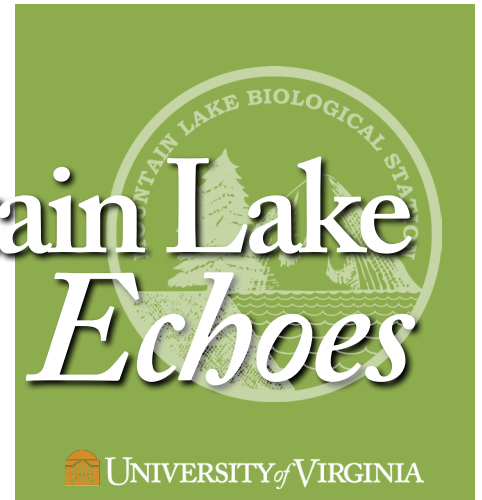




Students observing a meteor shower around a bonfire at MLBS
Photo by Catherine Debban, University of Virginia



Produced by the University of Virginia's Mountain Lake Biological Station mlbs.org



Wilderness First Aid

Field work sometimes takes researchers into remote places where medical care is not easily accessible. For field biologists, knowing how to properly administer first aid in wilderness environments (where the nearest hospital is more than an hour away) can be extremely helpful and potentially even life-saving. Over Labor Day weekend, MLBS was pleased to host certification courses in Wilderness First Aid and American Heart Association Heartsaver® CPR/AED. Training was offered by SOLO Wilderness Medicine in partnership with Blue Ridge Mountain Sports. The MLBS Walton Pavilion became an outdoor classroom where instructor Matt Rosefsky shared his expertise with 25 participants. Realistic, hands-on scenarios unfolded on the grounds near Riopel Pond as course participants played roles of victims (complete with fake injuries and intricate story lines) and caregivers. In the evenings, participants gathered around bonfires, savored sunsets at Wind Rock, and enjoyed the convenience of the Station's accommodations.



Students practicing wilderness first aid skills in hands-on scenarios

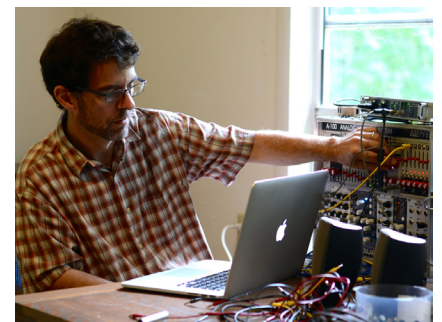
This kind of training is recommended for anyone who spends time in the wilderness, whether it's to collect data or just enjoy the outdoors. More information on SOLO course offerings is available at www.solowfa.com. Many thanks to SOLO and Blue Ridge Mountain Sports for making this excellent opportunity available at MLBS! - MLBS Staff

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Sound Artist Opens Scientists' Eyes

ArtLab's 2014 Walton Fellow was electronic musician and media artist Stephen Vitiello. Stephen came to the Station equipped with microphones, headphones, computers and a quest for novel and bizarre sounds from nature. He found them. He also found a bunch of apparently deaf biologists entranced by "observations" few had thought to make. Stephen's work includes stunning pieces composed of "found sounds" collected from places ranging from the tops of skyscrapers in New York City to the Australian Outback. He left MLBS with a whole new collection of sounds and new collaborations with scientists. - MLBS Staff



For more information on Stephen Vitiello's work, visit www.stephenvitiello.com

From the Director

As I do most mornings this time of year, I just looked at the MLBS webcam and saw a truly wintery scene of snow and gray. We saw our first significant snowfall of the season over Thanksgiving week (over 10") and the winter chill has certainly settled down on the mountain. For those of you who haven't discovered it yet, our weather station is now live online and you can view and download detailed information using the "current conditions" link on the right side of the MLBS.org website.

In Charlottesville, we are delighted to welcome Rhonda Ruff as our new Office Manager. Rhonda joined our team earlier this fall, and brings a wealth of experience with the University electronic systems, as well as invaluable training in design and promotion. She's already made herself at home in the office and as a valuable part of our team. We hope everyone has a chance to say hello in person or electronically. At the same time, we had to say goodbye to Melissa Wender, who had great opportunity to move on to new professional challenges with the Program in Women, Gender and Sexuality. We wish Melissa all the best in her new post and miss her dearly!

For those of you who missed the sad news this summer, former Mountain Lake director Jim Riopel passed away in May at the age of 80. Jim was the director of the Station in alternate ("odd") years from 1960 until 1982. The celebration of Jim's life hosted by his family in Charlottesville was a wonderful event that emphasized the great joy and adventure that he brought to all those around him (for an account see: http://www.dailyprogress.com/obituaries/riopel-james/article_fedc390d-73a7-5b0d-99d9-e88c70dfbd0b.html?mode=jqm). It was so wonderful to hear story after story of his hijinks at Mountain Lake and beyond, from smoking out a dinner party in Gattinger, to the infamous bagging of an "albino deer". I got to meet many long ago Mountain Lakers for the first time, including the extended Riopel family, and reconnect with a few others. Jim's was truly a life well lived and one that touched many, many more.



Butch Brodie

Student Corner

by Morgan Richey, University of Virginia



As I signed up for the plant taxonomy class at MLBS, I envisioned the usual PowerPoint lectures and lab time common to biology classes on Grounds. I was in for a surprise. Our class spent most of our time in the woods (one of my favorite places to be) finding plants, discussing survival strategies and learning the rich and complex language used to describe the wide diversity of the plant form.

Equally as fascinating as our study of plants was the opportunity to observe scientists in their natural habitat. For many students of science, exposure to field work comes from reading papers and textbooks and watching documentaries. Being an active part of the MLBS community, a community in which science is being practiced on a daily basis, was inspiring. Each evening at dinner one could sit down with a new group of people and discover whole new worlds of scientific inquiry happening within a few hundred yards from where we sat. For someone like myself with little field experience, this was an unparalleled look into what doing fieldwork is actually like, and what kind of people are doing it.

For an undergrad, the practice of science can sometimes seem like a lonely, if noble, undertaking. My experience at MLBS challenged that viewpoint; at MLBS, science is a team sport. I realized how much I value working in a group of highly motivated, perceptive individuals who are all striving toward a common goal: discovering new and interesting things about our natural world.

There is much to learn about the natural world at MLBS, and much to learn about being part of a community of scientists. For myself, this experience reinforced my desire to be part of a team of people striving to increase our knowledge of the natural world and the creatures who live in it. I am profoundly grateful for this opportunity and hope to return to MLBS next summer for further study.

ArtLab Takes a New Turn

2014 saw the introduction of a creative writing course at the Station's ArtLab. Hannah Rogers (University of Virginia) taught a short summer course to a mixture of engineering and art students. "Creative Approaches to Biology and Ecology" embodied the kind of science-art hybridization ArtLab is all about. The course focused on reading and writing creatively about important biological topics and problems. One of the students composed the following piece during the course:
- MLBS Staff

Meteors

by Matt Krauser, University of Virginia
Computer Science major, School of Engineering and Applied Science

I came to see

A sky twinkling with floating lights

Tails remembering where they flew before fading away.

Stars free from the usual grips of immobility

I saw

A night clearer than any I had seen before.

A fluid fire no two moments burned the same

A pond so flat a jump in it would send you hurtling to space

I came to hear

The whooshing of cartoon comets

Gasps escaping without my intent

Oohs and *ahs* from all around

I heard

A croaking from the reeds as loud as an army

The rustling and creaking of trees at war with the wind

Fiery *cracks* and *pops* so frequent it was

reminiscent of the Fourth of July

I came for meteors

But I got more

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You can support the programs at Mountain Lake Biological Station by visiting our website.

All donations are tax-deductible.

mlbs.org

Research Spotlight

by Jessamyn Manson, University of Alberta

On a summer day, one of the most distinctive features of Mountain Lake Biological Station is the fragrant and colorful display of flowering milkweeds that surround Riopel Pond. The common milkweed (*Asclepias syriaca*) is, as its name suggests, an abundant and widely distributed plant that is fond of open, disturbed landscapes and creates large patches of flowering plants in abandoned fields, power cuts and highway margins. Milkweeds are nectar rich and provide food for bees, butterflies and hawkmoths; they also play host to many herbivores, including aphids, beetles, caterpillars and deer. To survive and thrive, milkweeds need to balance strategies to lure in pollinators with strategies to protect themselves from herbivores. The Manson lab, based out of the University of Alberta in Canada, is studying the trade-offs between pollinator attraction and plant defense in milkweeds. Specifically, we are interested in whether well-defended plants are less attractive to pollinators and how this might affect their reproductive success.



Investigating pollination success at MLBS

Milkweeds have both physical and chemical defenses and while they always possess baseline, or constitutive, protection against herbivores, plants will also rapidly ramp up their defenses in response to herbivore damage, a process called induction. Induction can reduce subsequent damage to milkweeds by herbivores, but the effects of induction on milkweed pollinators are not known. In the summer of 2014, my REU students Ana Breit (University of Wisconsin, Stephens Point), Philip Shimel (University of Alabama) and I investigated how herbivore damage affected floral nectar and pollinator preferences for milkweeds both at the pond and at several other sites near Mountain Lake. We simulated herbivory in plants by cutting leaves, which created damage comparable to browsing by deer. We then measured nectar composition and recorded the number of pollinator visits to damaged plants and undamaged plants. Although we didn't observe any differences in the quantity of pollinator visits to damaged milkweeds, we did see an increase in nectar volume after simulated damage, which suggests that changes in foliar traits can affect floral traits. We are awaiting chemical analyses to assess if leaf damage led to changes in nectar sugars or other compounds and will follow up our study next summer to see whether pollinators spend less time on damaged plants and how different types of damage might alter pollinator response.



REU students, Philip Shimel and Ana Breit, sampling milkweed nectar in the field

There is a rich history of studying milkweeds at Mountain Lake Biological Station. Previous work has looked at the natural history, pollination and population genetics of several milkweed species. One reason why these plants have received so much attention is that they are the exclusive host of monarch butterfly caterpillars, which readily consume milkweed leaves in spite of the presence of toxins called cardenolides. In fact, monarch caterpillars store cardenolides and use them as a defense against predators, advertising their toxicity as adults with their vibrant orange wings. Recent sharp declines in monarch populations have been attributed to a reduction in milkweeds, which may be due to widespread herbicide use. Given the ecological and cultural importance of the monarch, understanding the pollination biology of its host plants has become even more important. In upcoming field seasons, my lab will continue to explore the relationships between milkweed plants, their pollinators and herbivores. See you at the pond!



Jessamyn Manson received a MLBS Early Career fellowship in 2013 and returned in 2014 for the entire summer to continue her research and serve as a mentor in the REU-Sites program.

MLBS Hosts Retreat

by Brittany Sutherland, University of Virginia

In September MLBS hosted the UVA Biology Department for a weekend retreat filled with science and socializing. About 70 faculty members, post-docs, graduate students, and their families gathered, many who were new to the station. A series of 15-minute talks and 5-minute "lightning" talks from faculty and students kicked off the retreat, showcasing the latest departmental research in ecology, evolution, neuroscience, and cell biology.

Following presentations, several events let retreat-goers interact and learn more about the Station. After guided hikes led by MLBS regulars, participants held a condensed version of the traditional MLBS 4th of July boat race on Riopel Pond. Participants were given 30 minutes to build their boats. Erratic winds (and erratic watercraft) made for an exciting race.

After the outdoor activities, the department showed off its fun side with several games, including "Presentation Karaoke," in which brave participants gave impromptu talks on slides they had never seen, pulled from many different labs. Rounding out the retreat was the graduate student poster session. Participating students were given poster board, crayons, and just 20 minutes to create posters summarizing their research. An informal poster session was held in Lewis Auditorium and helped spur some great discussion between students and other retreat guests.

The retreat at MLBS was a great chance for the department to meet new graduate students, visit with colleagues they don't see often, and see everything the Station has to offer.



Cox Lab: winning boat race team



Grad students, Mikus Abolin-Abols and Abby Kimmitt explaining their junco research to SEEDS students

SEEDS Field Trip

MLBS hosted its second Strategies for Ecology Education, Diversity and Sustainability (SEEDS) field trip May 22-25. ESA SEEDS seeks to engage underrepresented students in field ecology. Thirteen SEEDS chapter students from the east coast converged at MLBS for two full days of science (led by MLBS faculty and graduate students), leadership and career training, confidence building, and outdoor exploration. - MLBS Staff



SEEDS Career Panel



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News & Notes

Former Director Remembered

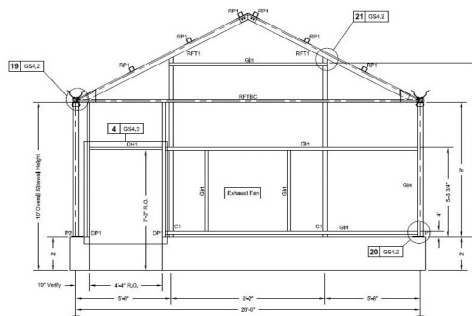
Dr. James Riopel, long-time Biology Department faculty member and MLBS Past Director, passed away on May 30, 2014, after an extended battle with Alzheimer's disease. During the years he spent at MLBS, Dr. Riopel influenced countless lives and contributed greatly to the station. He is missed by many.



Dr. James "Jim" Louis Riopel
May 24, 1934 - May 30, 2014

New Construction at MLBS

A new, much improved greenhouse will be constructed at MLBS this spring. At 800 s.f., this polycarbonate greenhouse will be approximately five times the size of the old one. It will be constructed with steel trusses, a concrete and gravel floor, automatic cooling, plumbing, and electricity. Light and heat will be added later as well.



New Greenhouse Elevation

MLBS Artist's Works Displayed

Several of Lucile Walton's watercolor paintings and ink drawings, which are displayed in the hallways of Lewis Hall at MLBS, were loaned to the "Flora of Virginia" exhibition at the Library of Virginia. The exhibition, held from March - September 2014, was presented in partnership with the Flora of Virginia Project.



Cardinal Flower by Lucile Walton

Walton Lecture

The 33rd annual Walton Lecture event, which highlights prominent researchers in ecology, field biology, animal behavior, and evolution, featured Drs. Joan Strassmann and David Queller of Washington University in St. Louis. Strassman and Queller joined the MLBS community this summer to discuss their research, present lectures, and spend time with students.



Drs. Joan Strassmann and David Queller