

Master of Environmental Studies Program



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“The more clearly we can focus our attention on the wonders and realities of the universe about us, the less taste we shall have for destruction.”

- Rachel Carson

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MESsages

Letter from the Director

There are some truly enjoyable moments of being the director of the MES program. The spring brings some of the best including the Rachel Carson Forum, the annual hooding ceremony and graduation, admitting new students to the program, watching the first year class get through Quantitative Methods and on to their thesis ideas, and lining up faculty and curriculum for the future. Additionally, this spring we are completing a year-long self-study and review of the program. The spring brings closure to many of the year’s administrative and academic projects. Students turn to new projects and status either as

graduates or off to do individual research projects, and we welcome new students and faculty into the MES circle.

Our student organization, MESA, has done an amazing job of planning and supporting the Rachel Carson Forum. I am very

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Martha Henderson

Cameras, Crepuscular Behavior, and Cubicles

By Dave Kangiser, MES 2nd Year

I had the opportunity to work as an intern for the Washington State Department of Transportation Headquarters Office in the Environmental Services Office this year. The internship’s purpose was to analyze photos of wildlife taken from motion-triggered cameras positioned under selected bridges in our highway system. I was skeptical at first, being confined to a cubicle all day poring over photos and entering the data into spreadsheets, but to broaden my career options, I needed to make the transition from a data collector to a data analyzer. The prospect of a new horizon excited me and that enthusiasm ultimately landed me the internship.

Transitioning from doing construction and field work to working in an office setting was by far the most challenging aspect of the internship. I felt like a caged animal needing to tear down my cubicle walls, but as

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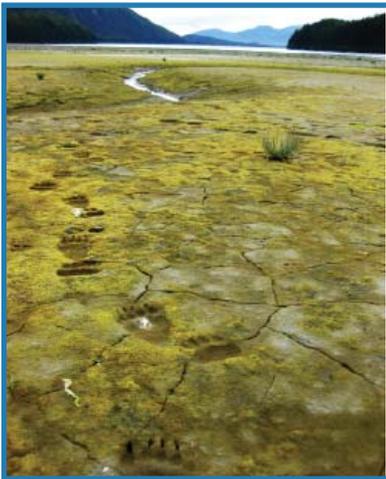
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Estimating Black (*Ursus americanus*) and Brown (*Ursus arctos*) Bear Minimum Population Size in Gustavus, Alaska Using Noninvasive Genetic Sampling: Implications for Determining the Effect of Human Caused Mortality on Population Size

By Kyle Pinjuv, MES 3rd Year

Glacier Bay National Park (GLBA) lies within one of the largest protected wilderness area in the world. Wildlife within GLBA is managed by the National Park Service (NPS) in accordance to the Organic Act of 1916. Wildlife on the adjacent private and state land to the south is under the management of Alaska Department of Fish and Game (ADF&G). Black (*Ursus americanus*) and brown (*U. arctos*) bears are important for wildlife viewing opportunities within GLBA as well as provide sport hunting opportunities in areas surrounding the park such as Gustavus. Very little is known about bear population demographics in and around GLBA. Bears continually cross jurisdictional borders making interagency collaboration essential for co-management. There has never been a population study done on black or brown bears within GLBA and its surrounding areas.



I will be using noninvasive genetic tagging by collecting hair from opportunistically found rub trees as well as baited hair traps. My study area is comprised of 200 square kilometers that is divided by a jurisdictional boarder between NPS and ADF&G lands. Over

the course of two years I will collect samples and have them analyzed by Wildlife Genetics International. The genetic markers found from the collected samples will then be analyzed using mark-recapture models. Using these models I will be able to determine a minimum number of black and brown bears within the study area. I will also look at the numbers of



human-caused mortality of bears from the past decade to determine trends in bear mortality to assist in future bear management decisions. By understanding bear distribution, sources of mortality, and factors contributing to bear/human conflicts, education and outreach can be used to minimize negative interactions between bears and people. This project is the beginning of a cooperative agreement between the NPS and ADF&G to ensure that bear harvest levels are sustainable and to join efforts to minimize any unnecessary loss of two of the area's most valuable species.



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Letter from the Director (continued from page 1)

proud of their efforts to make *Silent Spring* and its message available to a new generation of Evergreen students and the Olympia community. The Forum coincides with the Willi Unsoeld Seminar, this year a play about the life of Rachel Carson. A display of previous Forum posters and a large poster describing Rachel Carson now hangs in the graduate student lounge on the third floor of Lab 1.

One of the best moments of the year is the annual hooding ceremony in the morning prior to the larger Evergreen graduation ceremony. This ceremony allows us to confer the academic ‘hood’ representing the master’s degree over the regular graduation robe. Usually, graduates are hooded by their thesis advisor. We expect to have twenty students be hooded and ‘walk’ in graduation. We are honored this year to represent all graduate students with an MES graduate, Jason Cornell, giving a speech at the graduation ceremony in the afternoon. Both ceremonies will be held on June 15th on campus. An open invitation is extended to all family and friends of our graduates. See page 7 for more information.

This year, the Research Design and Quantitative Methods core program is being taught by Carri LeRoy and Judy Cushing. Carri is taking on the leadership of this class and will be at the helm next year. Judy will rotate out of MES but continue to support MES students in research projects. It’s been great having Judy with us for the last two years and we wish her well. Students leaving the methods class will progress to their last core program and begin work on their thesis projects.

Summers are a very important time for MES students. Many students are engaged in internship programs that support their thesis work. Other students will be fulfilling their elective requirements with graduate classes offered at Evergreen or on other campuses around Puget Sound. Summers used to be a lonely place for myself and our Assistant Director, Gail, but not so anymore! More students engaged in summer MES work keeps the office a busy place. We are happy to say that our student assistant, Heather,

will be in the office for the summer as well.

Gail has been very busy with admissions and financial aid awards. The new class entering the program will begin with orientation on September 15th. We expect a diverse student body with interests from environmental justice to ecology. New faculty joining MES include Kevin Francis, Ted Whitesell, and Erin Ellis. Erin is an ecologist who specializes in biogeochemical relationships and the role of carbon in riverine ecosystems. She will teach Case Studies, ESS and a Spring Quarter elective. The program will continue to offer electives in climate and energy, community sustainability, and ecology. In addition, summer classes on qualitative methods and political ecology are being offered.

The self study review has been a great opportunity to listen to students, alumni, adjunct and, regular faculty, past directors, community members, and staff as they have reflected on the program. Several documents were prepared including an historical and contemporary review of the curriculum, interpretation of survey data, a recruitment and retention plan, a financial aid policy, and an analysis of the operating budget of the program. We are pleased to host an outside reviewer who will help us evaluate our curriculum and administrative organization. The reviewer will also work with the college to identify options for the program.

My goal for the next three years is to increase the academic status of the program. I am hopeful that students, faculty and administration will find a common vision that will allow us to more carefully focus our energies on student achievement. The need for clear thinking about environmental issues from an interdisciplinary perspective has never been greater. Recent hiring of MES students into positions all around Puget Sound affirms the strengths of our program. Raising the academic standards will only enhance the status of our students, bring out the best creative ideas possible, and serve Washington and the Pacific Northwest environments.

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22nd Annual Rachel Carson Forum: Continuing a Legacy

By: Jason Cornell, MES 2nd Year

This year's production of the Rachel Carson Forum symbolizes extra significance, given it represents the 50th anniversary of the release of *Silent Spring* and the 40th anniversary of The Evergreen State College. To honor this book, which sparked an environmental revolution, MESA formed a distinguished panel to address "The Social, Political, Economic, and Ecological Implications of Pesticide Use Today." The event was held at the Evergreen Longhouse on May 2nd.

During the planning stages, we identified the need to represent a multidisciplinary approach to pesticide use today, and feel our panel speakers do just this. The panel was comprised of:

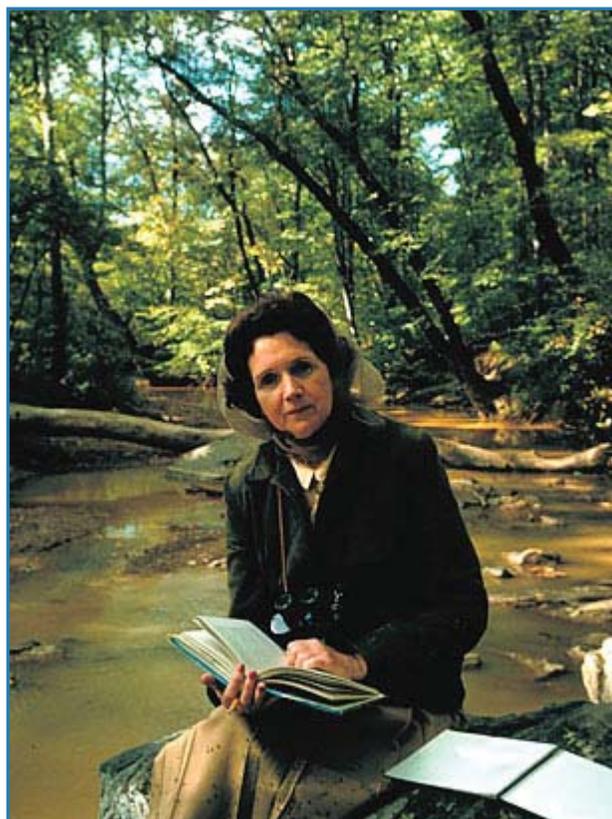
- Dr. Marion Moses, Founder & President, Pesticide Education Center
- Janette Brimmer, Staff Attorney, Earth Justice
- Dr. Steven Herman, Professor of Biology, The Evergreen State College
- Dr. John Perkins, Senior Fellow, National Council for Science and the Environment
- Ciscoe Morris, "Gardening with Ciscoe"
- Panel Facilitator: Rusty Burlew, MES Alumna and Honeybee Suite

Aside from the Rachel Carson Forum, MESA is producing a host of other *Silent Spring* events, including a book club, where students and staff can check out a copy of the book from MESA. We've had a great reception to this idea, with over 30 books being read right now. Two events revolving around the book club took place in mid-May, these included:

- **Sunday, May 13th, 3:00 P.M.:** *Silent Spring* Tea and Talk. Small group book discussions at Traditions Café in Olympia, WA.
- **Friday, May 18, 3:30:** *Rachel Carson's*

Silent Spring documentary viewing and large group discussion. Discussion led by Evergreen faculty, Frederica Bowcutt.

As you can see, MESA has been busy. The process of working with such a diverse, intelligent, and creative group has been rewarding. I specifically want to thank Heather Kowalewski, Ashley McBee, Aaron Zimmerman, and Dave Kangiser, who each contributed significantly and cheerfully to all events. Together we hope to embody the spirit and conviction of Rachel Carson and MES through these events.



For more information please see our Facebook page; <http://www.facebook.com/groups/346492862053454/>, or contact Heather Kowalewski, heatherkow@gmail.com, (360)-867-5940.

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Alumni Corner

Friends of Allegheny Wilderness

Kirk Johnson (MES 1999) is executive director for the Warren, Pennsylvania-based non-profit organization Friends of Allegheny Wilderness (www.pawild.org).

My first job upon graduating from the MES program in June of 1999 was with the National Park Service in Washington, D.C. with Rock Creek National Park's non-native invasive vegetation control program.

My thesis, however, had dealt with Pennsylvania's Allegheny National Forest (ANF), with a focus on designating additional portions (such as the 4,100-acre Tionesta old-growth area – the largest old-growth tract in the East between the Adirondacks and the Great Smoky Mountains) as wilderness under the Wilderness Act of 1964. I was proud to work for the National Park Service and could have remained to pursue a career within that agency, but my heart was with wilderness advocacy and my home ANF.



Mouth of Johnnycake Run in the proposed Tracy Ridge Wilderness Area. Looking west across the Allegheny Reservoir toward the south end of the proposed Cornplanter Wilderness Area.
Photo by Kirk Johnson.

The Wilderness Act is the landmark legislation that established the National Wilderness Preservation System, which today protects in perpetuity natural areas in Washington like the Alpine Lakes, Mt. Adams, and recently designated Wild Sky Wilderness Areas. With any luck it will also soon contain thousands

of acres of new Olympic Peninsula wilderness protections proposed by the Wild Olympics Campaign.

In 2001 the U.S. Forest Service was preparing to revise its long-term management plan for the ANF. I; with the help of The Wilderness Society, Campaign for America's Wilderness, Sierra Club, and The Wildlands Project; founded a non-profit organization, Friends of Allegheny Wilderness (FAW), whose singular mission is to have designated as wilderness the remaining qualifying areas of the ANF. We began operating under The Wildlands Project's 501(c)(3) fiscal sponsorship until we could become independent. The IRS issued our provisional 501(c)(3) status a few years later, and then our permanent 501(c)(3) status in 2008.



Tionesta Research Natural Area old-growth forest.
Photo by Kirk Johnson.

Now 11 years old, FAW (www.pawild.org) is going strong, with more than 4,000 members. We haven't yet had a wilderness bill passed, but we have navigated challenging circumstances to substantially influence the ANF Forest Plan revision that took place from 2003-2007. Two new wilderness areas were recommended to Congress by the agency, and several other areas are now in a relatively protective administrative status termed "Remote Recreation Areas." Depending on your viewpoint, the ANF is blessed – or cursed – with the most lucrative timbering program of any national forest because of the presence of high-quality hardwoods, and also has the most productive oil and natural gas *continued on page 8*

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Cameras, Crepuscular Behavior, and Cubicles

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fall faded and the days became shorter, colder, and wetter, I began to appreciate my small world. After all, it's better than digging ditches in the rain. I did manage to escape the confines of the office a few days a month to service some of the cameras.

As the backlog of pictures began to dwindle, questions emerged that I could answer with the newly organized data. I cataloged the time stamp recorded on every picture as well as date and temperature. The question I focused on was "Do megafauna species exhibit

crepuscular (preferring twilight hours) behavior near WSDOT highway system's bridges and culverts?"

It is a long-held theory that animals, particularly ungulates, are most active during twilight times. I set out to quantify just how close peak activity periods are to sunrise and sunset.

I used six sites ranging from Spokane to the coast and compared each detection at the sites to sunrise and sunset times for that day. I applied Chi Squared tests to each site, comparing observed data (detection time) to expected data (sunrise and sunset times). Most of my sites suffered from a lack of data and another statistical test was needed. I am currently

working with the G-adjusted test, which is similar to a Chi Squared test but accounts for the limited data, however, one site did have enough data to do the Chi Squared test: Deadman Creek in Spokane.

WSDOT, Washington Fish and Wildlife, and local tribes are teaming up to fix culverts that create fish passage barriers. US 2 at Deadman Creek was one of those that finished construction last summer. Crews installed a large arch culvert so Deadman Creek could flow unobstructed under the highway, but unintended

benefits are emerging from the culvert installation. Over the nine-months of monitoring at this site, over 1500 white tail deer have used the culvert to pass under the highway. It is by far the most successful crossing structure that I monitor. Unfortunately, one of the cameras was stolen this week.



David Kangiser clawed his way from his cubicle to reel in a beautiful steelhead.

So if you see a motion triggered camera in a green telephone box under a highway or culvert, please don't steal it. Instead, wave and say "hi" ... but please, please, please don't pee facing it!

P.S. They are crepuscular!

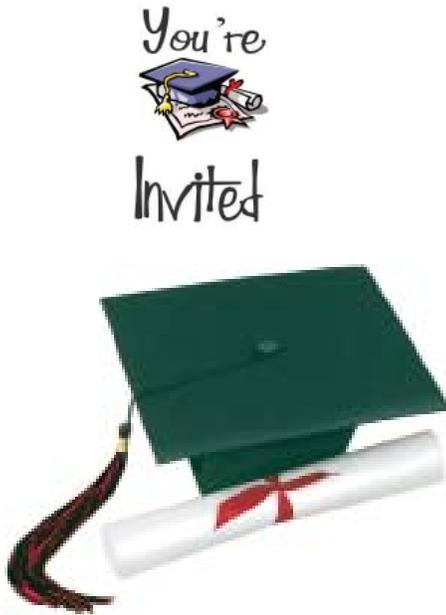
"Science is the painstaking demonstration of the obvious" – Chin-Leo

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MES to celebrate its 27th graduating class

By: Gail Wootan, MES Asst. Director



On graduation day, June 15, 2012, MES will add a few more graduates to the 580-plus MES alumni already influencing environmental decisions in the Northwest, the country, and the world. All MES graduates who finished, or plan to finish, in Fall 2011 through Fall 2012 but haven't walked in prior years are invited to attend the MES hooding ceremony on June 15 at 10:30am in Library 4300. Graduates may invite family and friends to join them for this special ceremony to recognize their hard work over the last few years. Speakers include Ralph Murphy, MES faculty; Heather Kowalewski and Dave Kangiser, 2012 MES graduates; and MES alumna Kristi Lynett, City of Tacoma Sustainability Manager.

The hooding ceremony will be a time for faculty to "hood" their thesis students – the hood symbolizes the earning of a master's degree. A reception with beverages and light snacks will immediately follow. Graduates will then gather for the main Evergreen ceremony at 1pm in Red Square. Students, family, and friends are also invited to this ceremony (no need to register), which includes several speakers, including Jason Cornell, our very own 2012 MES grad, and travel author Rick Steves.

MES students awarded Spring 2012 Activity Grants and Sustainability Fellowships

Four MES students and one MES admit were strongly represented in the most recent application rounds of Evergreen's Student Foundation Activity Grant and the Evergreen Sustainability Fellowship (formerly Cargill Sustainability Fellowship). Most awards will fund thesis work. Awardees are as follows:

Student Foundation Activity Grant (various award amounts)

Jennie Husby, MES 2012 - Determining the Relationship between Rates of Insect Visitation and Seed Viability of Selected Species at the Puget Sound Lowland Prairies and Webster Nursery: Implications for Improving Seed Yields for Restoration

Tim Rogers, MES 2012 - Experimental evaluation of two fungi species in the removal of E.coli from a solution

Nastassja Noell, MES 2014 - Lichens of the Turnbull National Wildlife Refuge

Evergreen Sustainability Fellowship (\$4000 each)

Jennie Husby, MES 2012, Determining the Relationship between Rates of Insect Visitation and Seed Viability of Selected Species at the Puget Sound Lowland Prairies and Webster Nursery: Implications for Improving Seed Yields for Restoration

Kimberly Jones, MES 2013, Promoting Chehalis Basin Water Quality by Engaging Youth in Native Freshwater Mussel Education and Monitoring

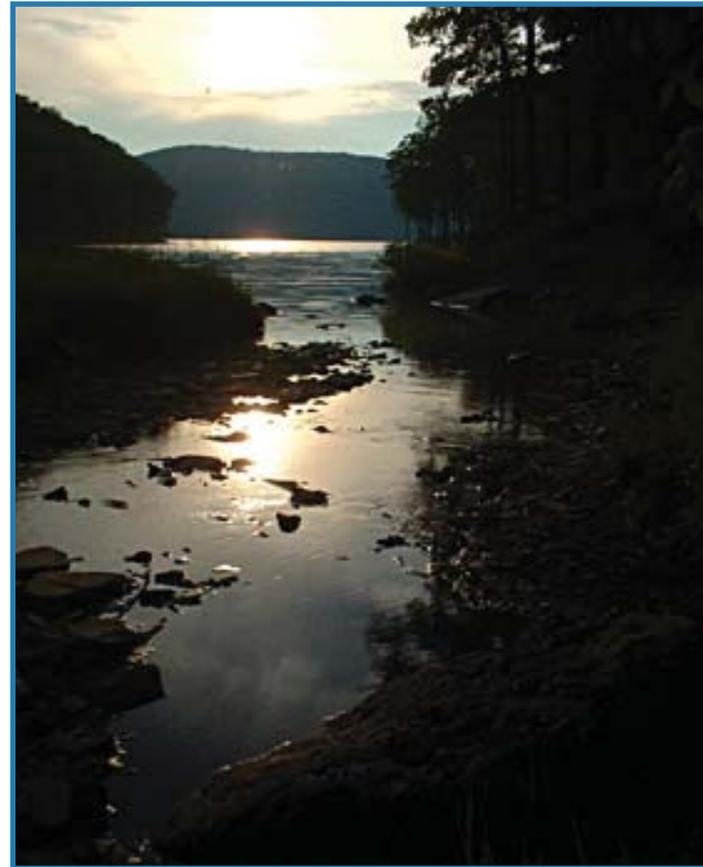
Kyle Pinjuv, MES 2013, Estimating Black (Ursus americanus) and Brown (Ursus arctos) Bear Minimum Population Size in Gustavus, Alaska Using Noninvasive Genetic Sampling: Implications for Determining the Effect of Human Caused Mortality on Population Size.

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Friends of Allegheny Wilderness

fields of any national forest. The politics of the region are conservative.



Mouth of Johnnycake Run in the proposed Tracy Ridge Wilderness Area. Looking west across the Allegheny Reservoir toward the south end of the proposed Cornplanter Wilderness Area.
Photo by Kirk Johnson.

FAW does not seek to eliminate or even to significantly reduce timber harvest in the ANF. However, less than two percent of Pennsylvania’s only national forest is currently designated wilderness, while the national average for all national forests is 18 percent. We seek only to have the ANF better represented in terms of protected wilderness, as a sound investment for future generations and to establish more late successional forest habitat for

wildlife over time.

The interdisciplinary nature of my MES education under the tutelage of faculty like Oscar Soule, Richard Cellarius, Martha Henderson, and many others, was ideal preparation for this crucible of competing interests that is the ANF, in which upon graduation I was soon to immerse myself.

If you are considering wilderness advocacy as a career, be forewarned that it is not a lucrative path, but it can be rewarding. I imagine the satisfaction of one day showing my grandchildren an ANF map and pointing out the Congressionally-designated Tionesta Wilderness, Tracy Ridge Wilderness, and others that I first began thinking about while at Evergreen, and being able to say “I helped do that.” I will also be able to say that it was the MES program that set me on the career path which allowed that to happen.

