

COBWEBS

2013

Mission Statement

the grand valley state university biology department integrates meaningful, practical experiences with excellent classroom teaching to prepare students to be critical thinkers, engaged citizens, and creative and competent professionals in the biological sciences

Annual Report from the Chair

Odds and Ends Captured in the Web

Neil MacDonald, Chair, Biology Department

As noted in my previous Cobwebs commentaries, the Biology Department has continued working to revise its curriculum to keep our programs current and responsive to the needs of our students. Last year, the department created the Biology Undergraduate Program Committee to oversee this activity for the biology undergraduate program. Members of that committee worked diligently to develop a proposal to modify the current program requirements to increase flexibility and provide several parallel pathways for students to travel through the biology program, while preserving its existing strength. In a related effort, the Biology Undergraduate Program Committee annually reviews assessment data to see how well our students assimilate the concepts that we introduce in our courses. A major part of the assessment effort involves administering the ETS Major Field Test in Biology to all senior students in BIO 495, the biology capstone course. Test results from 2012-2013 show that GVSU biology students performed strongly, achieving an overall mean score in the 63rd percentile as compared to 393 other institutions. Our students performed especially well in areas related to population biology, evolution, and ecology in this test,

with a mean score in the 83rd percentile! These data demonstrate that students leave the GVSU biology program well versed in the knowledge they will need to succeed in a variety of professional fields, and we intend to maintain that quality as we continue to work to keep the biology program current through our curriculum revision efforts.

A major step forward for the Biology Department and its undergraduate (BIO, NRM) and graduate (BIO) programs was the approval of the Allendale Science Laboratory and Classroom Building by the State of Michigan.

IN THIS NEWSLETTER:

- *a letter from the biology department chair*
- *scholarship recipients*
- *new professors to GVSU*
- *updates from SWCS, biology, and pre-vet clubs*
- *student scholars day 2013*
- *faculty activity highlights*

The faculty and staff of the Biology Department worked diligently last year to help finalize plans for this building which will house both the Biology and Cell and Molecular Biology Departments. Preliminary ground clearing and excavation work for the building is underway as I write this, with building construction to start in July, 2013. When completed, the new science building will contain over 150,000 square feet of space, housing 9 classrooms and lecture halls, 15 teaching laboratories, 14 faculty/student research laboratories, a computational research lab, and a 2,500 square foot greenhouse with 6 separate environmental zones. The Biology Department will be a primary occupant of the new building, and we anticipate making the move to the new facilities in the summer of 2015. The new science building will be located just south of the fieldhouse complex on the west side of Campus Drive, which will provide good

vehicular access for the field laboratories that are critical components of many BIO and NRM courses. Of special interest to NRM alumni is the dedicated soils/terrestrial ecology laboratory included in the new building, providing a long-needed space for our classes in these areas.

As always, we like to hear from our graduates. Let us know where you are and what you are doing. E-mail updates to individual faculty are always welcome, and often are shared with other interested faculty as well. Another option to consider is to connect with former professors through LinkedIn®, which provides a good way to maintain your professional connections with GVSU after graduation. When you are back on campus after the fall of 2015, come and visit us in the new science building!

Scholarship Recipients

Michigan Garden Club Scholarship
Youssel Darwich

John Salski Memorial Scholarship
Michaela Clingaman
Jessica Gilginas
Andrew Smith

Huizenga Biology Education Scholarship
Molly Edwards
Megan White
Kevin Goldberg
Stephanie Looyenga

Howard and Rose Stein Scholarship
Jessica Pontow
Emily Dean
Mitchell Roth

John Shontz Native Plants Biology Scholarship
Mitchell Roth

Barbara Waddell Research Award
Connor Wojtowicz
Samantha Brodley

Barbara Waddell Integrated Science Award
Ethan Barnes
David Wolffis
Megan Czarnecki

New to GV

Professor Bios

Stephen Rybczynski

Assistant Professor of Biology (Education)

Ph.D. Botany/Science Education, Miami University, Ohio, 2011

M.S. Biology, Northern Michigan University, 2005

B.S. Biology/Ecology, Northern Michigan University, 1997

I attended Northern Michigan University where I received my Bachelor of Science in biology/ecology, Secondary Teaching Certification in biology and general science, and Master of Science in biology. My master's thesis involved characterizing the benthic community characteristics of five streams in the Pictured Rocks National Lakeshore. I received my Ph.D. in botany with an emphasis in science education from Miami University in Ohio where I investigated the effects of inquiry instruction on student attitude in an introductory biology lab course. Currently, I am an assistant professor of biology here at Grand Valley State University where I teach courses in biology and integrated science, as well as methods courses for pre-service teachers. My scholarship focuses on the development of inquiry-based investigations for use in K-12 classrooms. I am also interested in the relationships among instructional strategies, student attitude, and Nature of Science understanding.



Jennifer Moore

Assistant Professor of Biology (NRM)

Postdoctoral research fellow, Department of Fisheries and Wildlife, Michigan State University, 2010-2012

Postdoctoral research fellow, Biology Department, University of Alaska Southeast, 2009-2010

Ph.D. Ecology and Biodiversity, Victoria University of Wellington, New Zealand 2008

M.S. Biology, Central Michigan University, 2004

B.S. Zoology, Northern Michigan University, 2001

As a Grand Rapids native, Jennifer is thrilled to be back in Western Michigan as part of the Natural Resources Management program at GVSU. Jennifer received an undergraduate degree in Zoology from Northern Michigan University, a Master's degree in Biology from Central Michigan University, and then travelled down under for her PhD at Victoria University of Wellington, in New Zealand. Jennifer spent four years as a postdoctoral fellow at the University of Alaska and then at Michigan State University. Jennifer's research focuses on conservation biology, molecular and spatial ecology, of primarily reptiles and amphibians. At GVSU, Jennifer will be teaching Introduction to Natural Resource Systems, Conservation Biology, and Herpetology. When she's not out chasing reptiles, Jennifer enjoys running, fly-fishing, and spending time with her husband and 3-year old daughter.



Jennifer Winther

Assistant Professor of Biology (Genetics)

Ph.D. in Ecology and Evolutionary Biology, University of Colorado, 2008

B.A. in Biology, University of Chicago, 2000

I have really enjoyed my first two years at GVSU teaching General Biology, Genetics, Genetics Lab, and Plant Symbiosis. My research interests are wide-ranging but mainly focus on characterizing the evolution and development of the key characteristics of land plants that have contributed to their success. I choose to study the overlooked, yet phylogenetically important, ferns, lycopods (e.g. clubmosses), and gymnosperms (e.g. pines) in order to fill in major gaps in our knowledge of the almost 500 million year history of land plants. I employ a diverse set of techniques including molecular systematics, microscopy, and developmental genetics to answer these questions. I have 2 broad areas of research: 1) the study of the evolution, development and ecology of a type of mycorrhizal symbiosis (plant-fungal association) considered crucial to the establishment and diversification of land plants, and 2) understanding the evolution of male and female cones in gymnosperms. When I am not teaching or conducting research with undergraduate students, I am cooking with the excellent local meat and produce, sampling a local brew, or enjoying the great outdoors.



Club Update

Biology Club

This year we aimed to provide students with activities that were fun and enriching, as well as professionally relevant. We began the year with an event that focused on strategies for finding and funding undergraduate research. In addition to the informative presentation given by Dr. Henshaw, representatives from the Frederick Meijer Office of Fellowships were invited to share information on grants to help fund undergraduate research. The event also provided students a chance to meet with faculty and learn about the various research opportunities that were available on campus.

We also held an event that revolved around applying for summer jobs and internships. We welcomed Andrew Bradley from the Career Services Department to discuss the necessary steps to take in order to land a job in your field of interest. He emphasized the importance of networking and gaining strong interviewing skills. It was a neat opportunity to meet fellow classmates and learn about their specific interests in Biology.

Shortly before the end of the school year, we recruited volunteers for help with planting trees around the new storm water management system. A total of 200 Norway and White Spruces were planted around the ponds. The addition of the trees will increase water conservation and provide a habitat for the local wildlife. The tree planting turned into a very rewarding activity for all those who were involved.

We hope to kick start the next school year with a canoeing trip that will spark the interests of our members and help encourage their involvement with the club. We have the president and vice-president positions filled, but are still in need of two more e-board members.

Soil and Water Conservation Club

SWCS started off the fall semester by cleaning up the Thornapple River shed. We rode down the Thornapple River in canoes and collected several tarps, numerous tires and even a car door! We also had our annual MDOT adopt-a-highway cleanup. In addition to these events, we helped the Land Conservancy of West Michigan to collect native seeds and plant native trees out at Saul Lake Bog Nature Preserve. Our special guest speaker for the fall semester was Brian Majka, the Senior Restoration Ecologist from Cardno JFNew. The officers held in the 2012 fall semester were Caleb Syswerda as president, Rebecca Andrews as vice president, Danielle Bradke as secretary, and Frank Parks as treasurer.

Our winter semester began with a snowy invasive species removal at Blandford Nature Center, where we worked to remove Autumn Olive and Glossy Buckthorn. We also cleaned out the wood duck boxes in the ravines to get them ready for spring. Additionally, SWCS joined Biology Club in helping GVSU's facilities and operations plant 200 trees in the new storm water retention ponds on campus. Mid-semester, we were generously invited to the home of Richard Schwallier of Schwallier Land Preservation - an eco-friendly environmental education center in Conklin, MI to watch "Green Fire: Aldo Leopold and a Land Ethic for our Time". Our special guest speaker for this semester was Jessie Schulte, the Land Stewardship Volunteer Coordinator from Blandford Nature Center. Toward the end of the semester, our annual Garlic Mustard pull was held at Aman Park, followed by a potluck. We finished off the year by handing out dirt cups at the Kirkhof Center in celebration of Earth day. The officers held in the 2013 winter semester were Rebecca Andrews as president, Nicholas Barlow as vice president, Danielle Bradke as secretary and Melissa Buzzard as treasurer. Dr. Todd Aschenbach serves as our faculty advisor. We look forward to next year where the new officers will be Erin McCabe and Terry Felty as co-presidents, Matt Dornan as vice president, Sarah Conway as secretary, and Samantha Brodley as treasurer. Come get dirty with us in the fall of 2013!

Pre-Veterinary Club

This year was a very busy and productive year for pre-vet club! One of our main goals for the year was to show members how diverse the field of veterinary medicine is and all the opportunities that come along with this career path. To demonstrate this we brought in speakers from all backgrounds in veterinary related fields. We had a representative of the army come in and speak on the veterinary scholarship program and what being a veterinarian in the army entails, Erica Wasserman of Ross University spoke on the veterinary program and requirements at Ross. GV's own, Dr. Patel, spoke on his career as a veterinarian, and an animal behaviorist spoke on her experiences. We also had a study abroad program geared specifically to pre-veterinary students, with speakers focusing on opportunities for pre-students to gain valuable experience, and lastly, we also brought in some former students from GV to share their stories on getting into vet school (application process, GRE, volunteering experiences, etc.) and their first year experiences in vet school. Our special thanks to Christina Fenske, Chelsea VanAssche, and Genevieve Condon for sharing their experiences at MSU.

Our second goal for the club this year was to make it to the American Pre-Veterinary Medical Association's symposium at University of Florida. This conference happens every year at a different veterinary school where veterinarians in multiple disciplines of the field give lectures on their experiences. There are lectures from animal nutritionists to surgeons and general practice small animal vets, and much more. We did multiple fundraisers and were able to make it to Florida for the symposium at a very low out-of-pocket cost for the members.

Thank you to all the members, officers, and our advisor for making this year such a success!

Student Scholars Day 2013

Student Scholars Day (SSD) is held once each year to celebrate the scholarship and creative work performed by GVSU students. The day showcases faculty-mentored student work, shared through many venues, including (but not limited to) oral presentations, discussion and panel sessions, fine arts exhibits and performances, and poster presentations.

Poster Presentations

Mechanism of Telomerase inhibition by Novel Non-Nucleosidic Drug Candidates

Presenters: Richard Grenn, Amanda O'Brein
Mentors: Robert Smart, William Schroeder, Agnieszka Szarecka, Suganthi Sridhar

Factors that Affect Nestling Growth Rates in Tree Swallows

Presenters: Dayna Hart, Erica Herbel, Katelyn Nettler, Casimir Tokarski, Megan Briggs, Shadie Emiah
Mentors: Patrick Thorpe, Michael Lombardo

Inconsistent Opinions on the Ethics of Genetic Engineering

Presenters: Kelsey VanAmberg, Owen Hurely, Ashton Baker, Hope Johnson, Tome Nieboer
Mentor: Osman Patel

A Survey of Ants (Hymenoptera: Formicidae) in Grand Rapids Parks Representing an Urban Gradient

Presenter: Matthew Boot
Mentor: James Dunn

Genetically Modified Organisms: Friend or Foe?

Presenters: Ellie Den Braber, Danielle Maryanski, Jacob Borysiak, Michael Esch, Eric Armstrong
Mentors: Osman Patel

Sea Turtle Nesting in Guanacaste, Costa Rica: Effects of Temperature and Sea Level Rise

Presenter: Kristen Zemaitis
Mentor: Jodee Hunt

Endosymbiotic Microbes and the Evolution of Social Behavior

Presenter: Elaine Sheikh
Mentor: Michael Lombardo

Using DNA Barcoding for Plant Identification in a Longterm Prairie Restoration Study

Presenter: Tami Brown
Mentor: Neil MacDonald

Den Site Characteristics and Kit Survival of the American Marten in West Michigan

Presenter: Danielle Bradke
Mentors: Paul Keenlance, Joseph Jacquot

The Maternal Effect Phenotype of *delorean* in *Drosophila melanogaster*

Presenter: Sarah VanOeveren
Mentor: Georgette Sass

Reconstructing the Biogeography of Hawaiian Horay Bats (*Lasiurus cinereus*)

Presenter: Laura Kirby
Mentor: Amy Russell

Growth and Reproductive Effort of the Sedge Genus *Carex* in Response to Climate Change in Northern Alaska

Presenter: Chase Baldwin
Mentor: Robert Hollister

Purification of cAR1 Antibody in *Dictyostelium discoideum*

Presenter: Grace Bommarito
Mentor: Bruce Ostrow

Origins of an Invader: Global Phylogeography of Native and Introduced Populations of Eurasian Waterfoil

Presenters: Jeff Pashnick, Danielle Grimm
Mentor: Ryan Thum

Invasive Hybrid Watermilfoil are Sexually Viable: Evidence from Laboratory Crosses and Genetic Analysis of Matural Populations

Presenter: Danielle Grimm
Mentor: Ryan Thum

Type II MADS-box Genes Isolated from the Gymnosperm Cones of *Ephedra* and *Juniper*

Presenter: Danielle Maryanski
Mentor: Jennifer Winther

Characterizing Protein-protein Interactions for Accurate Cell Division in Fission Yeast

Presenter: Jessica Thoe

Mentor: Dawn Clifford Hart

Land Cover Classification of Bass River Recreation Area, Ottawa Co., Michigan

Presenter: Nicholas Barlow

Mentor: Alexandra Locher

GVSU Ravines: A Field Guide

Presenter: Carly Sills

Mentor: Eric Snyder

GVSU Students in Favor of Altering the Mosquito Genome to Prevent Disease Transmission

Presenters: Dustin Kirkendall, Jordan Straight, Blake Andersen, Jeffrey Wagner

Mentor: Osman Patel

Monitoring Migrant Songbirds Along the Lake Michigan Coast

Presenter: Jonathan Lautenbach

Mentor: Paul Keenlance

Demographic Patterns of Feather Damage from Chewing Lice in Tree Swallows

Presenters: Amber Olson, Patricia Drake

Mentor: Patrick Thorpe, Michael Lombardo

Evaluation the Success of Wetland Mitigation in the Grand Rapids Area

Presenter: Jim Neal

Mentor: James Dunn

Antibacterial Activity of GV-1 Chemical Derivatives in the Presence of Human Serum

Presenters: Christopher Stretton, Nkrumah Grant

Mentor: Rod Morgan

Oral Presentations

Examining Recreation Trends on the Scenic Pine River, Michigan

Presenter: Nicholas Barlow

Mentor: C. "Griff" Griffin

Wild Turkey Management Plan

Presenter: Emma Vanacker

Mentor: C. "Griff" Griffin

Management Plan for a Restoration of a Scotch Pine and Hardwood Forest

Presenter: Jacob Kreuzer

Mentor: C. "Griff" Griffin

Michigan Sand Prairie Restoration-Est. 2009: Seeding Rates and Plant Community Development

Presenter: Laurel Scholten

Mentor: Todd Aschenbach

Habitat Predication for Graham's Columbine, a Plant Species Endemic to Uintah County, Utah

Presenter: Katherine Beck

Mentor: C. "Griff" Griffin

Climate Change and Metapopulation Implication for Species Re/introductions: An Analysis of the American Marten (*Martes americana*) in Northern Michigan

Presenter: Josh Green

Mentors: Shaily Menon, Paul Keenlance, Gary Greer

Regional Extinction Risks of the Eastern Pipistrelle Bat

Presenter: Alynn Martin

Mentor: Amy Russell

The Future of Lake Michigan Charter Fishing Industries

Presenter: Crystal Moenaert

Mentor: C. "Griff" Griffin

Rapid Macroinvertebrate Colonization in a Chronosequence of Constructed Stormwater Retention Wetlands

Presenter: Jessica Franks

Mentor: Eric Snyder

Wood Duck Nesting Placement at Grand Valley in Allendale, Michigan

Presenter: Rebecca Andrews

Mentor: C. "Griff" Griffin

A Forest Management Plan for Ruffed Grouse in Northern Michigan

Presenter: Connor Wojtowics

Mentor: C. "Griff" Griffin

Effect of Agricultural Runoff on Water Quality in the Bass River

Presenter: Anna Daves

Mentor: C. "Griff" Griffin

Bio 490 Internship, Great Lakes Zoological Society

Presenter: Catherine Schultz

Mentor: Terry Trier

Influence of Key Environmental Variables on Fish Abundances in Western Michigan Streams

Presenter: Robert Slick

Mentor: C. "Griff" Griffin

American Martens in the Western Lower Peninsula of Michigan

Presenter: Delaney Cargo

Mentor: C. "Griff" Griffin

Fly Fox Bat: Similar Species with Divergent Evolutionary Pathways

Presenter: Susan Munster

Mentor: Amy Russell

Socio-political and Environmental Implications of the Israeli-Palestinian Water Conflict

Presenter: Mary Haiderer

Mentor: C. "Griff" Griffin

Invasive Species in Bass River Recreation Area

Presenter: Ashley Potts

Mentor: C. "Griff" Griffin

Bald Eagle Habitats Along the Grand River in Ottawa County

Presenter: Megan Harvey

Mentor: C. "Griff" Griffin

Faculty Activity Highlights

Todd Aschenbach

Contracts, Grants, Sponsored Research

- "The Application of Prescribed Fire and Herbicide to Reduce *Carex pensylvanica* cover at the Newaygo Prairies Research Natural Area, Manistee National Forest, Michigan", Lake States Fire Science Consortium, Other, \$4,000.00
- "Research Grant-in-Aid to support "Community Assembly and Prairie Restoration in the Newaygo Prairies Research Natural Area, Manistee Forest, Michigan"", Center for Scholarly and Creative Excellence, Grand Valley State University, \$2,925.00
- "Initial plant growth in amended sand mine spoil under greenhouse conditions: Potential species and amendments for use in reclamation.", Jimmy F. New Grant Foundation, Private, \$955.00
- "Open Access Grant to support publication of "Initial Plant Growth in Sand Mine Spoil Amended with Peat Moss and Fertilizer Under Greenhouse Conditions: Potential Species for Use in Reclamation"", Center for Scholarly and Creative Excellence, Grand Valley State University, \$1,800.00

Publications

- Aschenbach, T., Brandt, E., Buzzard, M., Hargreaves, R., Schmidt, T., & Zwagerman, A. (2012). Initial Plant Growth in Sand Mine Spoil Amended with Peat Moss and Fertilizer Under Greenhouse Conditions: Potential Species for Use in Reclamation. *Ecological Restoration*.

Sheila Blackman

Publications

- Godfrey, T., Blackman, S., & Tsou, P.-L. Identification of the Late Embryogenesis Abundant Gene Family in Phalaenopsis hybrids. To appear in Scholar works; Student Summer Scholars.

Margaret Dietrich

Contracts, Grants, Sponsored Research

- Dietrich, M., Grant, "Faculty travel grant", Faculty Teaching and Learning Center, Grand Valley State University, \$500.00

Publications

- Greer, G., Dietrich, M., DeVol, J., & Rebert, A. The effects of exogenous cytokinin on the morphology and gender of Osmunda regalis gametophytes. American Fern Journal, 102(1), 32-46.

Presentations – Academic Conference

- Dietrich, M., Marmion, R. , West Michigan Undergraduate Science Research Conference, sponsored by GVSU, Hope College, Calvin College, Van Andel Research Institute, Grand Rapids MI, "Abnormal initial cell formation in Physcomitrella patens", Academic, Regional, Accepted. (November 17, 2012).
- Dietrich, M., Hansen, A., Plant Biology 2012, American Society of Plant Biologists, Austin TX, "Abnormal initial cell formation precludes the cytokinin response in Physcomitrella patens", Academic, International, published in proceedings, Accepted. (July 2012).
- Dietrich, M., Tsou, P.-L., Clifford Hart, D., Plant Biology 2012, American Society of Plant Biologists, Austin, TX, "Using inquiry-based molecular biology to teach critical thinking", Academic, International, published in proceedings, Accepted. (July 20, 2012).
- Dietrich, M., Hansen, A., Student Scholarship Day, OURS, GVSU, Allendale MI, "Initial cell size affects the hormone response in Physcomitrella patens", Academic, Local, Accepted. (April 11, 2012).
- Dietrich, M., Van Brocklin, M., Student Scholarship Day, OURS, GVSU, Allendale MI, "The role of CBL10 in stamen development in Arabidopsis thaliana", Academic, Local, Accepted. (April 11, 2012).

Christopher Dobson

Presentations – Academic Conference

- Dobson, C., S. Haley*, and P. Radtke*, Fall Science Update, Regional Math & Science Center, "Next Generation Science Standards: Lost in the woods?" (November 14, 2012).
- Dobson, C. and S. Haley*. National Science Teachers National Conference, Indianapolis, IN, "Global climate change and integrated science." (March 30, 2012).

James Dunn

Contracts, Grants, Sponsored Research

- Evaluating the Success of Wetland Mitigation along M-6, Special Project GA Positions for 2012-13, GVSU Graduate School, Dean Potteiger
- Eric Snyder, James Dunn, Mark Luttenton, Carl Ruetz, and Peter Wampler. Restoration potential and ecological condition of the Grand Rapids, Grand Rapids, MI., Submitted to Great Lakes Fish and Wildlife Restoration Act; \$115.820

Presentations

- Dunn, J., Michigan Entomological Society Annual Meeting, G.H. Gordon Biological Station and Rockwell Lake Lodge, Lake County, MI. The importance of landscape metrics in the dispersal of rare butterflies. June 2012.

Timothy Evans

Contracts, Grants, Sponsored Research

- Evans, T., Luttenton, M., Zuiderveen, G., Grant, "An Examination of *Phragmites australis* Genotypes Across Michigan", Hanes Trust, Private, \$3,000.00
- Evans, T., Grant, "Pew Technology Enhancement Grant", Pew Faculty Teaching and Learning Center, Grand Valley State University, \$2,855.00
- Evans, T., Grant, "Travel grant to attend Botanical Society of America annual meeting", CSCE, Grand Valley State University, \$500.00

Publications

- Brown, T. E., Martin, L. M., Evans, T., & MacDonald, N. Using DNA Barcoding for Plant Identification in a Long-Term Prairie Restoration Study. GVSU Scholarworks web site.

Presentations

- Brown, T. E., Martin, L. M., Evans, T., MacDonald, N., West Michigan Regional Undergraduate Science Research Conference, Van Andel Institute, Aquinas, Calvin, GVSU, and Hope, Grand Rapids, Michigan, "Using DNA Barcoding for Plant Identification in a Long-Term Prairie Restoration Study", Academic, Regional, Accepted. (November 17, 2012).
- Brown, T. E., Martin, L. M., Evans, T., MacDonald, N., 2012 Student Summer Scholars Showcase, Office of Undergraduate Research and Scholarship, Grand Rapids, Michigan, "Using DNA Barcoding for Plant Identification in a Long-Term Prairie Restoration Study", Academic, Local. (August 1, 2012).
- Zuiderveen, G., Evans, T., Luttenton, M., Botanical Society of America Annual Meeting, Botanical Society of America/American Society of Plant Taxonomists, Columbus, OH, "Geographic Distribution of Native and Invasive Haplotypes of *Phragmites australis* along Michigan's West Coast", Academic, International, Accepted. (July 11, 2012).
- Givnish, T., Barfuss, M., VanEe, B., Riina, R., Schulte, K., Horres, R., Gonsiska, P., Jabaily, R., Crayn, D., Smith, A., Winter, K., Brown, G. K., Evans, T., Holst, B., Luther, H., Till, W., Zizka, G., Berry, P., Sytsma, K., Botanical Society of America Annual Meeting, Botanical Society of America/American Society of Plant Taxonomists, Columbus, OH, "Adaptive radiation, correlated evolution, and determinants of net diversification rates in Bromeliaceae: test of an a priori model", Academic, International, Accepted. (July 10, 2012).
- Evans, T., Zuiderveen, G., Faden, R. B., Botanical Society of America Annual Meeting, Botanical Society of America/American Society of Plant Taxonomists, Columbus, OH, "Phylogenetic analysis of the genus *Palisota* (Commelinaceae) based on chloroplast and nuclear DNA sequences", Academic, International, Accepted. (July 10, 2012).
- Greer, G., Winther, J. L., Evans, T., Toogood, J., Annual Meeting of Luquillo Long-Term Ecological Research Station, Luquillo, LTER and University of Puerto Rico, Rio Peidras, San Juan, Puerto Rico, "Community Assembly of Lower-Trunk Epiphytes At Mid-Elevation in El Yunque National Forest.", Academic, International, Invited. (June 6, 2012).
- Evans, T., Michigan Consortium of Botanists Annual Meeting, Michigan Consortium of Botanists, Hillsdale College, "Digitizing Michigan's Small Herbaria", Academic, State, Invited. (May 14, 2012).

Noor Ghiasvand

Presentations

- Ghiasvand, N. and Gharib, E. "A simple strategy for preventing congenital blindness in the Chahar Borj Population, North Khorasan, Iran." 2/11/2012.
- Ghiasvand, N. (Biology): "Seeing the Unseen": A Long Delay in Identifying the Disease Gene Causing Total Blindness (NCRNA). CLAS Research Colloquium. Grand Valley State University, 9/21/2012.

Gary Greer

Contracts, Grants, Sponsored Research

- Greer, G., Grant, "WinFOLIA-Pro: Measuring the Force that Through the Green Fuse Drives The Flower (A Software Program for the Analysis of Leaf Form, Health, and Function)." PEW Technology Enhancement Grant, Grand Valley State University, \$3,000.00
- Greer, G., Grant, "Attending the Luquillo Long-Term Research Program Annual Meeting" (June 5 through June 7, 2012)." Center for Scholarly and Creative Excellence, Grand Valley State University, \$260.00.

Publications

- Greer, G., Dietrich, M., DeVol, J., & Rebert, A. 2012. The effects of exogenous cytokinin on the morphology and gender of *Osmunda regalis* gametophytes. *American Fern Journal*, 102(1), 32-46.
- Hollingsworth, S., Greer, G., & Andres, E. Pheromonal Interactoins Among Gametophytes of *Osmundastrum cinnamomea* and the Origins of Antheridiogen Systems in Leptosporangiate Ferns. 2012. *International Journal of Plant Sciences*, 173: 382-390.

Presentations

- Greer, G., Winther, J. L., Evans, T., Toogood, J., Annual Meeting of Luquillo Long-Term Ecological Research Station, Luquillo, LTER and University of Puerto Rico, Rio Peidras, San Juan, Puerto Rico, "Community Assembly of Lower-Trunk Epiphytes At Mid-Elevation in El Yunque National Forest.", Academic, International, Invited. (June 6, 2012).
- Greer, G., Schmidt, T., Menon, S., Annual Meeting of Luquillo Long-Term Ecological Research Station, Luquillo, LTER and University of Puerto Rico, Rio Peidras, San Juan, Puerto Rico, "Predictive Modeling of Pteridophyte Community Reestablishment in Secondary Forests.", Academic, International, Invited. (June 6, 2012).
- Schmidt, T., Greer, G., Michigan Academy of Arts, Sciences, and Letters Annual Meeting, Michigan Academy of Arts, Sciences, and Letters, Alma College, "Predictive Niche Modeling of Pteridophyte Community Reestablishment in Secondary Forests of Puerto Rico", Academic, Regional, published in proceedings. (March 2, 2012).

Carol Griffin

Presentations

- Griffin, C., 18th International Symposium on Society and Resource Management, International Association for Society and Natural Resource Management, Edmonton, Alberta Canada, "Problems associated with collecting use levels and campsite locations in a small wilderness".
- Griffin, C., 5th Annual Scholarship of Teaching & Learning Academy, 5th Annual Scholarship of Teaching & Learning Academy, Grand Rapids, "A Collaborative Effort to Assess Student Learning in a General Education Program".

Mike Henshaw

Contracts, Grants, Sponsored Research

- Henshaw, M., Grant, "Grant-in-Aid: Primer development in *Ectatomma ruidum*", CSCE, Grand Valley State University, \$3,000.00
- Henshaw, M., Watkins, J., M. K., Grant, "Parental Decisions and paternity in the yellow warbler.", Office of Undergraduate Research, Grand Valley State University, \$500.00

Presentations

- Henshaw, M., Eastern Michigan State University, Ypsilanti, MI, "Genetic variation in *Polistes metricus*: evidence for local adaptation."
- Hillman, T., Keenlance, P., Jacquot, J., Henshaw, M., Moore, J. A., Witt, J., 19th Annual Meeting of the Wildlife Society, The Wildlife Society, Portland, Oregon, "Study of a reintroduced American marten population using noninvasive hair snares.", Academic, National, Accepted. (October 15, 2012).
- Henshaw, M., 2012 Meeting of the IUSSI-NAS, IUSSI-NAS, Greensboro, "Genetic structure in the widespread wasp *Polistes metricus* is associated with climatic variation.", Academic, National, Accepted. (October 6, 2012).

Robert Hollister

Contracts, Grants, Sponsored Research

- Hollister, R., Grant, "Collaborative Research: Sustaining and amplifying the ITEX AON through automation and increased interdisciplinarity of observations", National Science Foundation, Federal, \$502,600.00

Publications

- Elmendorf, S. C., Henry, G. H., Hollister, R.D., Bjork, R. G., Bjorkman, A. D., Callaghan, T. V., Collier, L. S., Cooper, E. J., Correlissen, J. H., Day, T. A., Fosaa, A. M., Gould, W. A., Gretarsdottir, J., Harte, J., Hermanutz, L., Hik, D. S., Hofgaard, A., Jarrad, F., Jonsdottir, I. S., Keuper, F., Klanderud, K., Klien, J. A., Koh, S., Kudo, G., Lang, S. I., Loewen, V., May, J. L., Mercado, J., Michelsen, A., Molau, U., Myers-Smith, I. H., Oberbauer, S. F., Piper, S., Post, E., Rixen, C., Robinson, C. H., Schmidt, N. M., Shaver, G. R., Stenstrom, A., Tolvanen, A., Totland, O., Troxler, T., Wahren, C.-H., Webber, P. J., Welker, J. M., & Wookey, P. A. (2012). Global assessment of experimental climate warming on tundra vegetation: Heterogeneity over space and time. *Ecological Letters*, 15(2), 164-175.
- Elmendorf, S. C., Henry, G. H., Hollister, R.D., Bjork, R. G., Boulanger-Lapointe, N., Cooper, E. J., Correlissen, J. H., Day, T. A., Dorrepaal, E., Elumeeva, T. G., Gill, M., Gould, W. A., Harte, J., Hik, D. S., Hofgaard, A., Johnson, D. R., Johnstone, J. F., Jónsdóttir, I. S., Klanderud, K., Klien, J. A., Koh, S., Kudo, G., Lang, S. I., Loewen, V., May, J. L., Mercado, J., Michelsen, A., Molau, U., Myers-Smith, I. H., Oberbauer, S. F., Piper, S., Post, E., Rixen, C., Robinson, C. H., Schmidt, N. M., Shaver, G. R., Stenstrom, A., Tolvanen, A., Totland, O., Troxler, T., Wahren, C.-H., Webber, P. J., Welker, J. M., & Wipf, S. (2012). Plot-scale evidence of tundra vegetation change and links to recent summer warming. *Nature Climate Change*, 2(6), 453-457
- May, J. L., & Hollister, R.D. (2012). Validation of a simplified point frame method to detect change in tundra vegetation. *Polar Biology*, 35(12), 1815-1823.
- Lara, M. J., Villarreal, S., Johnson, D. R., Hollister, R.D., Webber, P. J., & Tweedie, C. E. (2012). Estimated change in tundra ecosystem function from 1972 to 2010 near Barrow Alaska. *Environmental Research Letters*, 7(015507), 1-10.
- Villarreal, S., Hollister, R.D., Johnson, D. R., Lara, M. J., Webber, P. J., & Tweedie, C. E. (2012). Tundra vegetation change near Barrow, Alaska (1972-2010). *Environmental Research Letters*, 7(015508), 1-10.
- Bokhorst, S., Huiskes, A., Aerts, R., Convey, P., Cooper, E. J., Dalen, L., Erschbamer, B., Gudmundsson, J., Hofgaard, A., Hollister, R.D., Johnstone, J., Jonsdottir, I. S., Lebouvier, M., VanDeVijver, B., Wahren, C. - H., & Dorrepaal, E. Variable temperature effects of Open Top Chambers at polar and alpine sites explained by irradiance and snowdepth. *Global Change Biology*.

Presentations

- Liebig, J. A., Hollister, R., AGU Fall Meeting, American Geophysical Union, San Francisco, CA, "Understanding Plant Community Change in Long-term Vegetation Monitoring Sites in Northern Alaska", Academic, National, peer-reviewed/refereed, Accepted. (December 3, 2012)
- Baldwin, C., Hollister, R., West Michigan Regional Undergraduate Science Research Conference, Grand Rapids, Michigan, "The Response of the Arctic Sedge Genus *Carex* to Climate Change in the Arctic", Academic, West Michigan, peer-reviewed/refereed, Accepted. (November 17, 2012).
- Hollister, R., Tundra Change - The Ecological Dimension, Aarhus University, Aarhus, Denmark, "Phenological changes in tundra plants in response to climate warming using the International Tundra Experiment (ITEX) Network", Academic, International, peer-reviewed/refereed, Invited. (November 6, 2012).
- Kremers, K. S., Hollister, R., International Polar Year 2012: From Knowledge to Action, Montreal, Quebec, Canada, "Consistency of Graminoid Response to Warming in the Alaskan Tundra", Academic, International, peer-reviewed/refereed, Accepted. (April 22, 2012).

- Liebig, J. A., Hollister, R., International Polar Year 2012: From Knowledge to Action, Montreal, Quebec, Canada, "Finding Grouping Schemes to Better Predict Tundra Plant Response to Warming", Academic, International, peer-reviewed/refereed, Accepted. (April 22, 2012).
- Botting, T. F., Hollister, R., International Polar Year 2012: From Knowledge to Action, Montreal, Quebec, Canada, "Impacts of Experimental Warming on Phenology and Growth of *Carex aquatilis*-stans in Northern Alaska", Academic, International, peer-reviewed/refereed, Accepted. (April 22, 2012).
- Liebig, J. A., Hollister, R., Student Scholarship Day, Grand Valley State University, "Arctic Ecology in West Michigan Classrooms", Academic, Local, Accepted. (April 11, 2012).
- Botting, T. F., Hollister, R., Student Scholarship Day, Grand Valley State University, "Impacts of Experimental Warming on Phenology and Growth of *Carex aquatilis*-stans in Northern Alaska", Academic, Local, Accepted. (April 11, 2012).
- Liebig, J. A., Hollister, R., Michigan Academy of Science, Arts, and Letters, Alma College, "Using Abiotic Measures to Predict Arctic Plant Communities", Academic, State, peer-reviewed/refereed, Accepted. (March 2, 2012).
- Liebig, J. A., Hollister, R., 20th Anniversary of the International Tundra Experiment, ITEX Network, University of Texas at El Paso, "Exploring for Traits that Predict Plant Response to Warming", Academic, International, peer-reviewed/refereed, Accepted. (January 17, 2012).
- Botting, T. F., Hollister, R., 20th Anniversary of the International Tundra Experiment, ITEX Network, University of Texas at El Paso, "Impacts of Experimental Warming on *Carex aquatilis*-stans in Northern Alaska", Academic, International, peer-reviewed/refereed, Accepted. (January 17, 2012).
- Kremers, K. S., Hollister, R., 20th Anniversary of the International Tundra Experiment, ITEX Network, University of Texas at El Paso, "Response of Graminoids to Increased Temperature in the Arctic", Academic, International, peer-reviewed/refereed, Accepted. (January 17, 2012).

Jodee Hunt

Contracts, Grants, Sponsored Research

- Scholarly Dissemination Grant, Center for Scholarly & Creative Excellence. \$500

Presentations

- West Michigan Regional Undergraduate Science Research Conference, Van Andel Institute, Grand Rapids, MI. November 17, 2012.
Stoyka, L. and J. Hunt. Lonely Boy: Parental Division of Labor and Single Parenting in Convict Cichlids (*Amatitlania nigrofasciata*).
Dekowski, D. and J. Hunt. Mantled Howler Monkey (*Alouatta palliata*) Vocalizations as an Intergroup Spacing Mechanism on Ometepe Island, Nicaragua.
Zemaitis, K. and J. Hunt. Sea Turtle Nesting in Guanacaste, Costa Rica: Effects of Temperature and Sea Level Rise.
- Ethological and Evolutionary Ethology of Fishes, University of Windsor, Windsor, Ontario.
Hunt, J., L. Adams and L. Stoyka. Evolution of parental care in convict cichlids: division of labor, offspring survival and horizontal transmission of microbes. (June 20, 2012).
- Student Scholars Day, Grand Valley State University, Allendale, MI. April 11, 2012.
Hundley, Z., E. Sommers and J. Hunt. Evolution of parental care in convict cichlids: offspring survival and horizontal transmission of microbes.
Stoyka, L. and Hunt, J. Lonely boy: parental division of labor and single-parenting in convict cichlids (*Amatitlania nigrofasciata*).

Joseph Jacquot

Contracts, Grants, Sponsored Research

- Jacquot, J., Grant, "Enhancement of radio telemetry experience for advanced Biology students", Pew FTLC, Grand Valley State University, \$3,000.00
- Jacquot, J., Keenlance, P., Bradke, D., Grant, "Den Site Characteristics and Kit Survival of American Marten in West Michigan", GVSU S3 program, Grand Valley State University, \$7,000.00
- Jacquot, J., Keenlance, P., Grant, "Prevalence and distribution of Baylisascaris procyonis in raccoon populations local to Hastings, Michigan", Pierce Cedar Creek Institute, Private, \$10,500.00

Presentations

- Bradke, D., Hillman, T., Keenlance, P., Jacquot, J., 19th Annual Meeting of the Wildlife Society, The Wildlife Society, Portland, Oregon, "Den Site Characteristics and Kit Survival of American Marten in West Michigan", Academic, National, Accepted. (October 15, 2012)
- Hillman, T., Keenlance, P., Jacquot, J., Henshaw, M., Moore, J. A., Witt, J., 19th Annual Meeting of the Wildlife Society, The Wildlife Society, Portland, Oregon, "Study of a reintroduced American marten population using noninvasive hair snares.", Academic, National, Accepted. (October 15, 2012)
- Miara, S., Keenlance, P., Jacquot, J., American Society for Mammalogists annual meeting, American Society for Mammalogists, Reno, Nevada, "Southern flying squirrels do not read literature: over wintering non-aggregation.", Academic, National, Accepted. (June 25, 2012)

Paul Keenlance

Contracts, Grants, Sponsored Research

- Jacquot, J., Keenlance, P., Bradke, D., Grant, "Den Site Characteristics and Kit Survival of American Marten in West Michigan", GVSU S3 program, Grand Valley State University, \$7,000.00
- Jacquot, J., Keenlance, P., Grant, "Prevalence and distribution of Baylisascaris procyonis in raccoon populations local to Hastings, Michigan", Pierce Cedar Creek Institute, Private, \$10,500.00

Presentations

- Bradke, D., Hillman, T., Keenlance, P., Jacquot, J., 19th Annual Meeting of the Wildlife Society, The Wildlife Society, Portland, Oregon, "Den Site Characteristics and Kit Survival of American Marten in West Michigan", Academic, National, Accepted. (October 15, 2012).
- Hillman, T., Keenlance, P., Jacquot, J., Henshaw, M., Moore, J. A., Witt, J., 19th Annual Meeting of the Wildlife Society, The Wildlife Society, Portland, Oregon, "Study of a reintroduced American marten population using noninvasive hair snares.", Academic, National, Accepted. (October 15, 2012)
- Miara, S., Keenlance, P., Jacquot, J., American Society for Mammalogists annual meeting, American Society for Mammalogists, Reno, Nevada, "Southern flying squirrels do not read literature: over wintering non-aggregation.", Academic, National, Accepted. (June 25, 2012).

Alexandra Locher

Contracts, Grants, Sponsored Research

- Locher, A., Contract, "Assessment of Northern bobwhite survival and fitness at Felsenthal National Wildlife Refuge, Arkansas", US Fish and Wildlife Service, Grand Valley State University, \$27,626.00
- Locher, A., Grant, "Understanding American woodcock survival and fitness in relation to early successional forest management", Grand Valley State University Faculty Grant-in-aid, Grand Valley State University, \$3,000.00

Publications

- Locher, A., Campa, III, H., Leefers, L. L., & Beyer, D. E. (2012). Understanding Cumulative Effects of Aspen Harvest on Wildlife Habitat and Timber Resources in Northern Michigan. Northern Journal of Applied Forestry, 29(3), 113-127.
- Long, A., & Locher, A. American woodcock habitat use on pine plantations during spring in central Arkansas. Wilson Journal of Ornithology.

Presentations

- Locher, A., Campa, III, H., CIRTL Coffee Hour, Center for the Integration of Research, Teaching and Learning, on-line, "Professional development through acquisition of funding for teaching-as-research projects; example of a success story", Academic, International, Invited.

Michael Lombardo

Contracts, Grants, Sponsored Research

- Lombardo, M., Grant, "Providing nest boxes for Tree Swallows on the GVSU campus", Center for Scholarly and Creative Excellence, Grand Valley State University, \$400.00

Publications

- Lombardo, M. (2012). On the evolution of sport. *Evolutionary Psychology*, 10(1), 1-28.
- Shutler, D., Hussell, D. J. T., Norris, D. R., Winkler, D. W., Robertson, R. J., Bonier, F., Rendell, W. B., Belisle, M., Clark, R. G., Dawson, R. D., Wheelwright, N. T., Lombardo, M., Thorpe, P., Truan, M. A., Walsh, R., Leonard, M. L., Horn, A. G., Vleck, C. M., Vleck, D., Rose, A. P., Whittingham, L. A., Dunn, P. O., Hobson, K. A., & Stanback, M. T. (2012). Spatiotemporal patterns in nest box occupancy by Tree Swallows across North America. *Avian Conservation & Ecology*, 7(1), 3-11.

Presentations

- Lombardo, M., Deaner, R. O., GVSU Psychology Colloquium, GVSU Department of Psychology, GVSU, "You can't teach speed: sprinters falsify the Deliberate Practice Model (DPM) of expertise", Academic, West Michigan, Accepted. (October 10, 2012).
- Lombardo, M., Thorpe, P. A., Spadacene, L., North American Ornithological Conference, Ornithological Societies of North America, University of British Columbia, Vancouver, Canada, "Chewing lice and Tree Swallow biology", Academic, International, peer-reviewed/refereed, Accepted. (16 August 2012).
- Briggs, M., Graham, M., Hightower, L., Near, D., Rostic, A., Smith, D., Lombardo, M. P. and Thorpe, P. A.. Factors associated with egg hatching in Tree Swallows. GVSU Student Scholars Day. (11 April 2012).

Mark Luttenton

Contracts, Grants, Sponsored Research

- Luttenton, M. Au Sable River Brown Trout Habitat use and Movement. Michigan Department of Natural Resources – Fisheries Div. \$45,580.00
- Luttenton, M. Muskegon River Juvenile Steelhead Survival and Production – Supplemental Funding, Michigan Department of Natural Resources - Fisheries Div. \$25,346.00
- Luttenton, M. (Principal), Grant, "Steelhead production in the Muskegon River", Michigan Department of Natural Resources - Fisheries Division, State, \$127,000.00
- Luttenton, M., Grant, "Au Sable brown trout movement and habitat use", Headwaters Chapter of Trout Unlimited, Local, \$3,250.00
- Luttenton, M., Grant, "Au Sable brown trout movement and habitat use", Mason-Griffith Chapter of Trout Unlimited, Local, \$3,250.00
- Luttenton, M., Contract, "Au Sable River Brown Trout Habitat use and Movement", Anglers of the Au Sable, Trout Unlimited, Other, \$50,172.00
- Evans, T. (Co-Principal), Luttenton, M. (Co-Principal), Zuiderveen, G. (Co-Principal), Grant, "An Examination of *Phragmites australis* Genotypes Across Michigan", Hanes Trust, Private, \$3,000.00

Presentations

- Swanson, N., Wieten, A., Foster, T., Luttenton, M., Annual Conference, American Fisheries Society, St. Paul MN, "Juvenile Steelhead in the Muskegon River: Analysis of Larval Drift and Juvenile Diet", Academic, International. (August 2012).

- Baisch, D., Nikitin, A., Luttenton, M., Annual Meeting, American Fisheries Society, St. Paul, MN, "Origin of Great Lakes brown trout, *Salmo trutta*: A phylogeographic analysis using mtDNA sequence variation", Academic, International. (August 2012).
- Baisch, D., Nikitin, A., Luttenton, M., 142nd Annual Meeting of the American Fisheries Society, St. Paul, MN, "An identification of the European origins of Great Lakes Brown Trout strains: A phylogeographic analysis using mitochondrial DNA sequence variation", Academic, National, peer-reviewed/refereed, published in proceedings. (August 19, 2012).
- Zuiderveen, G., Evans, T., Luttenton, M., Botanical Society of America Annual Meeting, Botanical Society of America/American Society of Plant Taxonomists, Columbus, OH, "Geographic Distribution of Native and Invasive Haplotypes of *Phragmites australis* along Michigan's West Coast", Academic, International, Accepted. (July 11, 2012).
- Foster, T., Luttenton, M., Annual Meeting, Society for Freshwater Science, Louisville, KY, "Zebras and bugs: How the zebra mussel invasion has affected macroinvertebrate communities in the Muskegon River", Academic, International. (May 2012).

Neil MacDonald

Contracts

- MacDonald, N., Brown, T. E., Martin, L. M., Grant, "Spotted knapweed control and fire effects on plant community diversity in a restored prairie in the Bass River Recreation Area, Ottawa County, Michigan.", Student Summer Scholars Program 2012, Grand Valley State University, \$6,000.00
- MacDonald, N., Grant, "Faculty Scholarly Dissemination Grant - Presentation", Center for Scholarly and Creative Excellence, Grand Valley State University, \$250.00
- MacDonald, N., Grant, "Faculty Scholarly Dissemination Grant - Publication", Center for Scholarly and Creative Excellence, Grand Valley State University, \$500.00

Publications

- MacDonald, N. W., Martin, L. M., Kapolka, C. K., Botting, T. F., & Brown, T. E. Hand pulling controls spotted knapweed (*Centaurea stoebe*) on a degraded site in western Michigan. *Invasive Plant Science and Management*.
- Brown, T. E., Martin, L. M., Evans, T., & MacDonald, N. Using DNA Barcoding for Plant Identification in a Long-Term Prairie Restoration Study. GVSU Scholarworks web site.

Presentations

- Brown, T. E., Martin, L. M., Evans, T., MacDonald, N., West Michigan Regional Undergraduate Science Research Conference, Van Andel Institute, Aquinas, Calvin, GVSU, and Hope, Grand Rapids, Michigan, "Using DNA Barcoding for Plant Identification in a Long-Term Prairie Restoration Study", Academic, Regional, Accepted. (November 17, 2012).
- Brown, T. E., Martin, L. M., Evans, T., MacDonald, N., 2012 Student Summer Scholars Showcase, Office of Undergraduate Research and Scholarship, Grand Rapids, Michigan, "Using DNA Barcoding for Plant Identification in a Long-Term Prairie Restoration Study", Academic, Local. (August 1, 2012).
- Martin, L. M., MacDonald, N., Kapolka, C. K., Botting, T. F., Fourth Midwest-Great Lakes SER Chapter Meeting, Midwest-Great Lakes Chapter Society for Ecological Restoration, Ann Arbor, Michigan, "Community establishment in a native prairie restoration: assessing the impacts of *Centaurea maculosa* control.", Academic, Regional, peer-reviewed/refereed, Accepted. (May 5, 2012).
- MacDonald, N., Martin, L. M., Kapolka, C. K., Botting, T. F., Fourth Midwest-Great Lakes SER Chapter Meeting, Midwest-Great Lakes Chapter Society for Ecological Restoration, Ann Arbor, Michigan, "Three Years of Hand Pulling Controls Spotted Knapweed on a Degraded Site in Western Michigan", Academic, Regional, peer-reviewed/refereed, Accepted. (May 4, 2012).

Shaily Menon

Contracts, Grants, Sponsored Research

- Menon, S., Plotkowski, P., Barakat, N., Witucki, L., Grant, "Mentoring, Academic Support and Scholarships for Science Students (MAS4)", National Science Foundation (NSF), Federal, \$600,000.00
- Grissom, S. B., Biros, S., Talbert, R. N., Menon, S., Sponsored Research, "GVSU Inventory of Instructional Practices", National Science Foundation (NSF), Grand Valley State University, \$150,000.00

Publications

- Menon, S. (2012). Rhododendron species in the Indian Eastern Himalayas: New approaches to 78-84. understanding rare plant species distributions. Journal of American Rhododendron Society, Spring 2012.

Presentations

- Menon, S., CLAS Faculty Colloquium, 308 PAD, "Forecasting global change: the 'super wicked problems' of land, sea, and climate change", Academic, Local, Invited. (January 19, 2012).

Jennifer Moore

Publications

- Leafloor, J. O., Moore, J. A., & Scribner, K. T. A hybrid zone between Canada geese (*Branta canadensis*) and cackling geese (*B. hutchinsii*). Auk.

Presentations

- Bell, B. D., Moore, J. A., 7th World Congress of Herpetology, University of British Columbia/University of Victoria, Victoria, British Columbia, "Staying in place: extreme site fidelity in a threatened New Zealand frog", Academic, International, Accepted. (August 14, 2012).

Roderick Morgan

Contracts, Grants, Sponsored Research

- Morgan, R., Smart, R., Grant, "Commercializing a novel class of antibiotics against MRSA and *Clostridium difficile*", The Michigan Initiative for Innovation and Entrepreneurship (MIIE), State, \$73,000.00
- Morgan, R., Stretton, C., Sponsored Research, "The testing of GV derivatives for antibacterial activity in the presence of serum protein", Office of Undergraduate Research, Grand Valley State University, \$6,000.00
- Morgan, R., Smart, R., Grant, "Developing Novel Antimicrobials", West Michigan Science and Technology Initiative, Local, \$12,710.00

Publications

- Gibson, A. M., Morgan, R., MacDonald, N., & Nikitin, A. (2012). Possible effects of the presence of common household chemicals in the environment: The growth of an aquatic bacterial species on high concentrations of caffeine. Journal of Biotech Research, 4, 72-79.

Presentations

- *Belmonte, P., Witucki, L., Schroeder, W., Morgan, R., Smart, R., Argonne National Laboratory's 22nd Symposium for Undergraduates in Science, Engineering and Mathematics, Argonne National Laboratory, Chicago, IL, "Synthesis of Novel Antimicrobial Agents Containing Peptide Bonds", Academic, National.
- *Stretton, C., Schroeder, W., Smart, R., Morgan, R., West Michigan Regional Undergraduate Science Research Conference, Van Andel Research Institute, Grand Rapids, MI, "Antibacterial Activity of GV-1 Chemical Derivatives in the Presence of Human Serum", Academic, Local. (November 2012).
- *Stretton, C., *Belmonte, P., Schroeder, W., Smart, R., Morgan, R., S3 Summer Showcase, Office of Undergraduate Research, GVSU, "Testing of GV Derivatives for Antibacterial Activity in the Presence of Human Serum Protein", Academic, Local. (August 2012).

Alexey Nikitin

Contracts, Grants, Sponsored Research

- Nikitin, A., Grant, "Study of ancient human migrations in southeast Europe at the end of agricultural revolution", Grand Valley State University, \$3,000.00

Presentations

- Lillie, M., Potekhina, I., Nikitin, A., Sokhatsky, M., British Association of Biological Anthropologists and Osteologists Annual Conference, Bournemouth, UK, "The Human Remains from Verteba Cave, Ukraine: Earliest Evidence for Neolithic Mortuary Treatment and Peri-Mortem Injury in a Trypillia Culture Farming Population (an initial overview)", Academic, International, peer-reviewed/refereed, published in proceedings, published elsewhere. (September 14, 2012).
- Baisch, D., Nikitin, A., Luttenton, M. (Author Only), 142nd Annual Meeting of the American Fisheries Society, St. Paul, MN, "An identification of the European origins of Great Lakes Brown Trout strains: A phylogeographic analysis using mitochondrial DNA sequence variation", Academic, National, peer-reviewed/refereed, published in proceedings. (August 19, 2012).
- Nikitin, A. 2nd International Landscape Archaeology Conference, Freie Universität Berlin, Germany, "Evidence for out-of-Siberia westward migration in middle Holocene", Academic, International, peer-reviewed/refereed. (June 6, 2012).

Erik Nordman

Contracts, Grants, Sponsored Research

- Nordman, E., Pollinator Partnership, Gardiner, M., Sponsored Research, "Evaluating the ecological and economic costs and benefits of incorporating floral resource strips into vegetable production systems", USDA Natural Resource Conservation Service, Federal, \$185,640.00
- Nordman, E., Grant, "Wind Energy Resource Management in Kenya", US Department of State, Federal, \$84,400.00
- Nordman, E., Standridge, C. R., Boezaart, A., Assanis, D., Edmonson, J., Gehring, J., Klatt, B., Meadows, G., Vanzielegheem, B., Sponsored Research, "Lake Michigan Wind Assessment Study", US Dept. of Energy, Federal, \$2,700,000.00
- Nordman, E., Isely, P., Koches, J., Thompson, K., Sponsored Research, "Locating wind energy facilities in Michigan's coastal counties: An integrated assessment for Muskegon and West Michigan", Michigan Sea Grant, Federal, \$139,912.00

Publications

- Nordman, E., VanderMolen, J., Gajewski, B., & Ferguson, A. Great Lakes, great debates
- Standridge, C. R., Zeitler, D., Nieves, Y., Turnage, T.J., & Nordman, E. (2012). Validation of a buoy-mounted laser wind sensor and deployment in Lake Michigan. White paper made available on GVSU Scholarworks while it is under revision for publication.
- Standridge, C. R., Nieves, Y., Zeitler, D., & Nordman, E. (2012). Evaluating offshore wind resources, aerial ecology, and aquatic conditions in Lake Michigan using a dedicated Nomad buoy platform with LiDAR. WINDPOWER 2012 Conference Proceedings.

Presentations

- Nordman, E., Wind and Waterfronts Workshop, Great Lakes Commission, Webinar, "Going Dutch: Learning from the Netherlands' experience with offshore wind", Non-Academic, Regional, Invited. (August 6, 2012).
- Nordman, E., Standridge, C. R., Boezaart, A., Meadows, G., Vanzielegheem, B., Klatt, B., Edmonson, J., WINDPOWER 2012, American Wind Energy Association, Atlanta, GA, "Evaluating offshore wind resources, aerial ecology, and aquatic conditions in Lake Michigan using a dedicated Nomad buoy platform with LiDAR.", Non-Academic, National, peer-reviewed/refereed, Accepted. (June 6, 2012).

- Nordman, E., Lunch and Round Table Discussion, Wells Fargo - Bruce Pienton, Grand Rapids, MI, "The Outlook for the Cost of Energy", Non-Academic, West Michigan, Invited. (April 25, 2012).
- Nordman, E., Regional Fishery Workshop, Michigan Sea Grant, Ludington, MI, "Implications of Offshore Wind Energy Development", Non-Academic, State, Invited. (January 7, 2012).

Bruce Ostrow

Presentations

- Maciejewski, S., Ostrow, B., Student Scholarship Day, GVSU, Kirkhof Center, "Subcloning of a pkn cDNA from *Drosophila melanogaster*", Academic, West Michigan, published in proceedings, Accepted. (April 11, 2012).
- Sass, G., Burke, A., VanOeveren, S., Ostrow, B., 53rd Annual *Drosophila* Research Conference, Genetics Society of America, Chicago, IL, "Characterization of Pkndln!5, a derivative allele of the delorean mutation associated with the Protein kinase N gene in *Drosophila melanogaster*", Academic, International, peer-reviewed/refereed, published in proceedings, Accepted. (March 8, 2012).

Amy Russell

Contracts, Grants, Sponsored Research

- Russell, A., Vonhof, M. J., Olival, K., Bonaccorso, F., Sponsored Research, "Genetic approaches to defining conservation units for the Hawaiian hoary bat", US Geological Survey, Federal, \$19,997.00
- Miller-Butterworth, C., Vonhof, M. J., Russell, A., Sponsored Research, "Genetic approaches to understanding the spread of white-nose syndrome in Pennsylvanian little brown bats (*Myotis lucifugus*)", Pennsylvania Game Commission, State, \$44,371.00
- Vonhof, M. J., Russell, A., Sponsored Research, "Genetic approaches to understanding the population-level impact of wind energy development on migratory bats", Department of Energy, Federal, \$99,933.00
- Martin, A., Russell, A., Grant, "Analyzing population limits and gene flow in *Perimyotis subflavus* with application to white-nose conservation", Bat Conservation International, Private, \$2,906.00
- Russell, A., Martin, A., Grant, "Assessing extinction risk in tricolored bats (*Perimyotis subflavus*) due to white-nose syndrome", Center for Scholarly and Creative Excellence, Grand Valley State University, \$3,000.00
- Russell, A., Travel Grant, "Phylogeographic analyses reveal cryptic subdivisions and unexpected connections among *Myotis lucifugus* populations", Center for Scholarly and Creative Excellence, Grand Valley State University, \$750.00
- Russell, A., Grant, "Deglaciation explains bat extinction in the Caribbean", Center for Scholarly and Creative Excellence Open Access Fund, Grand Valley State University, \$925.00
- Russell, A., Grant, "Artificial bat roosting structures provide economic value, educational opportunity, and environmental benefit", Sustainable Community Reinvestment Fund, Grand Valley State University, \$963.00

Publications

- Dávalos, L. M., & Russell, A. (2012). Deglaciation explains bat extinction in the Caribbean. *Ecology and Evolution*, 2(12), 3045-3051.

Presentations

- Martin, A., Dávalos, L., Lancaster, W., Russell, A., Woller-Skar, Megan, Corthals, A., North American Symposium for Bat Research, North American Society for Bat Research, San Juan, Puerto Rico, "A comparison of DNA yields from different tissue types and storage media", Academic, International, Accepted. (October 26, 2012).
- Dávalos, L., Russell, A., North American Symposium for Bat Research, North American Society for Bat Research, San Juan, Puerto Rico, "Ecological release and genetic signatures of population growth in Antillean *Artibeus jamaicensis*", Academic, International, Invited. (October 26, 2012).

- Russell, A., Vonhof, M., Miller-Butterworth, C., North American Symposium for Bat Research, North American Society for Bat Research, San Juan, Puerto Rico, "Phylogeographic analyses reveal cryptic subdivisions and unexpected connections among *Myotis lucifugus* populations", Academic, International, Accepted. (October 26, 2012).
- Vonhof, M., Russell, A., Annual meeting of the Wildlife Society, Wildlife Society, Portland, OR, "Providing context: genetic approaches to understanding the implications of bat-wind power interactions", Academic, International, Accepted. (October 17, 2012).
- Martin, A., Vonhof, M., Russell, A., White-Nose Syndrome Symposium, US Fish & Wildlife, Madison, WI, "From phylogeography to multispecies genetic landscapes: A case study of *Perimyotis subflavus* and an argument for collaboration", Academic, National, Invited. (June 6, 2012).
- Vonhof, M., Miller-Butterworth, C., Russell, A., White-Nose Syndrome Symposium, US Fish & Wildlife, Madison, WI, "Using phylogeography to inform the spread of white-nose syndrome in *Myotis lucifugus*", Academic, National, Invited. (June 6, 2012).
- Martin, A. M., Russell, A., Student Scholars Day, Grand Valley State University, Allendale, MI, "Genetic demography of *Perimyotis subflavus* reveals regional population trends", Academic, Local. (April 11, 2012).
- Russell, A., Bats and Wind Energy Cooperative (BWEC) Modeling Workshop, Bat Conservation International, Austin, TX, "Modeling the population genetic effects of wind turbine-related mortalities in red bats", Academic, International, Invited. (January 11, 2012).

Stephen Rybczynski

Contracts, Grants, Sponsored Research

- Herrington, D., Yezierski, E., Mattox, S., Rybczynski, S. M., Oliver, K., Pentecost, T. C., Grant, "Collaborative Research: Further Development and Testing of the Target Inquiry Model for Middle and High School Science Teacher Professional Development", National Science Foundation, Federal, \$2,700,000.00

Presentations

- Rybczynski, S. M., Faculty Research Colloquium, Grand Valley State University, Allendale, MI, "The Effects Of Inquiry Instruction on Students' Attitude Towards an Introductory Biology Laboratory Course", Academic, Local, published in proceedings, Accepted.
- Rybczynski, S. M., Keith, P., Fall Science Update, Regional Math and Science Center, Grand Rapids, MI, "Inquiry Based Learning With Macroinvertebrates", Academic, Regional, Accepted.

Georgette Sass

Contracts, Grants, Sponsored Research

- Sass, G., Sponsored Research, "Germline clonal analysis of the delorean mutation in *Drosophila melanogaster*.", Office of Undergraduate Research and Scholarship, Grand Valley State University, \$6,000.00
- Sass, G., Grant, "Characterization of a maternal-effect phenotype in delorean females of *Drosophila melanogaster*.", Center for Scholarly and Creative Excellence, Grand Valley State University, \$2,975.00
- Sass, G., Grant, "Scholarly Dissemination Grant", Center for Scholarly and Creative Excellence, Grand Valley State University, \$500.00

Presentations

- Sass, G., VanOeveren, S., Student Summer Scholars Summer Showcase, Office of Undergraduate Research and Scholarship, DeVos Center - Pew Campus, GVSU, "Germline Clonal Analysis of the delorean mutation in *Drosophila melanogaster*", Academic, Local. (August 1, 2012).
- Burke, A., Sass, G., Student Scholars Day, Office of Undergraduate Research and Scholarship, Allendale campus, "Characterization of *PkndlnΔ5*, a derivative allele of the delorean mutation associated with the Protein Kinase N Gene in *Drosophila aelanogaster*", Academic, Local, published in proceedings, Accepted. (April 11, 2012).

- VanOeveren, S., Sass, G., Student Scholars Day, Office of Undergraduate Research and Scholarship, Allendale campus, "Rescue of a Gain-of-Function mutation in *Drosophila melanogaster* affecting wing morphogenesis", Academic, Local, published in proceedings, Accepted. (April 11, 2012).
- Mittner, K., Sass, G., Student Scholars Day, Office of Undergraduate Research and Scholarship, Allendale campus, "Rescue of the delorean phenotype in *Drosophila melanogaster*", Academic, Local, published in proceedings, Accepted. (April 11, 2012).
- Sass, G., Burke, A., VanOeveren, S., Ostrow, B., 53rd Annual Drosophila Research Conference, Genetics Society of America, Chicago, IL, "Characterization of pkndlnΔ5, a derivative allele of the delorean mutation associated with the Protein kinase N gene in *Drosophila melanogaster*", Academic, International, peer-reviewed/refereed, published in proceedings, Accepted. (March 8, 2012).

Eric Snyder

Contracts, Grants, Sponsored Research

- Alayont, F., McNair, J., Ruetz III, C., Snyder, E., Bergman, D., Frobish, D., Grant, "An integrated empirical, theoretical, and statistical study of turbulent particle transport in streams", GVSU CSCE, Grand Valley State University, \$8,195.00
- Snyder, E., Franks, J., Sponsored Research, "Ecological role of constructed wetlands on the GVSU campus", GVSU Student summer scholars program, Grand Valley State University, \$6,000.00
- Snyder, E., Sponsored Research, "Internationalization Grant to explore Reserva Las Gralarias, Ecuador—a biological preserve in the Andean foothills.", Padnos International Center, Grand Valley State University, \$2,800.00

Publications

- DeBoer, J., Ogren, S., Holtgren, J. Marty, Snyder, E., & Snyder, E. Mottled sculpin (*Cottus bairdi*) movement and habitat use. To appear in American Midland Naturalist.

Presentations

- Villalobos, L., Gibson, A., Caldwell, C., Snyder, E., Barnard, J., Hanshue, S., Annual Meeting of the Society for Freshwater Science, SFS, Louisville, KY, "A case study of successful dam removal in west Michigan", Academic, International, peer-reviewed/refereed, Invited. (June 2012).
- Krynak, E., Snyder, E., Annual Meeting of the Society for Freshwater Science, SFS, Louisville, KY, "Aquatic mesohabitats: Abiotic and biotic comparisons in a sand-dominated, 3rd order, Michigan stream", Academic, International, peer-reviewed/refereed, Accepted. (June 2012).
- Taylor, J., Snyder, E., Annual Meeting of the Society for Freshwater Science, SFS, Louisville, KY, "Response of stream macroinvertebrates to climate change and urbanization", Academic, International, peer-reviewed/refereed, Accepted. (June 2012).
- VanDongen, J., Poczekaj, K., Jansen-Yee, N., Snyder, E., Annual meeting of the Society for Freshwater Science, SFS, Louisville, KY, "Understanding nutrient pathways and reciprocal subsidies between stream and riparian zones using stable isotope analysis.", Academic, International, peer-reviewed/refereed, Accepted. (June 2012).
- Krynak, E., Snyder, E., Annual meeting of the Michigan Academy of Sciences Arts and Letters, MASAL, Alma, MI, "Aquatic mesohabitats: Abiotic and biotic comparisons in a sand-dominated, 3rd order, Michigan stream.", Academic, State, peer-reviewed/refereed, Accepted. (March 2012).
- Taylor, J., Snyder, E., Annual meeting of the Michigan Academy of Sciences Arts and Letters, MASAL, Alma, MI, "Stream macroinvertebrates in an agricultural landscape", Academic, State, peer-reviewed/refereed, Accepted. (March 2012).

Mark Staves

Publications

- Staves, M., & Kovacevic, N. The density of the extracellular medium can modulate and even reverse the gravity response of cells and organs. *Journal of Gravitational Physiology*.

Presentations

- Staves, M., Kovačević, N., Plant Biology 2012, American Society of Plant Biologists, Austin, TX, "Modulating the gravity response of plant cells and organs", Academic, International. (July 2012).
- Staves, M., Kovacevic, N., Life in Space for Life on Earth, International Society of Gravitational Physiology, Aberdeen, Scotland, "The external medium can modulate and even reverse the gravity response of cells and organs", Academic, International, peer-reviewed/refereed, published in proceedings, published elsewhere, Accepted. (June 2012).

Patrick Thorpe

Contracts, Grants, Sponsored Research

- Collaborating Faculty for NSF TUES grant "Leveraging Laboratory Activities to Achieve Educational Reform", (Grant No. 1140767 awarded 6/1/2012 to David Koetje at Calvin College.

Publications

- Shutler, D., Hussell, D. J. T., Norris, D. R., Winkler, D. W., Robertson, R. J., Bonier, F., Rendell, W. B., Belisle, M., Clark, R. G., Dawson, R. D., Wheelwright, N. T., Lombardo, M., Thorpe, P., Truan, M. A., Walsh, R., Leonard, M. L., Horn, A. G., Vleck, C. M., Vleck, D., Rose, A. P., Whittingham, L. A., Dunn, P. O., Hobson, K. A., & Stanback, M. T. (2012). Spatiotemporal patterns in nest box occupancy by Tree Swallows across North America. *Avian Conservation & Ecology*, 7(1), 3-11.

Presentations

- Lombardo, M., Thorpe, P. A., Spadacene, L., North American Ornithological Conference, Ornithological Societies of North America, University of British Columbia, Vancouver, Canada, "Chewing lice and Tree Swallow biology", Academic, International, peer-reviewed/refereed, Accepted. (16 August 2012).
- Briggs, M., Graham, M., Hightower, L., Near, D., Rostic, A., Smith, D., Lombardo, M. P. and Thorpe, P. A.. Factors associated with egg hatching in Tree Swallows. GVSU Student Scholars Day. (11 April 2012).
- Graham, M., Lombardo, M. P. and Thorpe, P. A.. The Relationship Between the Innate Immunity and Ectoparasite Load of Adult Tree Swallows (*Tachycineta bicolor*). GVSU Student Scholars Day. (11 April 2012).
- Thorpe, P. It's not just your DNA: Gene Expression, Epigenetics, Stochastic Processes and More. Evolution for Everyone Seminar, October 12, 2102, GVSU.

Janet Vigna

Publications

- Vigna, J. (2012). Managing Multi-Section Mayhem: Creating Effective Instructional Communities in Multi-Section Courses. *Scholar Works*. Allendale, MI: ScholarWorks@GVSU.
http://scholarworks.gvsu.edu/ftlc_fall_conference/2012/Concurrent_Sessions/9/
- Vigna, J. (2012). Biology for the 21st Century Lab Manual. Biology for the 21st Century Lab Manual. MI: Hayden McNeil.

Presentations

- Vigna, J., FTLC Teaching Conference, FTLC, Grand Rapids, "Managing Multi-Section Mayhem: Creating Effective Instructional Communities in Multi-Section Courses", Academic, Local, published elsewhere, Invited. (August 22, 2012).
- Vigna, J., Fellows Course, Center for Scientific Teaching at Yale, New Haven, CT, "Developing Effective College Biology Curriculum", Academic, Regional, Invited. (October 22, 2012).
- Vigna, J., NSTA Student Chapter Meeting, National Science Teachers Association, GVSU, "Next Generation Science Standards", Academic, Local, Invited. (October 11, 2012).
- Vigna, J., NSTA Student Chapter Meeting, National Science Teachers Association, GVSU, "ISCI Portfolio Requirements", Academic, Local, Invited. (April 2012).

Jennifer Winther

Contracts, Grants, Sponsored Research

- Winther, J. L., Grant, "S3", Office of Undergraduate Research and Scholarship (OURS), Grand Valley State University, \$6,000.00

Presentations

- Winther, J. L., Maryanski, D., Van Andel Western Michigan Undergraduate Showcase, Van Andel Institute, Grand Rapids, "Type II MADS-box genes isolated from Juniper and Ephedra", Academic, West Michigan, published in proceedings, Accepted. (November 17, 2012).
- Winther, J. L., Maryanski, D., Student Summer Scholar exhibition, GVSU, "Novel MADS-Box genes isolated from the gymnosperms Juniper and Ephedra", Academic, Local. (August 15, 2012).
- Greer, G., Winther, J. L., Evans, T., Toogood, J., Annual Meeting of Luquillo Long-Term Ecological Research Station, Luquillo, LTER and University of Puerto Rico, Rio Peidras, San Juan, Puerto Rico, "Community Assembly of Lower-Trunk Epiphytes At Mid-Elevation in El Yunque National Forest.", Academic, International, Invited. (June 6, 2012).

Megan Woller-Skar

Contracts, Grants, Sponsored Research

- Woller-Skar, M. Megan, Grant, "The Influence of Sediment Nutrient Enrichment on Microcystin Production by Microcystis aeruginosa", Center for Scholarly and Creative Excellence, Grand Valley State University, \$6,000.00

Presentations

- Woller-Skar, M. Megan, Bioinformatics & Computational Biology Symposium, VAI, GVSU, CLAS, RMSC, CMB, OURS, Allendale, "Multivariate techniques for modelling the liver toxin, microcystin, in freshwater systems", Academic, National.
- Martin, A., Davalos, L., Lancaster, W., Russell, A., Woller-Skar, M. Megan, Corthals, A., North American Symposium for Bat Research, North American Society for Bat Research, San Juan, Puerto Rico, "A comparison of DNA yields from different tissue types and storage media", Academic, International, Accepted. (October 26, 2012).