greatest conservation need: Anderson County Prairie Preserve. Kansas Biological Survey, Lawrence, KS. 2 Report No. 164:1-99.

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.

STUDENT COMMITTEES (since 2000):

T. C. Bents. Department of Geography, University of Kansas. (M.S. 2015). Thesis: Understanding the physical constraints of soil structure and its influence on soil hydraulic properties. Committee: D. R. Hirmas (chair), W. C. Johnson, and W. D. Kettle

M. D. Dunbar. Department of Geography, University of Kansas (M.A. 2005). Thesis: Mapping, analyzing, and visualizing 60 years of forest cover change in northeast Kansas. Committee: M. Jakubauskas (chair), S. Dobson, S. Egbert, and W. D. Kettle

J. Wang. Department of Geography, University of Kansas (Ph.D. 2000). Dissertation: Relations between productivity, climate, and normalized difference vegetation index in the central Great Plains. Committee: P. M. Rich and K. P. Price (co-chairs), R. D. Holt, W. D. Kettle, R. E. Nunley