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Professor, Biosciences Department
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Academic Degrees:

Ph.D. in Ecology and Evolution, Stony Brook University, 1997

B.A. in Biology (*cum laude*, with departmental distinction) St. Olaf College, 1989

Professional Experience:

- Minnesota State University Moorhead, Professor, Biosciences Department (2008 --)
- Minnesota State University Moorhead, Associate Professor, Biosciences Department (2004-2008)
- Minnesota State University Moorhead, Assistant Professor, Biosciences Department (2000-2004)
- Dakota Science Center/Grand Forks Public Schools/North Dakota Parks and Recreation, Grand Forks, ND, Education Specialist (1998-2000)
- High School Science Teacher, Shattuck-St. Mary's School, Faribault, MN (1997-1998)
- High School Science Teacher, San Domenico Upper School, San Anselmo, CA (1995-1996)

Courses Taught:

- Exploring Biology (designed for elementary education majors)
- Pacific Northwest Ecology (summer travel course I developed)
- Ecological Perspectives
- Secondary Science Methods
- Middle School Science Methods
- Ecology and Field Biology Techniques
- Cell Biology Laboratory
- Organismal Biology Laboratory
- Biostatistics Laboratory

Professional and Academic Association Memberships

- Minnesota Science Teachers Association
- National Science Teachers Association
- National Association on Research in Science Teaching
- Ecological Society of America
- American Institute of Biological Sciences

Professional Assignments, Activities, and Leadership

American Society for Microbiology "Biology Scholar" Research Residency 2010-2011 www.biologyscholars.org

Recruiting Director, Discovery Science Camp for underrepresented middle school students, 2010

Minnesota Consortium on Biology Education Conference (MNCUBE) – founding member, 2010

Minnesota State University Moorhead Dragon Core Review Task Force – co-chair, 2010

Tuning USA – Minnesota Project Leader for Biology – pilot funded by the Lumina Foundation, 2009

Minnesota Science Teachers Association - Higher Education Representative, 2006-2010

Minnesota State University Moorhead Student Learning Outcomes Assessment Committee, 2006-2010

Publications

Balgopal, M., A. Wallace, and S. Dahlberg. *Writing to learn ecology: A study of three populations of college students* (submitted to Environmental Education Research in March 2010, resubmitted in July 2010).

Balgopal, M., S. Dahlberg, A. Wallace. 2010. *How Different Populations of College Students Write and Learn About Ecology*. Proceedings of the National Association for Research in Science Teaching.

Balgopal, M., and A. Wallace. 2009. *Decisions and dilemmas: using WTL activities to increase ecological literacy*. The Journal of Environmental Education. 40(3): 13-26.

Balgopal, M., and A. Wallace. 2008. *Decisions and dilemmas: using WTL activities to increase ecological literacy*. Proceedings of the National Association for Research in Science Teaching.

Wallace, A., T. Harms, R. McClure, M. Reap, T. Shume. 2006. *The TRN Profile Matrix: an accessible database on beginning math and science teachers*. Proceedings of the Association for the Education of Teachers of Science.

Davis, G., P. R. Simpson, B. Johnson, A. Wallace. 2002. *Getting to the Fourth Year: The Instruments and Protocols Used to Study the Practice of Beginning K-12 Science Teachers*. Proceedings of the Association for the Education of Teachers of Science.

Wallace, A. and A. Grack. 2000. "Ranger Rosie" – an ecological education online module for grades 4-8. <http://www.natureshift.org/rangerR/index.html>

Gurevitch, J., L.L. Morrow, A. Wallace, and J.S. Walsh. 1992. *A meta-analysis of competition in field experiments*. American Naturalist. 140:539-572.

Papers/Presentations at national and regional organizations

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| University of Colorado, Denver - Invited speaker at MSEL Lunch | (2010) |
| "How different populations of college students write and learn about ecology" | |
| NARST – National Association of Research in Science Teaching | (2010) |
| "How different populations of college students write and learn about ecology" | |
| MSUM World of Change Teacher Workshop – Invited Luncheon Speaker | (2009) |
| "What does it mean to be "green"? Helping our students to become more ecologically literate" | |
| NSTA – National Science Teachers Association Regional Conference | (2009) |
| "Decisions and Dilemmas", a special workshop on guided writing activities in science classrooms | |
| ESA – Ecological Society of America annual meeting | (2009) |
| "Guiding college students to become more ecologically literate through writing activities" | |
| ESA – Ecological Society of America annual meeting | (2008) |
| "Decisions and dilemmas: using WTL activities to increase ecological literacy" | |
| MNSTA – Minnesota Science Teachers Association, fall conference | (2008) |
| "Brilliant Beginnings and Engaging Endings" | |
| NARST – National Association of Research in Science Teaching annual meeting | (2008) |
| "Decisions and dilemmas: using WTL activities to increase ecological literacy" | |
| MNSTA – Minnesota Science Teachers Association, fall conference | (2007) |
| "Brilliant Beginnings and Engaging Endings" | |
| MNSTA – Minnesota Science Teachers Association, spring conference | (2007) |
| "Becoming a (Model) Student Teacher" | |
| AETS – Association for the Education of Teachers of Science annual meeting | (2006) |
| "The TRN Profile Matrix: An Accessible Dataset on Beginning Math and Science Teachers" | |
| NSTA – National Science Teachers Association, National Meeting | (2003) |
| "Who's at the Feeder? Using Database Technology to Promote Scientific Inquiry". | |
| AETS – Association for the Education of Teachers of Science | (2002) |
| "Getting to the Fourth Year" – a report on the SciMath ^{MN} Teacher Research Network | |
| MNSTA – Minnesota Science Teachers Association, fall conference | (2001) |

"Birds Online"
 ESA – Ecological Society of America annual meeting (2001)
"Prairie Planting Partnerships: Bringing together undergraduate and third grade investigations"
 NSTA – National Science Teachers Association, National Meeting (2000)
"Propelling your students outdoors with the Internet"
 NECC – National Educational Computing Conference (6 hour workshop) (2000)
"Survival Strategies for a Technological Classroom"
 NSTA – National Science Teachers Association, Midwestern Regional Meeting (1999)
"Putting Science in a Cultural Context"
 NAI – National Interpreters' Association, Region V (1999)
"NatureShift! Linking Learning to Life"
 NDSTA – North Dakota Science Teachers Association (1999)
"Finding Your Ecological Address"
 NDEA- North Dakota Education Association (1998)
"Investigating Schoolyard Ecology"
 Bodega Field Conference at Bodega Marine Laboratory (1996)
"The effects of elevated CO₂ on lupine-grass competitive interactions – research in progress"
 Bodega Field Conference at Bodega Marine Laboratory (1994)
"The effects of elevated CO₂ on lupine-grass competitive interactions – a research proposal"

Grants funded

National Science Foundation - Course Curriculum and Laboratory Instruction - *Dilemmas and Decisions: Using Guided Writing to Increase Ecological Literacy in Undergraduates* (\$139,000)
 Co-PI with Dr. Meena Balgopal (2008-2010)

Dille Fund for Excellence Award – *Science Students in the Middle: Involving undergraduates in science education outreach* (\$1,440)
 Co-authored with Dr. Steve Lindaas and Dr. Shawn Ellingboe (2004-2005)

Minnesota Improving Teacher Quality Grant Program extension– *"Putting Science in the Middle: Follow up and dissemination"* (\$13,000)
 Co-PI with Dr. Steve Lindaas and Dr. Shawn Ellingboe. (2004-2005)

Minnesota Improving Teacher Quality Grant Program - *Putting Science in the Middle: Life Science Content and Pedagogy for Grades 5-9* (\$30,000)
 Co-PI with Dr. Steve Lindaas and Dr. Shawn Ellingboe. (2003-2004)

National Science Foundation – Field Stations and Marine Laboratories
"Planning Workshop for a Tallgrass Prairie Biological Field Station" (\$15,000)
 Co-PI with Dr. George Davis, Dr. Donna Stockrahm, and Dr. Rich Pemble (2002-2003)

Strategic Goals Initiative - *Creating Ongoing Collaborations with Teachers of Diverse Student Populations* (\$34,000)
 Co-authored with Dr. Shawn Ellingboe., Dr. Ellen Brisch, and Dr. Steve Lindaas (2002-2003)

MSUM Faculty Grant (\$1,800) (2002-2003)

Dille Fund for Excellence Award (\$2,300) (2000-2001)

Technology in Teaching (\$1,500) (2000-2001)

Bodega Field Conference Graduate Student Grant (\$1,500) (1995-1996)

NASA Global Change Fellowship and Grant recipient (\$65,000) (1992-1995)

Awards

MSUM Academic Affairs Council Excellence in Teaching Award

(2007-2008)

Student Research Projects – presented at the MSUM Student Academic Conference

2009-2010

- *The effects of Brassica rapa trichomes on cabbage white butterfly larvae* – Amy Moorhouse and Brittany Beers

2007-2008

- *“Effects of elevated carbon dioxide on maternal families of Brassica rapa (rapid-cycling)”* – Michael McConnell and Amanda Wickersham
- *“Investigating variation in glucosinolate production by Brassica rapa (rapid-cycling) as related to trichome production”* – Ryan Walsh

2006-2007

- *“Tradeoffs between allelopathy and trichomes”* - Ryan Walsh
- *“A comparison of transpiration and growth rates in high and low trichome rapid-cycling Wisconsin fast plants (Brassica rapa)”*– Crystal Arnold and Liz Jagol
- *“The effects of global warming on prairie seed germination”* – Tatiana Gracyk and Jennifer Hostetter

2005-2006

- *“A comparison of nitrogen-fixing species abundance on 3rd grade prairie restoration plots at the MSUM Regional Science Center”* - Liz Jagol, Barbara Michel, Amber Haugen, Jennifer Hostetter, Jenny Neuberger, Tatiana Gracyk
- *“A comparison of morphological and genetic variation among four local populations of big bluestem (Andropogon gerardii)”*- Cassandra Kramer, Crystal Arnold, Mariah Clements, Anil Bhatta
- *“Using gel electrophoresis to tell if corn chips are made from genetically modified corn”* – Barbara Michel and Char Binstock

2004-2005

- *“A comparison of forb diversity in 3rd grade prairie restoration plots”* - Liz Jagol and Shannon Odermann
- *“How does mycorrhizae affect the growth of prairie grass species?”* – Elizabeth Caroline, Elizabeth McLain, Ondrea Row

2002-2003

- *Vian Abdulhakim*, a life science teaching major, continued the mycorrhizae project and grew hundreds of plants that still need to be weighed and tested for presence of mycorrhizae.
- *Heather Rickerl*, a life science teaching major, investigated the possibility of mosquitoes acting as pollinators in the tall0grass prairie. A small pilot study was run during the summer of 2003 with one mosquito trap. Mosquitoes were collected by *Jen Hatton* (a life science teaching major), counted and sexed by Heather Rickerl, and identified to species by *Luke Oradnick*, who worked at the Cass County Mosquito Control in the summer of 2003. Heather helped write a Dille grant to for funding for more mosquito traps.

2001-2002

- *Alicia Gulbranson*, a life science teaching major, worked on growing lead plant seedlings with and without their associated N₂-fixing bacteria.
- *Bethany Lundgren*, a freshman biology major, did some work testing seed viability of older seeds and freshly collected seeds.
- Another freshman biology major, *Ava-Gaye Simms*, researched primary literature on the effects of mycorrhizae on prairie seedling establishment and designed a greenhouse experiment using sterilized (no mycorrhizae) and unsterilized prairie soil to grow prairie seedlings.
- *Christine Olson*, a life science teaching major, helped count seedlings the third graders planted in the restoration plot in the summer.

2000-2001

- One life science teaching student, and two freshman biology majors designed and completed at several experiment involving indoor germination factors of selected prairie species. *Susan Sorenson* studied how planting depth affects germination rates of prairie seeds. *Tanya Becker* studied how pot size affects seedlings growth rates. *Holly Triska* studied how temperature affects seed germination.
- Susan, Holly, *Cortnee Dronen*, and *Vian Abdulhakim* spent many hours during the summer keeping track of the survival of over 1000 prairie seedlings planted by Moorhead third graders in a large prairie restoration plot.