



Prairie: Phoenix by Nate LaFond

2nd Messenger

Biology Alumni Newsletter

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Thankful Alumni for St. Olaf TRIO Program

By Brandon Moriarity ('07)

Growing up I never planned to be a scientist or even go to college for that matter. It was a seemingly random occurrence of events that landed me where I am today. As a first generation college student I was not even sure if college was right for me. My parents were custodians at St. Olaf College at the time so they encouraged me to apply. The decision to apply to St. Olaf, even though my GPA and ACT scores were substantially lower than their requirements, was the best one I have ever made. However, I was certain I would get rejected; in fact, even the University of Minnesota put me on a waiting list. Unbeknownst to me, St. Olaf had a program called TRIO student support services (SSS), which was developed to help underrepresented, disabled, and first generation college students. Every year they choose 30-40 St. Olaf applicants and 'conditionally' accepted them into St. Olaf, and luckily I was chosen to participate.

I was required to start college in the summer after graduating high school, where I took an introductory biology class. When I applied to college I indicated I would be majoring in German and had no intention of studying biology, as I nearly failed the only biology class I had taken in high school. To my surprise, with the support of SSS and a great professor, Dr. Charles Umbanhowar, I was actually in the top of the class. With this first achievement, I knew I could make it through college and moreover I wanted to major in the natural sciences. I went on to major in Biology and Chemistry with a concentration in biomolecular sciences, graduating Cum Laude and awarded the Peter and Ellen Agre award for highest chemistry GPA among students going on to graduate school in 2007.



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Biology's 2015 Honor's Day Special Guest: Dr. Raman Sukumar

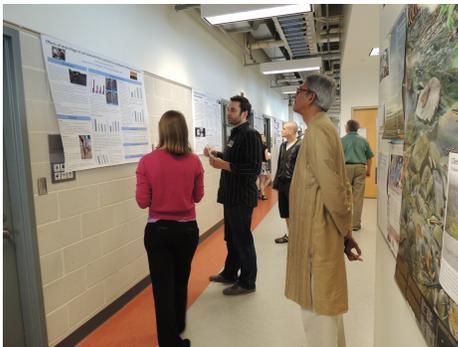
by Anne Walter



This spring Honors' Day was special for the Biology Department as we hosted Dr. Raman Sukumar who received an Honorary Degree. He is a professor at the Indian Institute of Science and a world-renowned elephant and conservation biologist who has guided 63 St. Olaf Biology in South India student research projects. In his remarks "Through an Elephant's Eye" he recollected his childhood passions for airplanes, then elephants and then the chance he was given to study conflicts between humans and elephants reminding us to be mindful and follow our passions.



Dr. Sukumar's visit started with a book signing in the Science Library where librarian Charlie Priore had prepared a fascinating exhibit of his books and papers. His newest, *The Story of Asia's Elephants*, is a beautifully illustrated compilation of the natural history, domestication and human attitudes toward elephants from prehistoric times to the present. He visited classes, spoke with faculty and students including those who had been to and those going to India when we presented the alumni memory book of fabulous pictures and remembrances of their time with him. He gave two talks to overflow crowds – "The World of the Elephant; Behavior, Ecology and Conservation", and "Climate Change and the Resilience of Tropical Dry Forests." His visit ended with the Honors' Day FNSM poster session where he spoke at the dinner.



Of course, St. Olaf doesn't just give anyone the degree Doctor of Science, honoris causa. Dr. Sukumar is a high-impact scholar mixing science with practical activities to preserve the unique south Indian forests and their most iconic species, the elephant. Early in his career he established the Nilgiri Bioserve and a conservation trust. He is widely published on elephants, forests and invasive species. He has traveled extensively and received multiple awards for his visionary conservation work. At 60 years old, Dr. Sukumar has not slowed down. From here, he was off to the Smithsonian's Conservation Biology Institute in Front Royal where he collaborates on elephant and tiger projects. He is developing new methods to study elephant behavior and physiology and collect forest data for a long-term forest data set documenting the impact of climate change. Dr. Sukumar contributes to the ICNU's deliberations, consults on Indian environmental policy and is developing 20 new long-term forest research plots in India for monitoring environmental change.

We enjoyed three fabulous Sukumar days – and luckily, two more Biology in South India students will join his research team this fall continuing our interactions into the future.



*Pictured at right:
Past and upcoming
Biology in South India
students*

All of my professors at St. Olaf were fantastic, but my advisor Dr. Anne Walter was of particular importance to where I am now. She taught me how to be a great scientist and instilled a never wavering drive to keep doing scientific research. Her guidance and my ambition allowed me to participate in numerous research projects all over the world. I performed directed research at St. Olaf using Mass Spectrometry, studied DNA adduct formation with platinum based chemotherapeutics in the Czech Republic, and performed research on the prevention and treatment Dengue virus and Leprosy in South India. Through these experiences it became apparent I wanted to pursue a career in research at a university or institute.

Thus, I applied and was accepted into the Molecular, Cellular, Developmental, Biology and genetics graduate program at the U of M in 2007. Graduate school was one of the best experiences of my life. I made amazing friends and relationships and joined the lab of an outstanding scientist and mentor named David Largaespada. I also worked long hours taking classes and performing my research. However, all of this work paid off as many of my projects were published in premier scientific journals, such as Nature and Nature Genetics. I graduated and obtained my PhD in 2012 and continued my work as post-doc in David's lab for 2 years when I was quickly promoted to assistant professor with my own lab in the Department of Pediatrics. During this same time I applied for the NIH's loan repayment program for pediatric cancer research, which was fully funded to pay off my student loans from St. Olaf College. I was also recently awarded the TRIO Achiever award and the American Association for Cancer Research Career Development Award for pediatric cancer research this year, which is supporting my research substantially. I currently maintain my position at the U of M and plan to continue my research on pediatric cancer for the remainder of my career. I cannot stress enough, that all of my success and achievements would not have been possible without all of my friends and mentors at St. Olaf College and the TRIO SSS program!

Alumni News

1. **Amanda (Kieke) Griffin ('03)** - After graduating from St. Olaf, I took a couple of years off and became an Engineer Lieutenant in the U.S. Army National Guard before starting grad school. I received my PhD in Microbiology, Immunology, and Cancer Biology from the University of Minnesota in 2010. During my thesis work, I developed an antibiotic treatment model of Salmonella typhimurium infection in mice. I then moved on to conduct post-doctoral research at Rocky Mountain Laboratories, NIAID, NIH. I work at Biohazard Safety Level-3 (BSL-3) on a pathogen called Francisella tularensis. This bacterium is highly virulent, highly lethal, and is categorized as a Tier 1 Select Agent. My project aims to determine immune correlates of protection of vaccine-induced immunity against Francisella. Check out PubMed if you're interested in reading more about my work on Salmonella or Francisella!

2. **Robert "Robbie" Lehman ('14)** - We are sad to report the death of a 2014 Biology alumni. (The following is quoted from the News Article St. Olaf posted)

St. Olaf College is mourning the death of Robert "Robbie" Lehman '14, who was killed in a traffic accident in Tanzania, where he was working as a Peace Corps volunteer.

"Robbie dedicated his life to serving others," Peace Corps Director Carrie Hessler-Radelet noted in an announcement on the organization's website. "He cared deeply for those around him, whether they lived across the street or around the world. He knew no boundaries and was willing to take on anything."

Lehman majored in biology at St. Olaf, where he also studied abroad and earned a merit scholarship.

A memorial service will be held at 2 p.m. on Sunday, May 31, at Judson Memorial Baptist Church in Minneapolis. Read a story about Lehman's life, as well as the full obituary, in the Star Tribune.

<http://www.startribune.com/obituaries/detail/82287/>



Emeritus Update: Eugene Bakko

It's hard to believe that it's been six years this spring since I retired from teaching at St. Olaf. However, I have been active on the College's Natural Lands since then so I am on campus regularly and still get to work with students. When I retired, the College created a part time position for me as "Assoc. Curator of Natural Lands"! Kathy Shea took over as Curator and I now mainly work in the field while Kathy is in charge of all the administrative duties as well as working with students on projects and helping in the field when she can. It's a perfect retirement activity for me and I love it – from burning prairie, chain sawing, planting trees and prairie, to spending significant time on the College "John Deere", mowing and disking. We're also putting in a new trail through the tree planting area west of campus. The most difficult part of that is cutting trees we worked hard to plant, protect and grow over the years.

We did six burns within the past year, three of them this spring. Already the prairie lupine has "popped" and looking good after burning. I've attached a photo of some lupine as well as one of me with Don Nelson (pictured in the second and third photos), the 89-year old alum who has been a generous benefactor of our natural lands. He really enjoyed having a ringside seat for a burn.

When I retired, the College allowed me to keep my office, so just this spring I am trying to pare things down as the science faculty is growing and my office will be needed soon. This process has brought back a flood of memories from things like winter ecology, Biology in South India, Env. Science in Australia, teaching alternative agriculture courses, vertebrate biology field trips and animal physiology projects. I have spent many hours this past spring reading through hundreds of old communications I received from students – from stacks of post cards to piles of letters. It's been a very nostalgic trip down memory lane. St. Olaf has truly been a rewarding profession and my interaction with students has been a main highlight.

Personally, life is good. Lois and I celebrated our 50th wedding anniversary two years ago by going to Norway. We had never been there although we are both full Norske. We found the home sites of several great grandparents and visited Rollag Church, the 900-year old home church of the one in which we were married in Rollag, MN. In addition, we are able to spend quality time with family, our daughter Emily and son Brett and their families live nearby. This includes 3 grandchildren ages 11, 8 and 7. They all love the outdoors and spending time in nature. We like to walk, often in the woods behind our house. Biking, gardening, reading and friends also fill our days. And I still manage to bring home some venison with archery.



Faculty News

1. **Laura Listenberger** received tenure and was promoted to Associate Professor. Congratulations Laura!
2. **Charles Umbanhowar** has been appointed as the new Paul and Mildred Hardy Distinguished Professor of Science Chair.
3. **Dave Van Wylene** is leaving St. Olaf. Here are his words: Thanks for the Wonderful Experiences...
"As I leave St. Olaf to become the Dean of Natural and Applied Sciences at Hope College (Holland, MI), I want to thank the many students, faculty, and staff who made my 20 years in the Biology Department so rich and rewarding. How can I find the words to say how appreciative I am for the many wonderful experiences I had on- and off-campus with you? Please accept my deepest gratitude for the moments when our lives crossed and we found ways to enjoy and enrich each other. I will treasure these always! Blessings to you from wherever you are reading these words."
4. **Eric Cole's** research was featured on the cover of the scientific journal *Eukaryotic Cell*.
5. **Anne Walter** was named a Fulbright Alumni Ambassador.
6. **Laura Listenberger** also received the Midstates Consortium's 2015 Janet Andersen Lecturer in Biological Sciences and Psychology.

Recent Publications from Alumni and Faculty of the Biology Department

1. **Moriarity, Branden('07)**, et al. 2015. A Sleeping Beauty forward genetic screen identifies new genes and pathways driving osteosarcoma development and metastasis. *Nature Genetics* 47: 615-624.
2. Amy D. Rosemond^{1,*}, Jonathan P. Benstead², Phillip M. Bumpers¹, Vladislav Gulis³, John S. Kominoski^{1,†}, **David W. P. Manning^{1('09)}**, Keller Suberkropp², J. Bruce Wallace¹. 2015. Experimental nutrient additions accelerate terrestrial carbon loss from stream ecosystems. *Science* 347: 1142-1145.
3. **Halvor M. Halvorson('11)**, et al. 2015. A stream insect detritivore violates common assumptions of threshold elemental ratio bioenergetics models. *Society of Freshwater Science/The University of Chicago Press* (<http://www.jstor.org/stable/10.1086/680724>).
4. **Halvor M. Halvorson('11)**, et al. 2015. Dietary influences on production, stoichiometry and decomposition of particulate wastes from shredders. *Freshwater Biology* 60: 466-478
5. J.O. Eckberg, G.A. Johnson, **Rachel Pain('13)**, D.L. Wyse, G.E. Heimpel. 2015. Spillover of tent caterpillar (*Malacosoma americanum*) herbivory onto willow bioenergy crops in an agricultural landscape. *Annals of Applied Biology* doi: 10.1111/aab.12216.
6. **Steve Kannenberg ('12), Seth Spawn ('13), Sam Dunn ('11), and Sarah Ludwig ('12) and John Schade**. 2015. Effects of drying and rewetting on potential methanogenesis in seasonally-saturated wetland soils. *Wetlands*, 10.1007/s13157-015-0653-3.
7. **Seth Spawn ('13)*, Sam Dunn ('11)**, G.J. Fiske, S.M. Natali, **John Schade**, and N.S. Zimov. Methane ebullition from a headwater catchment in Northeastern Siberia. *Inland Waters*, In Press.
8. Natali, S.M., E.A.G., Schuur, M. Mauritz, **J. Schade**, G. Celis, K.G. Crummer, K. Johnston, J. Krapek, E. Pegoraro, V. Salmon, E. Webb. 2015. Permafrost thaw and soil moisture drive CO₂ and CH₄ release from upland tundra. *Journal of Geophysical Research*, in press.
9. **Eric Cole**, et al. 2015. Membrane Dynamics at the Nuclear Exchange Junction during Early Mating (one to Four Hours) in the Ciliate *Tetrahymena thermophile*. *American Society for Microbiology* doi: 10.1128.
10. **Grace Wilkinson ('10)**, JJ Cole, ML Pace. 2015. Deuterium as a food source tracer: sensitivity to environmental water, lipid content, and hydrogen exchange. *Limnology and Oceanography: Methods* 15: 213-223. doi:10.1002/lom3.10019.
11. **Grace Wilkinson('10)**, JJ Cole, ML Pace, RA Johnson, M Kleinans. 2015. Physical and biological contributions to metalimnetic oxygen maxima in lakes. *Limnology and Oceanography* 60: 242-251.
12. **Sletten A.('12), Seline A.('12), Rudd A.('12), Logsdon M.('12), Listenberger L.L.** Surface features of the lipid droplet mediate perilipin 2 localization. *Biochem Biophys Res Comm* 2014, 452:422-7.
13. Riley, J.L., **Freedberg, S.**, and Litzgus, J.D. 2015. Sex-specific incubation temperatures influence post-hatching phenotype of hatchling turtles in the wild. *Evolutionary Ecology Research*, 16: 397-416.
14. **Umbanhowar Jr, C.E.**, P. Camill, M.B. Edlund, C. Geiss, **P. Henneghan ('11)**, and **K. Passow('10)**. 2014. Lake-landscape connections at the forest – tundra transition of northern Manitoba. *Inland Waters*, 5: 57-74.
15. **Umbanhowar Jr., CE**. 2014. Charles A. Geyer Agricultural Botanical Survey of 1838-1839 and comparison of composition of prairies of western Minnesota then and now. *Ecological Restoration* 32: 16-27
16. Et. Al. **Anisha Chada ('15)**. Glioma Groups Based on 1p/19q, IDH, and TERT Promoter Mutations in Tumors. *The New England Journal of Medicine*, DOI: 10.1056/NEJMoa1407279.
17. **Eiden, Haley ('10)**, et al. 2015. Shared Selective Pressures on Fungal and Human Metabolic Pathways Lead to Divergent yet Analogous Genetic Responses. *Mol Biol Evol* 32(6):1449-55. doi: 10.1093/molbev/msv034. Epub 2015 Feb 12.
18. **Eiden, Haley ('10)**, et al. 2015. Gestational tissue transcriptomics in term and preterm human pregnancies: a systematic review and meta-analysis. *Mol Biol Evol Jun* 5;8:27. doi: 10.1186/s12920-015-0099-8.
19. **Vatland, Shane ('02)**, et al. 2015. Movement and early survival of age-0 brown trout. *Freshwater Biology* 60(7): 1252-1262.

Email bioalumnews@stolaf.edu and let us know what you are (or aren't!) doing with your biology degree. We will include it in the next alumni newsletter. Pictures are great too!