

GERALD J. NIEMI

Professor Emeritus

Department of Biology
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Research Interests

Effects of natural and human-induced disturbances on natural resources; Great Lakes ecosystems; sustainability of natural resources; biostatistics; vertebrate ecology; conservation and landscape ecology

Education

PhD Biology, Florida State University, Tallahassee, 1983
MS Zoology, University of Minnesota-Duluth, 1977
BS Biology, University of Minnesota-Duluth, 1974
Included a Pre-doctoral Fulbright-Hays scholarship at the University of Helsinki, 1981

Relevant Professional Experience

Professor Emeritus, Department of Biology, University of Minnesota Duluth, 2019 to present.

Professor: Department of Biology, University of Minnesota Duluth, 1993 to 2019.

Senior Research Associate/Senior Program Manager. Center for Water and the Environment, Natural Resources Research Institute, University of Minnesota Duluth, 2009-2019.

Responsibilities: research program on environmental effects of natural resource development primarily focused on breeding birds, community sustainability, the Great Lakes, and issues in conservation biology.

Director: Center for Water and the Environment, Natural Resources Research Institute, University of Minnesota Duluth, 1989-2009.

Responsibilities: administration of an environmental and economic development program focused on basic and applied research on forests, soils, water, wetlands, and associated landscapes in the Upper Midwestern U.S. region, primarily Minnesota. The Center for Water and the Environment (CWE) is one of three centers within the Natural Resources Research Institute (NRRI), University of Minnesota Duluth. The Center employed more than 50 individuals including a core group of about 12-16 PhD level scientists, many technicians, graduate and undergraduate students, and support staff. The Center had an annual budget of about \$4.0 M with support by an annual state appropriation of about \$800 K and \$3 to 3.5 M from more than 20 externally-funded projects.

Associate Professor: Department of Biology, University of Minnesota Duluth, 1989-1993.

Graduate Faculty Appointments: Chemical Toxicology (UM), 1992 to present;

Conservation Biology Program (UM-TC), 1996 to present; Biology, Integrated Biological Sciences (UM-D), 1987 to present.

Department Chairman, Department of Biology, University of Minnesota Duluth, 1997-1998.

Responsibilities: administration of biology department that consisted of 14 tenure-track or tenured faculty, 2 instructors, and 6 support staff. The department served more than 600 undergraduate and pre-professional students, more than 30 active graduate students, and offers more than 30 undergraduate and graduate courses. Annual budget is greater than \$2 M, excluding external research support.

Associate Director, Center for Water and the Environment, Natural Resources Research Institute, University of Minnesota Duluth, 1987-1989.

Responsibilities: assist in the administration of an environmental program as described above.

Supervisory Research Ecologist, (GM-14)/Branch Chief in Hazardous Waste Division, Environmental Research Laboratory-Duluth, U.S. Environmental Protection Agency, 1987-1988 (leave of absence from University of Minnesota).

Responsibilities: administration of one of five branches in the Environmental Research Laboratory, Duluth. Branch consisted of about 12 scientists (PhD, master, and bachelor level) with expertise in chemistry, toxicology, water quality, and ecology. I also served as the lead scientist in the development of an ecology program for the laboratory.

Research Associate, Natural Resources Research Institute, 1985-1987.

Graduate Faculty, Department of Biology, University of Minnesota Duluth, 1983-1985.

Research Associate, Department of Biology, Department of Pharmacology, and School of Medicine, University of Minnesota Duluth, 1983-1985.

Scientist, Lake Superior Basin Studies Center, University of Minnesota Duluth (leave of absence and reduced time 1979-1981), 1976-1983.

Fulbright-Hays Scholar, Department of Zoology, University of Helsinki, Finland, 1981.

Teaching Assistant, Department of Biological Sciences, Florida State University, Tallahassee, 1979-1980.

Wildlife Biologist, Nongame Migratory Bird and Habitat Research Laboratory, U.S. Fish and Wildlife Service, Patuxent, Maryland, 1979.

Avian Ecologist, Minnesota Department of Natural Resources, St. Paul, Minnesota 1976.

Teaching and Research Assistant, Department of Biology, University of Minnesota Duluth 1974-1977.

Professional Organization Membership

American Association for the Advancement of Science

American Ornithological Society, Elective Member, 1994; Fellow, 2006

Society for Conservation Biology

Ecological Society of America

Raptor Research Foundation

Association of Field Ornithologists

Citizen Memberships

Minnesota Ornithologists' Union

Nature Conservancy

Hawk Ridge Bird Observatory

National Audubon Society (also Duluth)

Friends of Hartley Nature Center

Minnesota Center for Environmental Advocacy

Friends of the Boundary Waters Canoe Area

Wilderness

Courses Taught

Ecological Processes – Integrated Biological Sciences –Required Graduate Class- 2012

Community Ecology – IBS 8993 Integrated Biological Sciences-Graduate Seminar 2013

Conservation Biology - Graduate level class - 2000, 2002, 2005, 2007, 2009, and 2011

Biostatistics - Graduate level class in mathematics - 1984-1985

Ornithology - Graduate level class in biology – 14 years between 1987 and 2014

Topics Courses in Ecology - Graduate level classes on special topics

Seminar Evaluation - Undergraduate class on critical review of seminars - 1997, 1998

Quantitative Methods in Biology - Course for gifted students

General Biology - Laboratory classes for general students - 1979-1980

Natural History of Vertebrates- Teaching Assistant - 1979

Ornithology- Teaching Assistant -1974, 1975, 1976, 1977, 1980

Completed Ph.D. Dissertations – University of Minnesota

- Annie Bracey, 2021, Ecology and Conservation of Common Terns (*Sterna hirundo*) Breeding in the North American Great Lakes Region, Conservation Biology
- Lisa Elliott, 2019, Habitat associations and conservation of wetland-obligate birds, Conservation Biology
- Alexis Grinde, 2015, Spatio-temporal dynamics of forest birds, Integrated Biological Sciences
- Anna Peterson. 2013. The use of terrestrial and airspace habitat by migratory land birds during autumn migration along a coastal ecological barrier, Conservation Biology
- Chris Burdett. 2007. Ecology of the Canada lynx. Conservation Biology

Completed Master of Science Theses - University of Minnesota

- Ryan Steiner, 2018, Phenological shifts of raptor migration
- Steve Kolbe, 2018, The Common Nighthawk in Minnesota.
- Josh Bednar, 2016, Habitat and landscape use by birds in the Agassiz Lowlands Subsection, northern Minnesota
- Edward Keyel, 2015, Mercury in raptors, Integrated Biological Sciences
- Lizzie Condon. 2015. Habitat use by spring migrating birds on the western coast of Lake Michigan
- Paul Dolan-Linne. 2013. Spatial distribution of the Chestnut-sided Warbler across a forested landscape
- Hannah Panci. 2013. Habitat and landscape use by marsh and sedge wrens in Great Lakes coastal wetlands.
- Edmund Zlonis. 2012. Avian communities of managed and unmanaged boreal forests.
- Annie Bracey. 2011. Window related avian mortality at a migration corridor.
- Carly Lapin. 2010. Predicting breeding habitat of the Connecticut Warbler (*Oporornis agilis*)
- Heidi Seeland. 2010. Determination of raptor migratory pathways over a large landscape.
- David Grosshuesch. 2009. Northern hawk owl breeding habitat selection.
- Eric Jensen. 2009. Habitat and landscape perspectives of American Kestrel biology.
- Julie Palakovich. 2007. Using GPS collars to monitor the activity and habitat use of Canada lynx in Minnesota
- Nicholas McCann. 2007. Snowshoe hare population density and use of cover types in the Superior National Forest, Minnesota.
- Anna Peterson. 2005. Evaluation of the Ohio rapid assessment method for wetlands in the western Great Lakes: an analysis using bird assemblages.
- Lisa Belmonte. 2005. Home range and habitat characteristics of boreal owls in northeastern Minnesota.
- Chris Burdett. 2004. Comparison of predation rates of artificial nests in fragmented and contiguous forested habitats.
- David Grandmaison. 2003. Landscape factors affecting productivity of breeding birds in Great Lakes coastal wetlands.
- Christie Miller. 2003. Effects of anthropogenic development on breeding bird abundance and communities.
- Anne Lacy. 2001. Predicting bird species distributions in northern Minnesota and Wisconsin forests.
- Brady Mattsson. 2001, Relationship between multi-scale habitat features and breeding biology of ground nesting birds.
- Jean Mengelkoch. 2000. Diet of the Nestling Tree Swallow (*Tachycineta bicolor*) as related to insect diversity and abundance.
- Gaea Crozier. 1999. Using local patch and landscape variables to model bird abundance in a naturally heterogeneous landscape.
- Mary Hammer, 1999. The value of artificial nests as a tool for studying nest predation.
- Lisa Schulte. 1996. Bird communities of early successional burned and logged forests in northeastern Minnesota.
- Tim Fenske-Crawford. 1995. Predation of artificial ground nests at two types of edges in a forest-dominated landscape.

- Kent Montgomery. 1995. Discrimination of breeding habitats of forest birds in north-central Minnesota using satellite imagery.
- Rita Hawrot. 1994. Effects of edge type, patch shape, and patch size on avian communities in a mixed conifer-hardwood forest.
- Carol Pearson. 1994. Effects of habitat and landscape patterns on avian distribution and abundance in northeastern Minnesota.
- Oksana Piterman. 1994. Diet of Red-winged Blackbird (*Agelaius phoeniceus*) nestlings in controlled, methoprene-and Bti-treated sites located in Wright County of central Minnesota.
- Rebecca Boley. 1992. Effects of methoprene on site fidelity and reproductive success of male Red-winged Blackbirds (*Agelaius phoeniceus*).
- Susan Olson. 1992. Habitat heterogeneity and bird species composition in wetlands of central Minnesota.
- Patrick Collins. 1991. Relationships between invertebrate biomass and bird abundance in northern Wisconsin forests.

Recent Graduate Committees

Matti Hakkila (Co-advisor, U of Jyvaskyla, Finland)

Michael Joyce – MS – 2013, Ph.D. 2013-2018
Clint Nienhaus – MS – 2013-2016

Scholarships and Awards

- 2017 International Partners in Flight Investigations Award
- 2017 U.S. Forest Service 2017 Wings Across the Americas Research Partnership Award
- 2016 T.S. Roberts Memorial Award, Minnesota Ornithologists' Union for Outstanding Contributions to Minnesota Ornithology
- 2015 Lifetime Achievement Award, Hawk Ridge Bird Observatory, Duluth MN
- 2013 Outstanding Contribution to National Forests Award-Bird Monitoring, USDA Forest Service
- 2012 Ralph Yerger Lectureship, Florida State University, Outstanding Biology Alumni
- 2009 Scientific and Technical Achievement Award, U.S. Environmental Protection Agency, Honorable Mention – competition for research publications.
- 2007 Outstanding Scientist of the Biennium-Great Lakes; International Joint Commission.
- 1989 Scientific and Technical Achievement Award, U.S. Environmental Protection Agency, Outstanding peer-reviewed paper in Ecology.
- 1982 Frank M. Chapman Memorial Award, American Museum of Natural History, New York.
- 1980 Fulbright-Hays Scholarship, Institute of International Education.
- 1980 Marcia Brady Tucker Award, American Ornithologists' Union.

Peer Reviewer of Professional Journals/Books (n)

Acta Ornithologica (1)	Forest Science (1)
American Society for Testing and Materials- Aquatic Toxicology (3)	Frontiers in Ecology and the Environment (1)
Archives of Environmental Contamination and Toxicology (3)	Global Ecology and Biogeography (1)
Auk (16)	Int'l. J. of Ecology (2)
Avian Ecology and Conservation (4)	Journal of Applied Ecology (2)
Biological Conservation (4)	Journal of Field Ornithology (3)
Canadian Journal of Zoology (2)	Journal of Landscape Ecology (4)
Conservation Biology (4)	Journal of Raptor Research (4)
Ecological Monographs (2)	Journal of Wildlife Biology (3)
Ecology (15)	Journal of Wildlife Management (20)
Ecological Applications (6)	Landscape Ecology (5)
Ecography (1)	Oikos (1)
Ecoscience (2)	SAR and QSAR in Environmental Research (2)
Ecosystems (1)	The Condor (8)
Ecotoxicology and Environmental Safety (1)	University of Wisconsin Press (1)
Environmental Management (14)	Urban Ecosystems (3)
Environmental Toxicology and Chemistry (15)	Wetlands (2)
Forest Ecology and Management (6)	Wildlife Society Bulletin (6)
	Wilson Bulletin (3)

Proposal Reviewer

National Science Foundation
 U.S. Environmental Protection Agency
 Strategic Environmental Research and Development Program (DOD, EPA, and DOE)
 Finnish Academy of Science
 UNESCO- Man and the Biosphere
 University Council on Water Resources
 Minnesota Department of Natural Resources
 Great Lakes Protection Fund
 Florida Fish and Game Commission

Foreign Travel (n)

Africa (South Africa) (1)	Canada (extensive)	India/Bangladesh (4)
Argentina (1)	Costa Rica (2)	Italy (3)
Australia (1)	Finland (extensive- 8)	Mexico (3)
Austria (2)	France (2)	Netherlands (2)
Belize (3)	Germany (2)	New Zealand (1)

Major Committees and Organization Participation

Association of Ecosystem Research Centers - NRRI representative, 1989 to 1995.
 Technical Advisory Committee, Minnesota Pollution Control Agency, Ecological Effects Subcommittee,
 Water Quality, 1989-1991.
 Guest Editor, Environmental Management - Recovery of Aquatic Systems, 1989-1990.
 Technical Advisory Committee, Minnesota Pollution Control Agency, Ecological Effects Subcommittee,
 Air Quality, 1991-1993
 Minnesota Water-1992, Minnesota Environmental Quality Board, Advisory Group on identifying and
 prioritizing Minnesota water issues.

Resource Planning Advisory Group, Minnesota Power, 1991-1992.
QSAR '92 - International Conference, co-organizer, July 1992.
Generic Environmental impact statement - Effects of increased forest harvesting and management in Minnesota's forests - Team leader - Forest birds and biodiversity, consultant to Jaakko Poyry Consulting Inc. - 1991-1993.
GEIS on forest harvesting and management in Minnesota- implementation round table - appointed by MN DNR Commissioner and Environmental Quality Board Commissioner 1993-1995.
Riparian forest task force in Minnesota - workshop held June 1995.
SETAC Foundation Steering Committee - Ecological risk assessment modeling system, Pellston Conference, Pellston, MI - 1994.
U.S. Environmental Protection Agency, Consultant reviewer of the U.S. EPA Ecological Risk Assessment Guidelines, 1995 (through consultancy with Eastern Research Group, Inc., Lexington MA)
Raptor Research Foundation, Annual meeting - 1995, organizer - Duluth, MN
Guest Editor, Journal of Raptor Research, Raptor responses to forest management- a holarctic perspective. 1995-1997.
Minnesota Logger Education Program - Board of Directors, 1995 - 2000, executive committee/secretary 1999-2000, associate member.
Sustainability in Boreal Regions: sources and consequences of variability, invited speaker and participant. Sponsored by Beijer International Institute for Ecological Economics, MacArthur Foundation, and MN DNR, Lake Itasca, MN, October 1997.
Expert Witness, Ecology/Forestry, U.S. Department of Justice, 1997.
Strategic Environmental Research and Development Program. Consultant-peer reviewer. Department of Defense through HydroGeoLogic, Inc. Herndon, VA. Sept.-Oct. 1998.
Terrestrial Wildlife Community Committee, Lake Superior Binational Program, 1998 to 2001.
Lake Superior Binational Forum. 1999 to 2001.
Public Advisory Committee, UPM Kymmene Blandin. 1999 to 2009
Landscape Advisory Panel, Minnesota Forest Resources Council, 1999 to 2003.
Consultant, Helsinki Consulting Group, Landscape and Ecological Planning, Finnish Forest and Park Service, 2001.
Symposium co-chair, American Society of Limnology and Oceanography, Salt Lake City, UT, Annual Meeting, 2003.
Society for Conservation Biology, co-leader/host, 2003 annual meeting, Duluth, MN.
Symposium co-chair, Ecological Society of America, Savannah, GA, annual meeting, 2003.
Minnesota Chapter, Society for Conservation Biology, vice-president (elected), 2003-2006.
Search Committee - director of U.S. EPA-Mid-continent Ecology Division, 2003-2004.
Consultant- reviewer, Holt, Rinehart, & Winston Publishing, 2003.
Hawk Ridge Bird Observatory, Board member, 2004-2014.
Landscape Pattern in the Coastal Zone, committee member, Heinz Center, Washington DC, 2004, 2006.
Organized Oral Discussion, co-chair, Ecological Society of America and International Ecological Society, Montreal, Canada, 2005.
Owls on the Move - A Symposium on Northern Owl Invasions, co-organizer, Duluth, MN 2006.
Society for Conservation Biology - consultant/reviewer for Conservation Assessments. 2005.
Owl Symposium, chair-scientific program. U of Minnesota Duluth, 2006.
Minnesota Campaign for Conservation, 50-Year Vision Committee, 2006 -2008.
International Association of Great Lakes Research, chair- special session, Windsor, Ontario, 2006.
International Association of Great Lakes Research, guest editor for special issue on Great Lakes Coastal Regions, 2006-2007.
Capacity-building for SCB Chapters in the 21st Century, Society for Conservation Biology Workshop, co-organizer, San Jose, California, June 2006.

Board member (secretary), Great Woods North, 2006 to 2009.
 National Science Advisory Committee, AAAS, reviewer for Desert Research Institute, Nevada, 2006.
 Minnesota Breeding Bird Workshop, co-organizer, February 14-15, 2007, Duluth, MN.
 Minnesota Conservation and Preservation Plan, 2007-2008; core team co-lead, Wildlife, 2007; Legislative Commission for Minnesota Resources, co-lead Land and Aquatic Conservation team, 2007-2008.
 International QSAR Foundation, Board Member – 2007 to 2013, treasurer.
 Eastern Research Group for U.S. Environmental Protection Agency, consultant on National Indicators of Ecological Processes for U.S. EPA Report on the Environment, December 2007 – January 2008
 International Joint Commission, Upper Great Lakes Water Level Study, Technical Advisory Committee for Ecosystems, 2008 – 2012.
 Raptor Research Foundation, Co-chair for 2011 Annual Meeting, Duluth, October 2011.
 California Rapid Assessment Method, Reviewer, California State Government, January- March 2010.
 St. Louis River Estuary Restoration, Senior Advisory Group, Minnesota Pollution Control Agency and Wisconsin Department of Natural Resources, 2011 - 2013
 AAAS, National Science Advisory Committee, reviewer for Desert Research Institute, Universities of Nevada, Reno and Las Vegas, 2012.
 AAAS, Consultant – peer review of NSF EPSCoR program, University of New Hampshire, 2012.
 Hawk Migration Association of North America, Board Member (Elected), 2011-2017.
 International Raptor Research Foundation, Board Member (Elected), 2013-2016, Conference Committee 2017-2019, Chair 2015-2017.
 MNDNR Commissioners Advisory Committee – Natural Heritage, 2013-2017.
 Environment Canada – Consultant for Alberta Oil Sands Monitoring Peer Review – 2015-2016
 Northeastern Minnesotans for Wilderness, 2019-2020

Major University Committees

University of Minnesota Graduate School Proposal Reviewer - 1997 to 2002
 Chemical and Radioactive Materials Management Advisory Committee, 1992-1996
 Biology Graduate Committee, 1989-1991
 NRRRI Building Committee, 1988 to present
 Biology Task Force - Physical Planning, 1992
 Biology - Facility Planning, 1992
 University Campus Assembly, 1994 to 1997
 University Campus Planning Committee, 1994-1997
 Search Committees and Chairs - more than 40 for positions ranging from directors and faculty positions to research associates/fellows; biology department head - 2005-06.
 Interdisciplinary Advisory Committee, Vice-President for Research and Graduate School, 1998 to 2002
 University - Water Resources Planning - 1993 to 2001
 University - Vice-Chancellor Performance Review Committee - 2003
 Integrated Biological Sciences Graduate Program, Chair-Faculty Screening Committee, 2005 to 2010.
 Biology Department Awards Committee – 2010-2012

Research Programs as Principal or Co-Principal Investigator (Total > 50, >\$20 Million)

2018-2019 Conservation of Minnesota's forest birds of management concern. Co-principal Investigator, \$500,000, Legislative Citizen's Commission for Minnesota Resources, State of Minnesota.
 2018-2019 Mapping avian movement in Minnesota. Principal Investigator, \$200,000, Legislative Citizen's Commission for Minnesota Resources, State of Minnesota.
 2015-2019 Implementing Great Lakes Coastal Wetland Monitoring. Co-Principal Investigator, \$10,000,000, U of MN subcontract, US EPA Great Lakes National Program Office, \$2,500,000.

- 2016-2019 Determine impacts on wildlife from Emerald Ash Borer infection of black ash forests. Principal Investigator: \$334,000. Legislative Citizen's Commission for Minnesota Resources, State of Minnesota.
- 2016-2019 Evaluation of tree retention guidelines pertaining to wildlife. Principal Investigator: \$232,000. Legislative Citizen's Commission for Minnesota Resources, State of Minnesota.
- 2016-2017 Conservation of Common Terns in the Great Lakes. Co-Principal Investigator, \$20,466. Minnesota Lake Superior Coastal Program. US Department of Commerce.
- 2016-2018 Conservation and management of Common Terns in the western Great Lakes. Co-Principal Investigator, \$145,000. US Fish and Wildlife Service.
- 2013-2017 Importance of young forests to breeding bird species in Minnesota. Principal Investigator, \$200,000. UPM Blandin, Potlatch Corporation, National Council Stream and Air Improvement, Inc.
- 2008-2017 Minnesota breeding bird atlas project. Principal Investigator. \$262,000 (2008-2012); \$191,000 (2012-2014), \$123,000 (2014-2017) Funding from Legislative Citizen's Commission for Minnesota Resources, MN Audubon and Minnesota Department of Natural Resources.
- 2014-2016 Avian responses to climate change in the Chippewa National Forest. USDA Forest Service,
- 1991-2019 Monitoring bird populations in Minnesota and Wisconsin national forests. Chequamegon, Chippewa, and Superior National Forest, USDA Forest Service and U.S. Fish and Wildlife Service. \$800,000+, currently \$42,000/yr.
- 2012-2017 Post-burn surveys at the Pagami River Fire, Superior National Forest. USDA Forest Service, Northern Research Station. Principal Investigator. \$10,000.
- 2012-2015 Developing Habitat Models and Habitat Maps for boreal bird species in the Agassiz Lowlands Subsection. MN DNR. Principal Investigator, \$65,630.
- 2013-2018 Group Selection Cut Field Experiment, Aitkin County. Principal Investigator, \$8,350.
- 2012-2017 Importance of Managed Forests for Breeding Bird Populations: Gift from UPM Blandin, National Council for Air & Stream Improvement, Potlatch Corp. Principal Investigator. \$195,000.
- 2010-2015 GLEI-II Testing and Refinement. US Environmental Protection Agency. Co-Principal Investigator, \$1,625,769.
- 2010-2016 Implementing Great Lakes Coastal Wetland Monitoring. Co-Principal Investigator, \$10,000,000, U of MN subcontract, US EPA, Great Lakes National Program Office, \$2,500,000.
- 2011-2013 USFWS-21st Avenue West Remediation to Restoration Project. US Fish and Wildlife Service. Co-principal Investigator. \$223,719.
- 2010-2012 USFWS-40th Avenue West Remediation to Restoration Project. US Fish and Wildlife Service. Co-principal Investigator. \$143,980
- 2010-2012 Avian migration within the Lake Superior Coastal Region. US Fish and Wildlife Service. Principal Investigator. \$38,110; USGS/MNDNR - \$43,000.
- 2008 White paper on the ecosystem responses to regulation-based water level changes in the Upper Great Lakes. International Joint Commission, \$25,000, Co-principal Investigator.
- 2008-2010 Developing a model for sustainable communities: integrating environmental, sociological, and economic information in a natural resource-rich area. U of Minnesota-Institute on the Environment, \$59,880; MN Power \$10,000, UM Institute for Advanced Studies, \$10,000.
- 2007-2008 Minnesota conservation and preservation plan. Legislative Citizen's Commission for

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- Minnesota Resources. Core Team, Lead for Wildlife portion, Co-Lead-Land and Aquatic Habitat Conservation, \$450,000 (Total funding).
- 2007-2008 Effects of water level fluctuations on breeding waterfowl. Minnesota Power, \$43,000.
- 2003-2008 Effects of riparian forest harvesting on Minnesota wildlife. Legislative Commission for Minnesota Resources, USDA Forest Service, and Minnesota Forest Resources Council. \$230,000.
- 2001-2006 Development of environmental indicators of condition, integrity, and sustainability in the Great Lakes basin. U.S. Environmental Protection Agency, \$6,379,667.
- 2001-2006 Development of environmental indicators for the U.S. Great Lakes using remote sensing technology. National Aeronautics and Space Administration, \$600,000.
- 2005-2009 Weber Stream Restoration Initiative. Individual private donors. \$200,000.
- 2003-2009 Canada lynx ecology in the Superior National Forest. USDA Forest Service, USDI-U.S. Geological Survey, and U.S. Fish and Wildlife Service. Cooperative Agreement through Minnesota Cooperative Fish and Wildlife Unit. \$247,000.
- 1991-2003 Effects of changes in the forest ecosystem on the biodiversity of Minnesota's northern forest birds. Minnesota Legislative Commission on Minnesota Resources. \$2,112,473.
- 2000-2001 Relationships between multi-scale habitat features and breeding biology of forest songbirds. U.S. Fish and Wildlife Service and MN Department of Natural Resources. \$17,800.
- 1999-2002 Testing efficacy of buffers and residual trees at protecting seasonal ponds and forest songbirds. USDA Forest Service, NC Research Station. \$36,000.
- 1999-2003 Boreal Owl: its habitat and prey in the Superior National Forest. Joint funding from the USDA Forest Service and Minnesota Department of Natural Resources. \$123,000.
- 1999-2004 Distribution of Canada lynx in the upper Midwestern United States. Joint funding from USDA Forest Service, Minnesota Department of Natural Resources, and U.S. Fish and Wildlife Service. \$77,000.
- 1996-1998 Nesting success of forest birds in the upper Mississippi River, Minnesota. USGS, NBS. \$75,560 (with Minnesota Department of Natural Resources).
- 1997-2000 Wildlife species: response to forest harvesting and management in riparian stands and landscapes. Minnesota Forest Resources Council. \$185,000.
- 1994-2001 Boulder Lake Management Area - Environmental Education and Research Program (Partnership program between Center for Water and the Environment, Natural Resources Research Institute, University of Minnesota; Minnesota Power; Minnesota Department of Natural Resources; and St. Louis County). \$82,000.
- 1996-1998 Forest bird biodiversity: indicators of environmental condition and change in the Great Lakes watershed. Great Lakes Protection Fund. \$382,000.
- 1994-1996 Spatial modelling of forest ecosystem landscapes and bird species diversity. National Science Foundation. \$200,000.
- 1992-1998 Bird and mammal use of hybrid poplar plantations. North Central Forest Experiment Station, USDA Forest Service, Department of Energy, and National Audubon Society. \$195,000.
- 1992-1994 Computational techniques to quantify chemical similarity. U.S. Environmental Protection Agency. \$353,638.
- 1992-1993 Development of management indicator species for Chequamegon National Forest. USDA Forest Service. \$12,600.

1991-1994	Sediment contamination and bioaccumulation in wildlife: an experimental approach using Tree Swallows. U.S. Environmental Protection Agency. \$216,000.
1991-1993	Forest bird biodiversity - Generic environmental impact statement - Effects of increased forest harvesting and management. Jääkko Pöyry Consulting, Inc. \$18,500.
1990-1994	Predictive modeling and experimental design of lotic mesocosms. U.S. Environmental Protection Agency. \$618,000.
1990-1994	Structure-activity relationships (SAR) for anticonvulsant drug development. National Institutes of Health. \$1,030,000.
1989-1991	Assessment of environmental toxicity of chemicals from structure: a computational approach. U.S. Environmental Protection Agency. \$75,000.
1989-1990	Post-impact bird populations and vegetation at the Biwabik wetland treatment area. John Baker Engineering, Chisholm, MN. \$14,434.
1989-1990	Software development - predictive model for carcinogenicity and mutagenicity of organic chemicals. Greater Minnesota Corporation. \$50,000.
1989-1990	Ecological and economic feasibility of crayfish aquaculture. Greater Minnesota Corporation. \$28,000.
1988-1989	A cooperative facility for research on the ecology of spatial heterogeneity. National Science Foundation. \$348,060.
1988-1990	An examination of reproductive impairment in vertebrates in the Fox River/Green Bay ecosystem. U.S. Environmental Protection Agency. \$75,000.
1988	Evaluation of biodegradation potential for six organic compounds. Eli-Lilly Company. \$300.
1987-1995	Integrated study on the effects of mosquito control agents (methoprene and Bti) on non-target organisms in aquatic communities. Metropolitan Mosquito Control District, Minnesota. \$1,197,000.
1987-1989	Evaluation of the cumulative effects of wetland loss on ecosystem function. U.S. Environmental Protection Agency. \$75,000.
1986-1988	Bioavailability of chlorinated dioxins and related compounds associated with freshwater sediments and anthropogenic particulates. U.S. Environmental Protection Agency. \$950,999.
1986-1988	Factors controlling the recovery of aquatic systems from disturbance. U.S. Environmental Protection Agency. \$221,032.
1985-1986	Birds and vegetation at a proposed wetland treatment area, Biwabik. Minnesota Pollution Control Agency. \$9,500.
1984-1994	Monitoring the effects of the ELF antenna system on bird species and communities. Department of Navy through Illinois Institute of Technological Research. \$1,100,000.
1984-1986	Multivariate model development for fiber carcinogenicity and the bioavailability of fine particles. U.S. Environmental Protection Agency. \$320,000.
1983-1985	Monitoring asbestos fibers in Lake Superior. U.S. Environmental Protection Agency. \$140,000.
1983-1985	Computerized integration and statistical analysis of structure-activity relationships for industrial chemicals. U.S. Environmental Protection Agency. \$160,221.
1983-1984	Habitat requirements of species with special concern and their importance in habitat reclamation. MN Department of Natural Resources. \$25,000.
1982	Assessment of biodegradation data base. U.S. Environmental Protection Agency. \$5,000.

- 1982 Biological inventory of Hovland Woods, Cook County, MN. Nature Conservancy. \$1,000.
- 1980-1981 An assessment of impact of Arrowhead Bridge construction on a Ring-billed Gull colony. Wisconsin Department of Transportation. \$7,178.
- 1979-1982 Impact of a transmission line on bird populations in the Red Lake Peatland, Minnesota. Northern States Power Company. \$92,000.
- 1979-1980 Overview of wildlife species and their habitats in the Ottawa National Forest. USDA Forest Service. \$12,000.
- 1978-1980 Habitat and wildlife use of the St. Louis River estuary. U.S. Fish and Wildlife Service. \$18,500.
- 1978-1980 Role of dead trees to breeding bird populations. USDA Forest Service. \$4,500.
- 1978-1979 Persistent organic residues and movements of gulls and terns at the western tip of Lake Superior. U.S. Environmental Protection Agency. \$2,500.
- 1978 Birds of the Superior National Forest - a summary. USDA Forest Service. \$4,000.
- 1977-1979 Flora and fauna of the Western Waterfront Trail, Duluth. City Planning Department. \$6,000.
- 1976-1979 Habitat assessment and bird populations of the St. Louis River estuary. Office of Coastal Zone Management. \$25,000.
- 1974-1977 Breeding birds of burned and logged habitats. USDA Forest Service. \$2,500.

Publications - * Peer Reviewed, # invited

- 2022* Pfannmuller, L., G. Niemi, J. Green, and K. Rewinkel. Breeding Birds of Minnesota: their history, ecology, and conservation. In Press. University of Minnesota Press, Minneapolis, MN USA.
- 2022* Kolbe, S., G. Niemi, A. Bracey, M. Etterson, and A. Grinde. Visible migration counts of Common Nighthawks (*Chordeiles minor*) along the North Shore of Lake Superior. Ornithological Applications: submitted.
- 2022* Steiner, R., M. Etterson, G. Niemi, M. Evans, F. Nicoletti, E. Zlonis. Changes in survey effort can influence conclusions about migration phenology. *Journal of Raptor Research*: in press.
- 2021 Frelich, L., G. Niemi, K. Franzen. Art on the edge of the boreal forest: alternative futures for the trees, birds, and insects. BookBaby Press: in press.
- 2021* Hohman, T., Howe, R., Tozer D., Gnass-Giese, E., Wolf, A., Niemi, G.J., Gehring, T.M., Grabas, G.P., Norment, C. Influence of lake levels on water extent, interspersion, and marsh birds in Great Lakes coastal wetlands. *Journal of Great Lakes Research* 47: 534-545.
- 2020* Bracey, A., Etterson, M., Strand, F., Matteson, S., Niemi, G., Cuthbert, F., Hoffman, J. Foraging ecology differentiates life stages and mercury exposure in Common Terns (*Sterna hirundo*). *Integrated Environmental Assessment and Management* 17: 398-410.
- 2020 Niemi, G.J. Birds of the Superior National Forest and Boundary Waters Canoe Area Wilderness. Report to Northeastern Minnesotans for Wilderness. 49 pp.
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Doctoral Dissertation

Ecological morphology of breeding birds in Old World and New World peatlands. Florida State University, Tallahassee. 155 pp. F. James - major advisor; committee members: D. Meeter, D. Simberloff, J. Travis

Master's Thesis

Habitat alteration: its effect on avian composition and habitat selection. University of Minnesota Duluth. 109 pp. P. Hofslund - major advisor; Committee members: B. Krogstad, P. Monson