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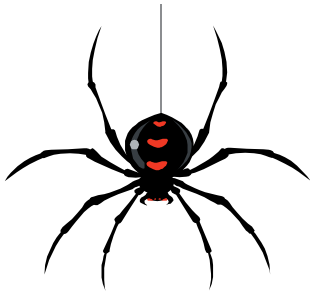


Summer 2011 – Volume 15

A newsletter for GVSU Alumni in Biology and Natural Resources Management

Odds and Ends Captured in the Web

Neil MacDonald, Chair, Biology Department

It has been another very busy year for the Biology Department. While both undergraduate and graduate Biology programs continue to maintain solid enrollments, growth in the undergraduate Natural Resources Management program has been truly phenomenal! Currently, the nine regular faculty members and over 200 majors in the NRM Program rival many other departments at GVSU, a far cry from the late 1980s and early 1990s when two professors taught all of the required courses to a much smaller, if no less dedicated, group of students.

In last year's newsletter, I summarized some of our efforts to review and revise our curriculum to keep it current and facilitate student progress through our degree programs. Changes to the NRM Program curriculum were approved this spring, and will expand access to a wider range of cognate courses while encouraging greater synergism with general education and theme courses. We are still considering what if any changes are needed in the introductory sequence of undergraduate biology courses, but the department devoted a considerable effort this year to streamlining the Biology Minor to make it more accessible to a variety of students and provide greater flexibility in course selection within the minor. This is a work in progress, so stay tuned!

All of us are aware of the major economic constraints facing higher education in Michigan. GVSU is suffering much less from funding cuts than other state universities, since GVSU has long had effective strategies in place to provide a high quality education in spite of limited funding from the state. Budgets are tight,

however, and alumni can help keep the Biology and Natural Resources Management programs strong and flourishing through donations to any of a variety of endowed funds that directly benefit our students. As highlighted later in this newsletter, we are able to award annual scholarships to deserving students through the DeWitt Barrels Environmental Science and Natural Resources Scholarship, the Paul Huizenga Biology Scholarship, the Howard and Rose Stein Biology Scholarship, as well as the John Shontz Scholarship, which is funded through the Waddell-Treanor Native Plant Endowment. We also are able to help support student scholarship activities through the Waddell-Treanor Endowment and through the John Salski Memorial Fund. In addition to these resources, the Biology Field and Laboratory Enhancement Fund allows us to acquire needed field and laboratory equipment in addition to what can be funded through normal budget requests. I encourage all of our alumni to consider making a donation to one of these endowed funds if and when possible. Donations become a permanent part of the endowment's principle and will continue to support the students and activities of the Biology Department and its programs in perpetuity. I personally contribute to one or more of these funds each year, and find great satisfaction in knowing that even small donations will have long-lasting effects in helping our students achieve their goals in the future.

Outstanding Graduates

Marcella Baiz is the 2010/2011 **Outstanding Graduating Senior Biology Major.** She was accepted into a master's program in Ecology and Evolutionary Biology at The University of Michigan. She will begin by taking a class and doing a small research project at the University of Michigan Biological Station this summer. In the fall, Marcella will be doing lab rotations before she chooses her advisor. With her graduate work, she wants to focus on mechanisms and outcomes of evolutionary change and understanding evolutionary relationships between organisms. She would like to expand her knowledge on phylogeography and hopes to conduct research for her thesis in this area of study.

Julie Riggio is the 2010/2011 **Outstanding Graduating Senior Natural Resource Management Major.** She will be attending the University of Michigan in the fall to begin work on an MS in Environmental Policy and Planning and Conservation Ecology. While there, she plans to participate in a master's project pertaining to water policy. In the future she would like to work for the federal government helping to shape Great Lakes water policy. She would sincerely like to thank the NRM and Biology faculty who helped her realize her potential and future aspirations.

Faculty Award Recipients

Dr. Shaily Menon received the **Outstanding University Service Award**, which is awarded for service to the University including, but not limited to, committee work. Nominations for the award may come from the University Community (students, faculty, and staff) or from the community at large (alumni, community members).

Dr. Bruce Ostrow received the **Pew Teaching Excellence Award.** The Pew Teaching Excellence Awards were established to recognize outstanding teachers from around the university and are presented at the Faculty Award Convocation each year. Nominees are selected by students, alumni, other faculty, or academic units.

GVSU Biology Club News

The Biology Club has had a very busy year! We began the year with our annual Student-Faculty Meet and Greet. In addition to providing students a chance to meet with faculty and hear about research opportunities open in their labs, this year we added a new feature. We invited representatives from thePierce Cedar Creek Institute and the Office of Undergraduate Research to share information about grant programs that they offer during the summer. From this event, we were happy to hear that several biology students were able to get ideas for pursuing undergraduate research opportunities. We were fortunate to be able to continue our tradition of going on a behind-the-scenes tour at the John Ball Zoo, also in the fall. This experience provides our members with a chance to see what it is like at a working animal care facility, and also to get in-depth information on the animals in the zoo and careers in the zoological field.

A new event (that we hope will become one of our annual events) that we had this year, was a Biology club- sponsored seminar. The curator of mammals from the Detroit Zoo, Bob Lessnau, came in to speak about primates. The main lecture was followed by a lunch with the speaker and the Biology Club members. This gave the members, many of which are pursuing careers in the animal care field, to have a conversation with the speaker on this subject and discuss his experience in the field. This event was an overwhelming success and we are already looking into the possibilities of who the club can ask to speak next year.

We were able to share our knowledge of Biology with the Grand Valley community at the annual Sibs and Kids Day this winter semester. At this event, we set up a table entitled "Skins and Skulls" which showcased some of the Biology Department's study skins from the Mammology and Ornithology classes, and some preserved fish from Fisheries class. This event allowed non-biology majors to see the fun things that we get to play with as Biology majors! It also provided us an opportunity to educate people about the wildlife that lives in Michigan. To wrap up our year, we had a trip to Chicago. We were excited to have the bus almost filled to capacity with people ready for a fun trip to the city. We have already started to plan the trip for next year.

Our officers for next year will be President: Adrienne Gibson, Vice-President/Financial Officer: Korie Hamming, Secretary: Amanda Pabst, and Public Relations: Lauren Villalobos.

GVSU Pre-Veterinary Club News

Greetings from the GVSU Pre-Vet Club,

This has been a great year for the pre-vet club. I would like to thank all of my fellow officers and dedicated members for really putting a lot into the club to achieve our goals. The club had many accomplishments this year. First of all, we instated a different theme for each month to reflect different aspects of the dynamic field of veterinary medicine and we had a speaker each month to reflect this theme.

Due to an outstanding number of new freshmen to the club, as an icebreaker we took a trip out to Dr. VanderHoning's farm and were privileged enough to hear a lecture about equine husbandry and what it takes to raise Percheron draft horses. October was exotic month and we got a behind-the-scenes tour at John Ball and had one of their veterinary technicians and zookeepers come in and talk to us during the month. November was equine month, and we had Dr. Trippany talk about her ambulatory vet services and her expertise as an equine practitioner. January was small animal month, but instead of having a vet we had a 1st year vet student and recent GVSU graduate and former Pre-Vet Club president, Evie Dinsmore, tell us about her first semester in vet school. In February, we looked into study abroad options and foreign veterinary medicine. A representative from Ross University, a Caribbean vet school, gave a presentation. March was 'alternative medicine month' and Dr. Joan Koelzer talked about her untraditional career as a research veterinarian; some of you may know her as she inspects the animals used in labs on our very own campus. Finally, April was bovine month and we went out with a bang by bringing in two speakers: Sam Gebhart, a bovine nutritionist and Dr. Mauer from Sparta Animal Hospital. As you can see, we have

been busy. However, this is just the tip of the iceberg for the Pre-Vet Club.

The underlying theme, above all else, this year was FUNDRAISING! The Pre-Vet Club recently became affiliated with the American Pre-Veterinary Medical Association, a national organization of pre-vet students around the country. Every year, they hold a national symposium and it was our club's mission to get there this year. I am proud to say we did it. We instated club dues, worked weekly popcorn and puppy chow sales and even held a "Pet Photos with Santa" event. As a result of our hard work, the club generated over $1500 dollars in **fundraising alone**. With the money from dues and symposium fees the club had over $3000. Because of this, everyone got to go on a three-day trip to the APVMA Symposium. Not only that, the officers and I organized a little bit of extra fun; we spent the first night in New Orleans, where we got to kick back for a night. We even got a behind-the-scenes tour of the hospital at Audubon Nature Institute, one of the country's top-ranked zoos. All in all, we spent one day in New Orleans and two days in Starkville, Mississippi at the College of Veterinary Medicine of Mississippi State for the APVMA National Symposium. The symposium was filled with engaging lectures led by veterinarians as well as hands on labs. Our members got to help draw blood on bob-cats, perform claw amputations on cow-leg cadavers and try their hand at suturing and bandaging labs. Because of our successful fundraising endeavors, each person paid $175, which included gas, van rental, lodging, symposium fees and all meals in Mississippi. We all had a blast.

My main goal coming into the club this year, above all else, was to promote a sense of cohesion among club members. Going into this highly competitive field, I am a strong believer that everything is easier and a lot less stressful if we all work together. Because of this close-knit camaraderie, the Pre-Vet Club provides a great opportunity for pre-vet students to immerse themselves in the field that they want to spend the rest of their lives in.

Chelsea Van Assche: President, Julie McGhan: Vice President, Jen Tagett (Treasurer), and Lindsey Bigney: Secretary

Five Students Earn Biology Related Academic Scholarships from GVSU

Thanks to generous contributions to four biology endowment funds as well as the Michigan Garden Club fund, five students will receive financial support for the 2011/2012 academic year.

Philip Kenyon and Grady Zuiderveen received a scholarship from the **John Salski Memorial Fund**. The John Salski Memorial Fund is awarded on the basis of academic merit and supports summer academic and research activities.

Kelly Meszaros received a scholarship from the **Professor Paul A. Huizenga Education Scholarship**, which is awarded on the basis of academic merit & financial need and supports biology majors pursuing secondary teaching certification.

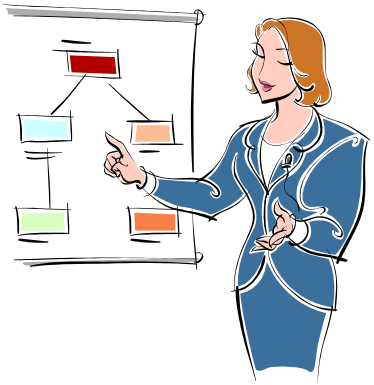
Korie Hamming and Grady Zuiderveen are the recipients of the **John Shontz Scholarship**, which is funded through the **Waddell-Treanor Native Plants Endowment**, and supports students who are majoring in Biology with a Plant Biology emphasis.

Grady Zuiderveen received the **Waddell Research Award**, which is awarded to a student who wants to conduct research in native plants and their use in gardening, landscaping, ecosystem restoration, eradication of undesirable invasive species or conservation of native species of plants.

Robert Roos received the **Michigan Garden Club Scholarship**, which is awarded to applicants that have a minimum overall G.P.A. of 3.0, are in their second year of undergraduate or graduate study, and are studying: Horticulture, Floriculture, Landscape Design, Botany, Forestry, Conservation, Agronomy, Plant Pathology, Environmental Concerns, Land Management and/or related Fields.

For more information on contributing to these funds, please visit the GVSU University Development website (http://gvsu.edu/development/) or email/call the Biology/NRM Department.

Student Scholars Day, 2011



Student Scholarship Day: A GVSU Tradition
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.

Student Scholars Day projects may be initiated as part of a course or as independent collaborations with faculty. GVSU encourages all students to consider enhancing their personal and professional development by engaging in scholarly and creative work with faculty, and to share their work with the GVSU community.

The Office of Undergraduate Research and Scholarship was proud to present and host the **16th Annual Student Scholars Day on Wednesday April 13, 2011**. This event showcased over 400 presentations by more than 600 student presenters.

Many Biology Department faculty and students presented this year, please take a look at all of the presentations below!

Poster Presentations

Baiz, Marci (Michael Lombardo). Sex Differences in Parental Anti-Predator Responses During the Nestling Period in Tree Swallows.

Beebe, Aaron (Osman Patel). Filling Up at the Biological Pump: The Future of Biofuels.

Beenen, Timothy (Bruce Ostrow). Gene Expression in the Developing Patagium of Embryonic *Glaucomys volan.*

Belknap, Katherine (Joseph Jacquot). The Influence of Microhabitat on Nest Tree Selection of Southern Flying Squirrels.

Bibby, Libby (Michael Lombardo). Sex Differences in Parental Anti-Predator Responses During the Nestling Period in Tree Swallows.

Bohl, Lisa (Michael Lombardo). Sex Differences in Parental Anti-Predator Responses During the Nestling Period in Tree Swallows.

Cannan, Melissa (Paul Keenlance). Winter Home Range of the Southern Flying Squirrel.

Colley, Chelsey (Osman Patel). Grand Valley Students Opinion and Knowledge of "Designer Babies."

Dulla, Whitney (Osman Patel). Grand Valley Students Opinion and Knowledge of "Designer Babies."

Fisk, Sean (Osman Patel). Student Perceptions on Genetically Modified Foods.

Fuhst, Mallory (Osman Patel). Grand Valley Students Opinion and Knowledge of "Designer Babies."

Gaskell, Allison (Jodee Hunt). Honey, I Moved the Kids: Division of Labor in a Biparental Cichlid Fish.

Gebre-Egziabher, Kibrom (Osman Patel). Impact of Hypergravity Exposure on the Mammary Gland Cytoskeletal Organization in the Rat.

Gibson, Adrienne (Eric Snyder). Low-Head Dam Removal Causes Immediate Physical Habitat and Water Chemistry Degradation.

Hager, Cody (Dawn Clifford Hart). Identifying an Atypical Actin Binding Domain in the Fission Yeast Mid1 Scaffold.

Hayward, Heather (Ryan Thum). Uncovering Cryptic Diversity in the Invasive Aquatic Plant Species, Eurasian Watermilfoil, using DNA Fingerprinting.

Helsel, Dustin (Osman Patel). Impact of Hypergravity Exposure on Pregnant Rat Mammary Lobular Dimensions.

Hightower, Liberty (Michael Lombardo). Sex Differences in Parental Anti-Predator Responses During the Nestling Period in Tree Swallows.

Hillman, Tamara (Paul Keenlance, Joseph Jacquot). Den Tree Characteristics and General Ecology of the Southern Flying Squirrel *(Glaucomys volans)* in Western Michigan.

Hupt, Amanda (Jodee Hunt). Honey, I Ate the Kids! Life History Strategies, Fish Behavior, and Management of a Research Cichlid Colony.

James, Caleb (Timothy Evans). Phylogenetic Relationships within the Neotropical Plant Genus *Lymania* (Family *Bromeliaceae*) based on Several DNA Regions.

Kirby, Laura (Osman Patel). Filling Up at the Biological Pump: The Future of Biofuels.

Kremers, Kelseyann (Robert Hollister). Long-Term Response of *Luzula arctica* and *Luzula confusa* to Warming in the Alaskan Tundra.

Lawless, Susan (Osman Patel) Filling Up at the Biological Pump: The Future of Biofuels.

Liebig, Jennifer (Robert Hollister). Connecting Differences in Phenology to Changes in Arctic Plant Communities.

Lillalobos, Lauren (Eric Snyder). Low-Head Dam Removal Positive Affects on Macroinvertebrate Community Structure.

Lindberg, William (Timothy Evans). Determination of Phylogenetic Relationships among Members of the Plant Genus *Billbergia* (family *Bromeliaceae*).

Maddox, John (Osman Patel). Grand Valley Students Opinion and Knowledge of "Designer Babies."

Mclaughlin, Rachelle (Michael Lombardo). Sex Differences in Parental Anti-Predator Responses During the Nestling Period in Tree Swallows.
Mentor: Michael Lombardo

Mercer, Amanda (Bruce Ostrow). The Lethality of the k11209 Line of *Drosophila melanogaster.*

Moeggenberg, Jordan (Todd Aschenbach). An Adaptive Management Plan to Increase Nature Oriented Recreation and Education in a Public Park in West Michigan.

Nader, Brandon (Dawn Clifford Hart) Phosphoregulation of Mid1 Association with Medial Cortex.

O'Hearn, Kurt (Osman Patel). Student Perceptions on Genetically Modified Foods.

Phelan, Jennifer (Dawn Clifford Hart). Phospho-regulation of the Scaffolding Protein Mid1.

Phillips, Patricia (Ryan Thum). Characterization of the Phytoene Desaturase Gene in Invasive Watermilfoil Populations That Exhibit Different Sensitivities to the Herbicide Fluridone.

Repeck, Alexander (Osman Patel). Effect of Altered Gravity on Rat Mammary Epithelial Cell Proliferationns.

Rogers, Thomas (Osman Patel). Filling Up at the Biological Pump: The Future of Biofuels.

Rozeboom, Latricia (Richard Rediske). A Preliminary Analysis of Suspended and Bedload Sediment in Ruddiman Creek.

Scheiber, Christopher (Jodee Hunt). Honey, I Ate the Kids! Life History Strategies, Fish Behavior, and Management of a Research Cichlid Colony.

Smit, John (Osman Patel). Student Perceptions on Genetically Modified Foods.

Spadacene, Lena (Michael Lombardo). Sex Differences in Parental Anti-Predator Responses During the Nestling Period in Tree Swallows.

Stoyka, Lindsay (Jodee Hunt). Honey, I Moved the Kids: Division of Labor in a Biparental Cichlid Fish.

Street, Jason (Amy Russell). Environmental Effect on Male Mating Success: The Importance of Song Exposure Versus Nutritional Stress During Development in Male Superb Lyrebirds.

Tagett, Jennifer (Terry Trier). Life as an Animal Care Intern at John Ball Zoo.

Weeks, Tammy (Osman Patel). Student Perceptions on Genetically Modified Foods.

Wesselink, Julie (Rod Morgan). GV-1 Chemical Derivatives as Potential New Antibiotics.

Wygant, Cassandra (Terry Trier). John Ball Zoo Animal Care Internship.

Zuiderveen, Grady (Timothy Evans). A Phylogenetic Analysis of the African Plant Genus *Palisota* (family *Commelinaceae*) Based on Chloroplast DNA Sequences.

Oral Presentations

Cummings, Thad (C. "Griff" Griffin). Analyzing the Cost of Switching to Compostable Tableware for the Amway Grand Hotel.

Gracz, Ann (Todd Aschenbach). Garlic Mustard *(Alliaria petiolata)* influence on decomposition rates in Cass County, Michigan.

Straley, Anthony (Todd Aschenbach). Phragmites *(Phragmites australis)* Mapping and Control in Muskegon County, Michigan.

Beurkens, Jeffrey (C. "Griff" Griffin). User Perceptions of Current Wilderness Conditions at Nordhouse Dunes.

Bauer, Katherine (Todd Aschenbach). A Benefit-Cost Analysis of the Composting Program at Grand Valley State University, Michigan.

Skora, Leslie (Todd Aschenbach). An Adaptive Management Plan for American marten *(Martes americana)* in Missaukee County, Michigan.

Rathburg, Marie (Todd Aschenbach). An Adaptive Management Plan for Whippoorwill *(Caprimulgus vociferus)* Habitat Restoration in Gladwin County, MI.

Perzanowski, Alan (C. "Griff" Griffin). Beaver Activity Implications on Fish Community Assemblage.

Damm, Sara (Todd Aschenbach). Diet Analysis of Stocked Brown Trout vs. Rainbow Trout within the Muskegon River, MI.

Cotton, Lucas (C. "Griff" Griffin). Private Land Owner Support for Public Conservation Plans.

Podein, Stephanie (Heather Rueth, Todd Aschenbach). An Adaptive Management Plan for Reducing White-Tailed Deer *(Odocoileus virginianus)* Herbivory in Ottawa County Parks, MI.

Kovacevic, Naila (Mark Staves). The Density of the External Medium Affects Gravity Sensing in Plants.

Gallagher, Jordan (C. "Griff" Griffin). Analyzing the Cost of Retrofitting a House to L.E.E.D. Standards.

Ray, Sharcy (Todd Aschenbach). An Adaptive Management Plan for Johnson Grass *(Sorghum halepense)* and Cheat Grass *(Bromustectorum)* Control in a Central Oklahoma Nature Center.

Schendel, Logan (Todd Aschenbach). An Adaptive Management Plan to Improve Canoeing Recreation along the Grand River in West Michigan.

Higginson, Nathaniel (C. "Griff" Griffin). Analysis of Illegal Use and Suitability of Camping in Nordhouse Dunes Wilderness.

Stratil, Sean (Todd Ashenbach). An Adaptive Management Plan for Increasing Waterfowl Habitat at Harbor Island in Grand Haven, MI.

Slider, Robert (Robert Hollister). What Makes an Arctic Plant Predictable?

Lemon, Kaitlyn (C. "Griff" Griffin). Determining the Spatial Spread and Rate of Dispersal of the Invasive Species *Pinus sylvestris L.* on a Michigan Dune Ecosystem.

Tokzhumanov, Nurzhan (Shaily Menon, Todd Aschenbach). Effects of Education Versus Opportunity on Waste Reduction Success among University Campuses in Michigan.

May, Jeremy (Robert Hollister). Predicting Long-Term Tundra Plant Community Change in Response to Warming.

Sexton, Kathleen (C. "Griff" Griffin). User Impacts on Nordhouse Dunes Wilderness.

Mclaughlin, Rachelle (C. "Griff" Griffin). Analyzing Patterns of Beak Deformity in Wild Birds Populations in North America.

Botting, Timothy (Neil MacDonald, Todd Aschenbach). Spotted Knapweed Control and Native Plant Establishment at the Bass River Recreation Area.

Zipple, Monica (Jodee Hunt). Did Dad Lick the Kids Today? Transmission of Microbes Through Parental Care in a Teleost Fish *(Cichlosoma nigrofasciatum).*

Laarman, Patrick (C. "Griff" Griffin). Digestion Dependant Winter Foraging of Northern Pike in Michigan's Lower Penninsula Lakes.

Marecek, Scott (C. "Griff" Griffin). A Developing Retention Ponds to Reduce Volume of Water Input to Storm-Sewer System from GVSU Parking Lots.

Dilloway, Mike (C. "Griff" Griffin). Changes in Lake Trout Population Dynamics Due to the Impact of Introduced Desirable Non-Native Salmonids.

Lee, Min (Amy Russell). Genetic Approaches to Assessing the Impact of Wind Turbines on Eastern Red Bats.

Highlights of Faculty Activity

Todd Aschenbach was nominated as the Sustainability Champion from the Sustainable Community Development Initiative of the College of Interdisciplinary Studies. He co-authored a journal article entitled *The initial phase of a longleaf pine-wiregrass savanna restoration: Species establishment and community responses,* which was published in Restoration Ecology. He co-authored and gave three presentations entitled *Lessons from a longleaf pine savanna restoration in South Carolina, USA: Primary productivity and soil organic matter; A Michigan Sand Prairie Restoration Experiment: Design and Pre-restoration Conditions,* and *The influence of variable seeding rates on plant community assembly in a tallgrass prairie restoration experiment.* In addition, he was the author and presenter of two presentations entitled *An Evaluation of Four Plant Species for Use in Sand Mine Revegetation* and *Health Care Reform for the Environment.*

Sheila Blackman co-authored a manuscript entitled *The Influence of Seed Maturation on Desiccation Tolerance in Phalaenopsis amabilis Hybrids,* which was accepted by Scientia Horticulturae. She co-authored and presented a poster entitled *Maturation Drying and Desiccation Tolerance During Seed Development*

in Phalaenopsis, at the Joint Annual Meeting of the American Society of Plant Biologists and the Canadian Society of Plant Physiologists. She also co-authored a poster entitled, *Maturation Drying and Desiccation Tolerance During Seed Development in Phalaenopsis,* which was presented at the Undergraduate Science Research Conference.

Margaret Dietrich was the author and presenter of a presentation entitled *Receptors and Signaling in Plant Development and Biotic Interactions,* which was presented at the Keystone Symposia on Molecular and Cellular Biology. She also co-authored a presentation entitled *Bacterial Analysis of Michigan Cherry Wines,* which was presented at the International Cool Climate Symposium.

Chris Dobson co-authored two journal articles entitled *Life science arcade aligned with 2009 science GLCEs* and *Moss, beech trees, and stemflow: Integrated science,* which were published in the MSTA Journal. He gave two presentations at the National Science Teachers Association National Conference entitled *Helicopter seeds and hypotheses...that's funny!* and *Spork & beans: Addressing evolutionary misconceptions.* He also gave two presentations at the Fall Science Update of the Regional Math and Science Center. The first, which he co-presented, was entitled *Global climate change and integrated science.* The second was entitled *Spork & beans: Addressing evolutionary misconceptions.*

Jim Dunn co-authored a presentation given at the 6th International Conference on the Biology of Butterflies (ICCB) entitled *Dispersal of the Karner Blue Butterfly in a Heterogeneous Landscape.* He was also interviewed on the 6pm news by TV WZZM 13 News, on the conditions which influence mosquito populations in West Michigan.

Tim Evans co-authored a publication that is currently in press and will be published in Systematic Botany entitled, *Morphological and molecular evidence of*

polyphyly in Rhodomyrtus (Myrtaceae: Myrteae. He co-authored two presentations given at the West Michigan Regional Undergraduate Science Research Conference entitled *A Phylogenetic Analysis of the African Plant Genus Palisota (family Commelinaceae) based on Chloroplast DNA Sequences* and *Phylogenetic Relationships within the Neotropical Plant Genus Lymania based on several Chloroplast DNA Regions.* He also co-authored a presentation given at the GVSU Student Scholar's Day entitled *From Ancient Tropics to Modern West Michigan: What Molecular Phylogenetics Can Tell Us About Plant Evolution.* Additionally, he was the author and presenter of a presentation entitled *A preliminary phylogenetic analysis of the genus Aneilema (Commelinaceae) based on chloroplast DNA sequences*, which was given at the West Michigan Regional Undergraduate Science Research Conference.

Gary Greer co-authored a journal article which was published in the Journal of Botany, entitled *Network topology of the Ailanthus gene pool is eastern U.S. cities*. He also co-presented a presentation given at the Michigan Academy of Science, Arts, and Letters, entitled *Gender Bending in the fern Osmunda cinnamomea: A Tale of Two Pheromones.*

Carol "Griff" Griffin was the author of a publication entitled *Perceptions of the North Country National Scenic Trail,* which was published in the Michigan Academician. She also gave four presentations during the year entitled *Use Levels and Campsite Inventory and Assessment for Nordhouse Dunes Wilderness; Tapping Project Resources from a Local University; Critical Thinking in the General Education Program,* and *Hiking and Backpacking Safely*.

Mike Henshaw was the co-author of a publication entitled *Brain transcriptome analysis in paper wasps identifies genes associated with behaviour across social insect lineages,* which was published in the Proceedings of the Royal Society, Series B 277. He also co-authored a publication entitled *Differential gene expression and protein abundance evince ontogenetic bias toward castes in a*

primitively eusocial wasp, which was published in Plos One 5. He gave two presentations entitled *Begun the Clone War Has: A New Debate About the Power of Kin Selection* and *Population genetic structure of a broadly-distributed social wasp.* In addition he was the author of a presentation given at the Student Scholarship Day, entitled *Personality in the Jumping Spider, Phidippus audax.*

Robert Hollister received the Michigan Science Olympiad Regional Tournament Award for Leadership and Continuing Service 2010. He co-authored two publications entitled *Above and below ground plant biomass response to experimental warming in northern Alaska* and *Remote sensing of tundra gross ecosystem productivity and light use efficiency under varying temperature and moisture conditions.* He gave three presentations entitled *Response of Luzula arctica and Luzula confusa to warming in Barrow and Atqasuk, Alaska; Experiment: Long-term warming at Barrow and Atqasuk,* and *Impacts of Long-term Warming on Vegetation at Barrow and Atqasuk.* In addition he co-authored eight presentations with students entitled *Predicting Responses of Arctic Plants to Warming with Species Distribution Maps; Vegetation community response to long term experimental warming in Northern Alaska; Why the top of the world is on the top of our minds: GVSU's research on the impacts of Climate Change in the Arctic; Detection and attribution of long-term changes in vegetation phenology and growth in northern Alaska; Effects of long term warming on vegetation in northern Alaska; Warming the tundra: Changes in cover of species groups; Characteristics that predict success for warmed tundra vegetation;* and *Tundra plant responses to over a decade of experimental warming.*

Jodee Hunt received the Outstanding Faculty Mentor Award from the Graduate and Professional Student Association, Grand Valley State University. She published a journal article in the International Journal of Entrepreneurship entitled *The lesson of Miss Arlene's oven: entrepreneurship at the base of the economic pyramid.* She gave a presentation at Evolution 4 Everyone entitled *Schozophrenia and the social brain: an evolutionary trade-off?* She also co-authored two presentations entitled *Has dad licked the kids today? Transmission of microbes*

through parental care in a Teleost fish, Cichlasoma nigrofasciatum and *Intermediate forms of morality in non-human animals: looking beyond the primates.* In addition, she participated in an interview with Gracie Allen Award-winning host, Shelley Irwin, for her series "CLAS Third Thursday" on WGVU Public Radio.

Joe Jacquot presented work from an ongoing lab at the Annual Meeting of the American Society of Mammalogists. He was a co-presenter for a presentation given at the American Society for Mammologists annual meeting entitled *Impacts of Savannah Restoration on Small Mammal Communities in West Michigan*. He also co-authored two posters with students at the Wildlife Society Conference, entitled *Impacts of timber harvest on southern flying squirrel survival and habitat use* and *Effects of forest thinning on the predator-prey relationship between white-footed mice and gypsy moth pupae in west central Michigan.*

Jann Joseph published an article in the Electronic Journal of Science Education entitled *Does Intention Matter? Assessing the Science Teaching Efficacy Beliefs of Pre-service Teachers as Compared to the General Student Population.* She co-authored three articles entitled *A Framework for Facilitating Equitable Discourse in Science Classrooms, A collaborative approach to professional development in science,* and *The Power of Learning Communities: Effecting Change in Teacher Professional Development.* She also gave 4 presentations entitled *Sustainability in the College of Liberal Arts and Sciences, Mentoring New Faculty in the College of Liberal Arts and Sciences at GVSU, Lesson Learned from Eight Years of Professional Development Partnerships,* and *Sustainable Science Teacher Professional Development in Urban Middle Schools.*

Paul Keenlance co-authored 5 presentations entitled *Predicting habitat quality for bobcats in Michigan's southern Lower Peninsula using non invasive detection methods, Effects of forest thinning on the predator-prey relationship between white-footed mice and gypsy moth pupae in west central Michigan, Impacts of*

Timber Harvest on Southern Flying Squirrel Survival and Habitat Use, Predicting habitat quality for bobcats in Michigan's Southern Lower Peninsula using non-invasive detection methods, and *Impacts of savannah restoration on small mammal communities in West Michigan.*

Michael Lombardo co-authored two articles *entitled Local breeding experience and the reproductive performance of Tree Swallows* and *Social environment affects beak color in captive male House Sparrows, Passer domesticus*. He co-authored six presentations with students entitled, *Factors that affect egg mass in Tree Swallows, Sex differences in parental anti-predator responses during the nestling period in Tree Swallows, Innate immunity in nestling Tree Swallows, Parental anti-predator responses during the nestling period in Tree Swallows, Development of innate immunity in nestling Tree Swallows,* and *Sex differences in innate immunity in Tree Swallows.* He co-authored a presentation entitled *Partitioning local and global climate effects on survival of North American Tree Swallows (Tachycineta bicolor) over the annual cycle.* He gave two presentations entitled *On the evolution of sport* and *Selection, Sex and Sports* and *The Evolution of Male Athletic Competition.* In addition, he was interviewed by the Rockford Independent about the natural history of Pileated Woodpeckers, the Holland Sentinel about the effects of the Deepwater Horizon oil spill on migratory birds in the Gulf of Mexico, and the Lanthorn for a story on GVSU campus wildlife.

Mark Luttenton was interviewed by the Loyola of Chicago radio station on Global Water Issues.

Neil MacDonald co-authored a journal article which was submitted to the Michigan
Academician entitled *Environmental variation, fish community composition, and brown trout survival in the Pigeon River, Ottawa County, Michigan.* He co-authored 2 presentations entitled *Site preparation and hand-pulling effects on spotted knapweed control and native plant establishment in the Bass River*

Recreation Area, Ottawa County, Michigan, and *First-year site preparation and hand-pulling effects on spotted knapweed control on a knapweed-infested site in western Michigan.* In addition, he was quoted in the Holland Sentinel article by Peter Daining entitled "Reclaiming the Pigeon River."

Shaily Menon co-authored a chapter in the Geoinformatics for Natural Resource Management textbook entitled *Fundamentals for using geographic information science to measure the effectiveness of land conservation projects.* She co-authored three journal articles entitled *Ecological niche modeling predicts new populations of Gymnocladus assamicus, a critically endangered tree species, First-pass global assessment of biodiversity consequences of sea level rise mediated by climate change,* and *Recent advances in the climate change biology literature: Describing the whole elephant.* Furthermore, she gave two presentations in India entitled *Forecasting Sea-level Rise Impacts on Coastal Conservation Areas in India* and *Ecological Niche Modeling and Ecological Forecasting.*

Rod Morgan co-authored a journal article published in the Journal of Biotech Research 2 entitled *An Efficient Enrichment Technique for the Isolation and quantification of indigenous Diesel-Fuel Utilizing Bacteria Present in Freshwater Sediments.* He co-authored and gave a presentation entitled *GV-1 Chemical Derivatives as Potential New Antibiotics.* In addition, he was the co-author of a presentation entitled *The Effect of Caffeine on the Bacterial Populations in a Freshwater Aquarium System.* Furthermore, he was interviewed by the Grand Valley Magazine about clean water efforts in Ghana and also by the Grand Rapids press for an article dealing with new textbook disclosure and publishing laws.

Erin Naegle co-authored and co-presented a presentation given at the Fall Science Update at the Regional Math & Science Center, GVSU, entitled *Global climate change and integrated science.*

Alex Nikitin co-authored a journal article published in the Journal of Biotech Research 2 entitled *An Efficient Enrichment Technique for the Isolation and quantification of indigenous Diesel-Fuel Utilizing Bacteria Present in Freshwater Sediments.* He gave four presentations entitled *Modern ways to find ancient paths: Ancient DNA evidence points at a demic expansion of the Neolithic into the Ponto-Carpathian region from two different sources, East Eurasian mitochondrial DNA lineages in ancient and modern populations of Eastern Europe, Archeogenetics of Ukrainian Neolithic: Maternal genetic lineages of the Trypillia-Cucuteni complex,* and *Reducing sample handling as a way to improve ancient mtDNA quality.* In addition, he co-authored three presentations entitled *Brown Trout in Lake Michigan: an Evaluation of Strain Performance and Stocking Method, The Effect of Caffeine on the Bacterial Populations of a Freshwater Aquarium System,* and *Population migration, DNA and stable isotope studies of Mesolithic and Neolithic populations in Ukraine.*

Erik Nordman co-authored two journal articles entitled *The science of ecological economics: A content analysis of Ecological Economics* and *Incorporating acquisition costs in forestland open space programs: Lessons from conservation biology and applications.* He gave four presentations entitled *West Michigan Wind Assessment, West Michigan Wind Assessment project update, West Michigan Wind Assessment: Analyzing the benefits and challenges of wind energy development in coastal West Michigan,* and *The West Michigan Wind Assessment.* Furthermore, he participated in various interviews with the MiBiz newspaper, Miller-McCune magazine, Recharge News magazine, the Michael Patrick Shiels in the Morning radio show, the Muskegon Chronicle newspaper, the Business Review West Michigan newspaper, WGVU radio news, and Wood TV 8.

Amy Russell gave three presentations entitled *Assessing short-term extinction risks using genetic simulation analyses, The contribution of population genetics to the valuation and conservation of bats,* and *Population growth of Mexican free-tailed bats (Tadarida brasiliensis mexicana) predates human agricultural activity.* She co-authored four presentations entitled *Cheek swabs as an alternative to wing punctures for DNA sampling in the field, Complementarity in extinction drivers among Caribbean endemic bats, Genetic approaches to understanding the spread*

of white nose syndrome in little brown bats (*Myotis lucifugus*), and *The Phylogeography of Eastern Red Bats* (*Lasiurus borealis*) *and Effects of Wind Turbine-Related Mortality.* In addition, she co-authored and gave a presentation entitled *Hypothesis testing in genetic demography: using multilocus data to reconstruct evolutionary history.*

Georgette Sass was awarded a Certificate of Appreciation for her work with the Math & Science Student Support (MS3) at GVSU.

Eric Snyder co-authored six presentations with students entitled *Low-Head Dam Removal Causes Immediate Physical Habitat and Water Chemistry Degradation*, *Ecosystem responses to low-head dam removal: assessment of physical habitat, water chemistry, and macroinvertebrates*, *Low-head dam removal positively affects macroinvertebrate community structure*, *Low-head dam removal causes immediate physical habitat and water chemistry degradation*, *Ecology of juvenile salmon in upland vs. lowland Alaskan streams: An assessment of food webs using stable isotope analysis*, and *Metabolism as an indicator of river ecosystem health: a case study on the Little Susitna River, Alaska*. He also co-presented a presentation entitled *Functional and structural responses to reservoir draw-down and dam removal, Thornapple River, MI.*

Mark Staves gave a presentation entitled *Students determine the external calcium requirement and the effect of calcium channel blockers on the generation of action potentials in Chara internodal cells.* He also co-presented two presentations entitled *Use of Cross Disciplinary Groups to Improve PSM Student Peer Education* and *The calcium concentration and density of the external medium affects gravity sensing in plants.*

Pat Thorpe co-authored three publications entitled *Social environment affects beak color in captive male House Sparrows, Passer domesticus, Local breeding*

experience and the reproductive performance of Tree Swallows, and *Captivity affects sperm production, testes size and beak color in House Sparrows (Passer domesticus).* He co-presented four presentations entitled *Innate immunity in nestling Tree Swallows, Factors that affect egg mass in Tree Swallows, Development of innate immunity in nestling Tree Swallows,* and *Sex differences in innate immunity in Tree Swallows.* He also gave a presentation entitled *Races, Ecotypes, Subspecies or Nothing at All: The Biology of Human Populations.*

Janet Vigna published a textbook entitled *Biology for a Changing World.* In addition, she co-authored a presentation entitled *Bacillus thuringiensis israelensis (Bti) toxin influence on frog larval development* and gave a presentation entitled *The Mad Minute and the 3 Years that Followed*.

Biology Department Mission

The 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.