David E. Kramar, PhD

Minnesota State University Moorhead - Department of Anthropology and Earth Science
1104 7th Ave S. Moorhead MN 56563 Office: 218-477-2832
Email: david.kramar@mnstate.edu

EDUCATION

2014: Ph.D. - Geospatial and Environmental Analysis: Major Advisor: Dr. Bill Carstensen. EPA STAR Fellowship Program. *Evaluation, assessment, and determination of risk to high trophic level piscivores in Virginia: A spatial, biological, and comparative investigation of mercury in Virginia bald eagle populations.*

2004: M.S. - Geography; Major Advisor: Dr. Bill W. Carstensen
Virginia Polytechnic Institute, Blacksburg, VA. *Estimating Hg Risk to the Common Loon (*Gavia immer*) in the Rangeley Lakes Region of Western Maine: a Regression Based GIS Model*

1999: B.S. - Geography; Concentration in Geographic Information Systems
Appalachian State University, Boone, NC.

PROFESSIONAL EXPERIENCE

Minnesota State University Moorhead (MSUM)
2016 – Current: Assistant Professor of Geosciences; Technical Director of the Center for Geospatial Studies.

Southern Oregon University (SOU)
2014-2016: Assistant Professor in Environmental Science and Policy.

Conservation Management Institute
2010 – 2013: Project Associate/Research Faculty and Adjunct Instructor in Geography.

Department of Geography. Virginia Tech.
2006-2010: Graduate Assistant/Instructor: Dept. of Geography.

Senator George J. Mitchell Center for Environmental and Watershed Research, University of Maine, Orono.
2004-2006: Graduate Research Assistant.

RESEARCH INTERESTS

Social and Environmental Justice; Environmental Toxicology; Non-Linear and Non-Parametric Modeling in GIS; Biogeography; Cartography; Landscape Ecology, Physical Geography; Species Distribution Modeling, Machine Learning and GIS.

TEACHING EXPERIENCE

Minnesota State University Moorhead:
GEOS 307 - Introduction to GIS; GEOS 205 - Thinking Spatially; GEOS 207 - GPS Field Techniques; GEOS 335 - Environmental Geography and Conservation; GEOS 390 – Web Mapping and the ArcGIS Javascript API (Special Topics – Spr 2018), GEOS 403 – Introduction to Remote Sensing.

Southern Oregon University:
ES 451 - Introduction to GIS; ES 453 - Introduction to Remote Sensing; ES 349 – Maps, Cartography, and Geospatial Technology; ES 386 – Environmental Data Analysis; ES 101 – Introduction to Earth Science.

Virginia Tech
GEOG 2314 – Map Use and Map Interpretation. GEOG 3314 – Introduction to Cartography.

TEACHING INTERESTS AND COURSES DEVELOPED

Teaching Interests

Non-Linear Techniques for Analysis of Geographic and Environmental Data; Environmental Modeling Using Geographic Information Systems; Geographic Information Systems; Quantitative Methods for Analysis of Spatial and Environmental Data; Cartography and Map Use/Map Interpretation, Remote Sensing.

Courses Developed

Open Source GIS; Introduction to Mapping with UA Systems; Programming in the ArcGIS Javascript API; Spatial Ecology in R; Advanced Spatial Analysis.

PUBLICATIONS

Refereed Journals

Kramar, D.E., Anderson, A., Branden, K., Hilfer, H., and Gutrich, J. In Process. *A Spatially Informed Analysis of Environmental Justice: Analyzing the Effects of Gerrymandering and the Proximity of Minority Populations to U.S. Superfund Sites*. Environmental Justice*:* Aug 2017. In Press: Oct 2017.

Katzner et al. *Status, Biology, and Conservation Priorities for North America's Eastern Golden Eagle.* Accepted to The Auk, November 2011.

Desorbo, Christopher R., Taylor, K., **Kramar, D.,** K.M., Fair, J., Atwood, J.L., Evers, D.C., Hanson, W., Vogel, H.S. *Reproductive Advantages for Common Loons Using Rafts on Lakes With Stable and Fluctuating Water Levels.* Accepted to Journal of Wildlife Management, September 2006.

Kramar, David E., Goodale, W., Kennedy, L., Carstensen, L., Kaur, T. *Relating Land Cover and Mercury Levels in Common Loons Using Geographic Information Systems*, *Ecotoxicology,* Vol. 14, 2005

Kaur, Taranjit, Singh, J., Goodale, W., **Kramar, D.**, Nelson, P. *Development of a Cyber-Infrastructure for Integrated Assessments of Environmental Contaminants*, *Ecotoxicology,* Vol. 14, 2005

Selected Reports and Grey Literature

Kramar D.E., Emrick, V., and Fields, M. 2013. *Bald eagle surveying and monitoring of the Nottoway Macro basin and Fort Pickett – Final Results.* Prepared for ARNG-MTC Fort Pickett.

Klopfer, S.D., **Kramar,D.E.** and St.Germain, M. 2013. *Analysis of Fox Activity and Survival in Foxhound Training Enclosures.* Prepared for: Virginia Department of Game and Inland Fisheries, March 2013.

Klopfer, S.D., **Kramar, D.E.**, and St. Germaine, M. 2013. *Climate change impacts on species of greatest conservation concern in Virginia.* Prepared for: Virginia Department of Game and Inland Fisheries, February 2013.

Kramar D.E., Emrick V., and St.Germaine M. 2012. *Bald eagle surveying and monitoring of the Nottoway Macro basin and Fort Pickett – Final Results.* Prepared for ARNG-MTC Fort Pickett.

Nelson, S.J., P. Vaux, A. Grygo, R. Hallsworth, **D. Kramar** , January 31, 2006. *Final Project Report: Searchable Park Access to Research Catchments (SPARC).* National Park Service report.

Martin, C., Normandin, J., and **D. Kramar**. 2006 *"Distribution and Productivity of Ospreys and Bald Eagles in the Umbagog Lake Ecosystem in 2005: Findings from the 2005 field season"* Prepared for: Lake Umbagog National Wildlife Refuge. Submitted January 2, 2006.

DeSorbo, C R., D. C. Evers and **D. Kramar**. 2005. *Characterizing food habits and time budgets of Ospreys within the Lake Umbagog ecosystem.* Report BRI 2005-14. BioDiversity Research Institute, Gorham, Maine. 21pp.

DeSorbo C, Taylor K, Daigle T, **Kramar D**, Evers D (2006) 2005 *Aziscohos Lake Common Loon Population Survey and Management Report.* Biodiversity Research Institute report (BRI ID # 2006-16) submitted to: FPL Energy Maine Hydro, Lewiston, Maine, pp 37

DeSorbo C, Daigle T, **Kramar D**, Evers D (2007) 2004 *Aziscohos Lake Common Loon Population Survey and Management Report.* Biodiversity Research Institute report (BRI ID # 2005-16) submitted to: FPL Energy Maine Hydro, Lewiston, Maine, pp 43

Walker, Gary, Parisher, E., Smith, P., Whitlock, D., **Kramar, D.** Matthes, U., Morefield, L., 2004. *Characterization of Plant Community Structure and Abiotic Conditions on Climbed and Unclimbed Cliff Faces in the Obed River Gorge ,* Report submitted to the National Park Service, Obed River Gorge.

Publications in Process/Review

Kramar, D.E. and Quirino, V. In Process. *Application of Non-NIR Vegetation Indices on a Standard UAS Platform: Current Practices and New Approaches.* Remote Sensing. In Process.

Kramar,D.E., Prisley, S., Carstensen, B., Campbell, J. In Process. *The Impact of Unit of Analysis when Modeling Land Cover Influence on Juvenile Bald Eagle Blood Mercury Concentrations.* Journal of Geographic Information Science. *In Process.*

Kramar,D.E., Carstensen, B. Prisley, S. In Process. *Investigating the Influence of Landscape Fragmentation on Measured Blood Mercury Concentrations in Juvenile Bald Eagles.* Physical Geography. *In Process.*

GRANTS and FELLOWSHIPS

Funded

Aerial Image Acquisition, Vegetation Mapping, and Object-Based Classification of the MSUM Regional Science Center. 2017-2018 Dille Grant for Excellence. PI's: David Kramar and Karl Leonard. $2500.00.

A DJI Phantom 4 Professional Drone for Unmanned Ariel Systems (UAS) Studies at Minnesota State University Moorhead. 2016-2017 Dille Grant for Excellence. PI's: David Kramar and Karl Leonard. $1722.99 (+ $1722.99 Matching).

Trimble University Program. Request for Leveraged Equipment. $68,526.00 Summer 2017. David Kramar and Scott Seltvit: Co-Pi's.

Evaluating the effectiveness of UAV's in the detection of Bald Eagle Nests in the Nottoway Macrobasin and boundaries of Army National Guard Maneuver Training Center – Fort Pickett. 25,259. Fall 2012. Co-Pi.

Bald eagle survey and productivity of the Nottoway River Macro-basin and Fort Pickett Army Base. 25,259. Fall 2011. Co-Pi.

Bald and Golden Eagle Assistance and Trapping: Assessing Concentrations of Mercury and Lead in Adult Bald and Golden Eagles. Funded under the Virginia Dept. of Game and Inland Fisheries. Total Funding: 20,000.00. Fall 2011. Co-Pi.

Bald and Golden Eagle Assistance and Trapping: Assessing Concentrations of Mercury and Lead in Adult Bald and Golden Eagles. Funded under the Virginia Dept. of Game and Inland Fisheries. Total Funding: 20,000.00. Fall 2010**.** Co-Pi.

Bald and Golden Eagle Assistance and Trapping: Funded under the Virginia Dept. of Game and Inland Fisheries. Total Funding: 5000.00. Spring 2009. Co-Pi.

Evaluation, assessment, and determination of risk to high trophic level piscivores in the Mid-Atlantic: A spatial, biological, and comparative investigation of mercury in Virginia and New

England bald eagle populations. Funded under the EPA Star Fellowship Program. Total Funding: 120,000.

Investigating Productivity, Food Habits, Contaminant Exposure and Health of Bald Eagles and Ospreys Within the Lake Umbagog Ecosystem. Total Grant: 58,687. Desorbo, C. and Martin, C. (PI's), **Kramar, D.** (Collaborator).

Submitted

Non-Native Plant Encroachment in Minnesota's Prairie Grassland Biome. Legislative Citizen's Commission on Minnesota Resources. Spring 2018. $191, 360.00.

Monitoring and Mapping of Mercury in Western Minnesota. Legislative Citizen's Commission on Minnesota Resources. Spring 2017. $440,813.00. *Not Funded.*

GP:EXTRA *Understanding Mercury in the Siskiyou and Cascade Mountains of Southern Oregon: A Comprehensive Analysis of Mercury in Wet and Dry Deposition, Soils, and Biota*. National Science Foundation. Spring 2015. $465,289.00. PI. *Not Funded.*

CONFERENCE PRESENTATIONS AND WORKSHOPS

Kramar, D.E. and Quirino, V.F. 2017. *Applications of Non-NIR Based Vegetation Indices to a Standard UAS Platform.* Minnesota GIS/LIS Conference. Bemidji, MN.

Quirino, V.F. and **Kramar, D.E.** 2017. *Comparing Classification of NAIP and UAS Imagery Using Object-Based Image Analysis Methods*. Minnesota GIS/LIS Conference. Bemidji, MN.

Kramar, D.E. 2017. *Understanding QGIS*. South Dakota Statewide Geospatial Conference. Mitchell Technical Institute. Mitchell, South Dakota.

Kramar, D.E. 2017. *An Introduction to the Use Of Geoforms in Field Data Acquisition.* Minnesota GIS/LIS Spring Workshops. University of Minnesota. Minneapolis, Minnesota.

Kramar, D.E. 2017. *Introduction to Cartography.* Minnesota GIS/LIS Spring Workshops. University of Minnesota. Minneapolis, Minnesota.

Kramar, D.E., Beck, J., Quirino, V., Keena-Levin, S. 2016. *Modeling the Distribution of Whitebark Pine in Crater Lake National Park.* GIS in Action Conference. Portland, Oregon.

Kramar, D.E. 2014. *Investigating the influence of landscape fragmentation on juvenile bald eagle mercury levels.* Presented at the Virginia Tech Graduate Student Assembly Research Symposium. March 2014.

Kramar, David E., Klopfer, S., Sewall, J. *"Assessing Species Distributions Under Multiple Climate Change Scenarios: An Analysis of Northern Bobwhite in Virginia."* 2012 VT_GIS Research Symposium.

Kramar, David E. and Jeff Cooper. *"Ghosts of the Forest: A detailed look at Virginia's role with Eastern Golden Eagles."* 2010 VT-GIS Research Symposium.

Kramar, David E. and Peter Vaux. "*PEARL: Data acquisition and information summaries for environmental education and outreach in Maine*". 30th Annual Meeting of the New England Association of Environmental Biologists (NEAEB). Bethel Maine. March 29, 2006.

Kramar, David E. and Peter Vaux. "*Online tools for viewing and interpreting environmental information in Maine.*" Maine Water Conference. Augusta, ME March 22, 2006.

Kramar, David E. and Vaux, Peter. "*Development of the Atlantic Salmon Commission Data Access Pages within PEARL*" Atlantic Salmon Commission Agency Staff Meeting. Eddington, Maine. December 15, 2005.

Kaur, Taranjit, Goodale, W., **Kramar, D.**, Nelson, P. *The Mercury Tracker Software: Loon Surveys from Field Site to Website,* Annual Meeting of the New England Association of Environmental Biologists, Jiminy Peak, Mass. 2004.

Northeastern Ecosystem Research Cooperative (NERC) Conference: Invited participant: At the December 2003 meeting, I presented an abstract for publication in a special issue of *Ecotoxicology* dedicated to Hg research in the summer of 2004. December 2003.

Northeastern Ecosystem Research Cooperative (NERC) Conference: Invited participant: At the December 2003 meeting, I presented an abstract for publication in a special issue of *Ecotoxicology* dedicated to Hg research in the summer of 2004. December 2002.

INVITED LECTURES AND PRESENTATIONS

Application of Vegetation and Radiometric Indices on a Non-NIR UAS Platform. Department of Mathematics. Minnesota State University Moorhead. Moorhead, MN. Spring 2018.

Understanding the Relationship Between Landscape Fragmentation and Hg. Department of Biology Speaker Series. Minnesota State University Moorhead. Moorhead, MN. Fall 2016.

Variation in Mercury in Virginia Bald Eagles. Roanoke Valley Bird Club. November 14, 2011.

Current Threats facing bald and golden eagles in Virginia: From mercury and lead to Wind Turbines and Habitat Loss. Wildlife Center of Virginia: Call of the Wild Conference. November 13, 2011.

Relationships of mercury and foraging behavior in Bald and Golden Eagles in Virginia combining lab analysis and GPS collected data. Bland , Virginia. Nov. 20, 2010

Understanding mercury and foraging behavior in Bald and Golden Eagles in Virginia combining lab analysis and GPS collected data. Lynchburg, Virginia. 2010.

Contaminants in Bald Eagles in Virginia: A spatial approach to understanding mercury transport and movement to high trophic level piscivores. Bristol, Virginia. 2010.

Mercury Assesment in Bald Eagle Populations. Appalachian State University. Boone, North Carolina. Department of Geography Speaker Series. March 2007.

Applications of GIS and ArcIMS. Concord University, West Virginia. November 13, 2006.

Spatial Distribution of Mercury Across New England; A Summary of the Findings from the Northern States Research Cooperative Mercury Study. University of Maine, Department of Wildlife Speaker Series Spring 2005.

Finding the Link between Land Cover and Loon Mercury Levels. Senator George J. Mitchell Center for Environmental and Watershed Research. Annual Speaker Series. Fall 2004.

Spatial Modeling: What you "See" in a GIS is a Function of Scale. Department of Biology, Sweet Briar College. Spring 2004.

Field Collection Methods for Acquisition of Hg Data in the Common Loon and Other Avian Species. Geography Department Speaker Series, Virginia Tech. Fall 2003.

POSTER PRESENTATIONS

Kramar, David E., Carstensen, Bill, Fraser, Jim. Mercury in Virginia's Bald Eagles. Poster presented at the 2009 SEDAAG Conference. Knoxville, TN.

Kramar, David E.. "Estimating Mercury Concentrations in Virginia's Bald Eagle Population. EPA STAR Fellowship Conference. Washington, D.C. 2006

Kennedy, Lisa, **Kramar, D.**, Carstensen, L.W., Goodale, W. Spatial Patterns of Hg Levels in Common Loons in the Rangeley Lakes. Poster Presented at the Association of American Geographers Annual Conference. 2005

Kramar, David E. Proximity Analysis of the Influence of Land Cover on Loon Blood Hg Levels. Maine Water Conference. March 22, 2005.

Kramar, David E., Vanakkam, V., Vaux, P. Current Architecture of the PEARL System. Maine Water Conference. March 22, 2005.

AFFILIATIONS AND AWARDS

Third Place: Best Oral Presentation at the 2014 GSA Research Symposium. Virginia Tech. Blacksburg, Va. 2014.

Recipient of the 2013 Wings Across the America's award for Research Management and Partnership (as a member of the Eastern Golden Eagle Working Group).

Recipient of the 2010 Stewart M. Russell Lectureship Award. Presented by the Bristol Bird Club for outstanding achievements in understanding the physical mechanisms responsible for the transport of mercury to Bald Eagles in Virginia.
Recipient of the A.B. Massey Award for Outstanding Graduate Student, Department of Geography, Virginia Polytechnic Institute and State University, 2008
EPA STAR Fellowship. Awarded 2006

Recipient of the A.B. Massey Award for Outstanding Graduate Student, Department of Geography, Virginia Polytechnic Institute and State University, 2004

Sigma Xi: Nominated by Jim Campbell and initiated in spring of 2004.

Gamma Theta Upsilon: Appalachian State University, 1998.

ADDITIONAL PROFESSIONAL ACTIVITIES

Peer reviewed "Long-Term Monitoring and Assessment of Mercury Using the Common Loon, Prey Fish, Water, and Sediment ". New York State Energy and Development Authority. Fall 2011.

Peer reviewed "Informatics Approaches for Reuse and Modeling of Heterogeneous Mercury Data". Grant submitted to WRRI, 2010 USGS Maine Water Resources Institute Program. Reviewed September 2011.

Peer reviewed "SPATIAL DISTRIBUTION OF THE COMMON LOON (*GAVIA IMMER*) IN NEW HAMPSHIRE". Photogrammetric Engineering and Remote Sensing. September 2007.

Peer Reviewed "Database development to support spatio-temporal analysis of coastal Maine mercury data". Grant submitted to WRRI, 2010 USGS Maine Water Resources Institute Program. Reviewed September 2, 2009.

UNIVERSITY, DEPARTMENTAL, AND COMMUNITY SERVICE

Minnesota State University Moorhead

2017 – Current:	Center for Geospatial Studies Steering Committee
2017 – Current:	State of Minnesota GIS Standards Committee/Outreach Committee
2017 – Current:	University Curriculum Committee.
2017 – Current:	Goldwater Scholarship Committee/Nakken Scholarship Committee
2017 – Current:	Geospatial Advisory Committee – Northland Technical and Community College.
2016 – Current	GIS Day Sub-Committee
2016 – Current	Faculty Advisor for the University Climbing Club
2016 – Current	GIS Interdisciplinary Curriculum Committee
2016 – Current	Faculty Development Workshop Communities of Practice (Flipped Classrooms, GIS, Undergraduate Research)

ADDITIONAL PROFESSIONAL EXPERIENCE

Biodiversity Research Institute, Gorham, Maine
Summer 2003-2006: Field Biologist/GIS Analyst

Independent Contractor
2001 - 2003: Subcontractor: Highland Mapping Llc., Banner Elk, NC.

Anderson & Associates, Blacksburg, VA.
August 2001 - August 2002: GIS Project Manager

James W. Sewall Company, Old Town, Maine
March 2000 - August 2001: Municipal GIS Analyst

Town of Banner Elk, North Carolina
August 1998 – March 2000: GIS Coordinator/Zoning Administrator