

Contents

[Summer Fieldwork](#)

[Alumni Corner](#)

[Staff News](#)

[ERI Environmental Education Activities](#)

[SWERI Monitoring Workshop](#)

[ERI Video Digitization Project](#)

[Ian Hyp's Internship with WiLDCOAST](#)

Summer Fieldwork

Daniel Laughlin, Hill Plots ponderosa pine-bunchgrass ecosystem

This summer ERI Research Specialist, Daniel Laughlin, led a small army of dedicated ERI students, like Justy Leppert and Yolanda Becenti, and collected data about the functional traits for 140 of the most common plants in the ponderosa pine-bunchgrass ecosystem. This data will allow Daniel to draw conclusions about the mechanistic links between community composition and ecosystem function since interspecific variation in physiological traits determines how communities respond to environmental gradients and influence ecosystem processes. Daniel will use the data as part of his doctoral dissertation, which he plans to complete by April 2009.

Judith Springer, Centennial Forest botany

A study of NAU's Centennial Forest is part of the ERI's Long-term Ecological Assessment and Restoration Network (LEARN). One hundred sixty monitoring plots were installed in 2001. The plots have been thinned of excess small-diameter trees but have not yet received a prescribed burning treatment. However, some of the slash produced by thinning operations has been piled and burned. A crew collected herbaceous plant data on all plots in June 2008 to monitor the understory plant community response following the thinning and pile burning treatments. Additional data will be collected in the future following prescribed burning.

Susan Nyoka and The Bee Whisperers: Uncovering the mystery of pollinators in the Pinyon-juniper woodlands



ERI research assistant, made up the crew, with Dave Huffman joining in the fun and contributing his botanical skills on trip 7. The self-proclaimed "bee whisperers" collected data on insect pollinators and flower cover pre- and post- monsoon (trips 1 and 7). Data on other important habitat variables was collected by the botany and overstory crews.

It is hoped that this research will increase our understanding of the effects of fuels treatments on ecosystem function, particularly, insect pollinator assemblages, and inform future management practices.

The ERI ecology group branched out into a new area of research this past field season with a pilot study looking at the effects of fuels reduction treatments (thinning and prescribed burning) on insect pollinators in a pinyon-juniper woodland. Since pollinating insects perform an important ecosystem service, understanding how restoration-related activities affect the abundance, diversity, and ecology of native pollinators is important for the long-term health of forested ecosystems.

Insect pollinators have specific habitat requirements that must be met - requirements that may be altered by restoration practices. In addition to seasonally available floral resources, the characteristics of the physical habitat must meet pollinator needs. Important habitat variables include availability of nesting sites (bare soil, dead wood, leaf litter), level of light intensity, and overall structural complexity.

The project was conducted at a previously established LEARN research site on the Tusayan Ranger District of the Kaibab National Forest. Susan Nyoka, along with Windy Edgar, an NAU graduate student, and Nora Sutherland, an

J.P. Roccaforte, Post-Wildfire Fuels Dynamics



The purpose of the post-wildfire fuels project is to measure severely burned ponderosa pine forests chronosequence (i.e., ranging from older to more recent fires) of severely burned forests dominated by ponderosa pine throughout Arizona.

We began measuring fires in the summer of 2007 and continued sampling during the 2008 field season. In all, we installed more than 200 plots within 12 fires which occurred from one to 30 years ago. We sampled fires on all six national forests in Arizona (Figure 1). Although ponderosa pine was the dominant overstory tree species on all the fires, many other tree species occurred including aspen, firs, locust, and a variety of oaks (Table 1).

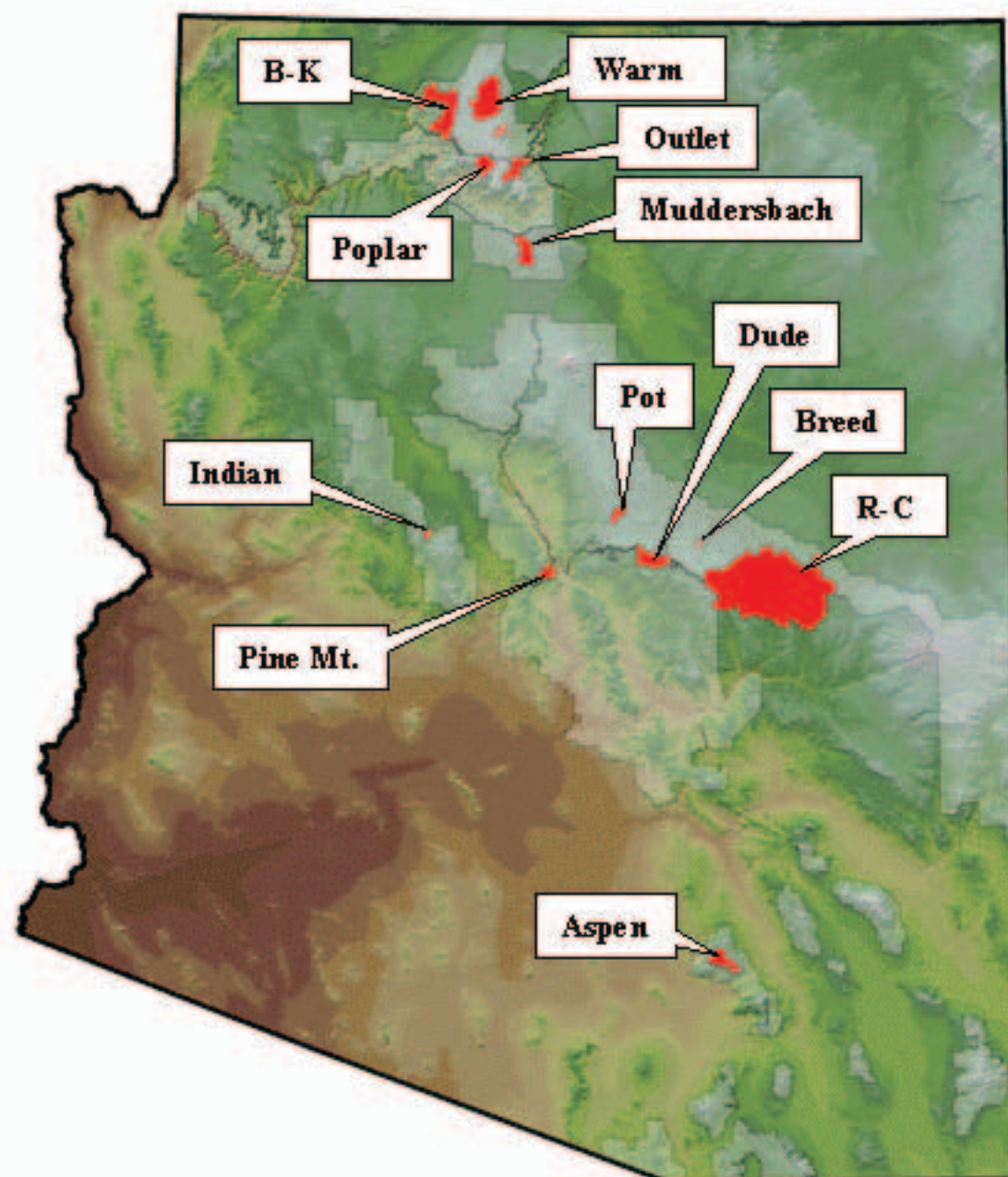


Figure 1. The post-wildfire fuels crew sampled 12 severely burned fires throughout Arizona.

Table 1. Fires sampled in 2007 and 2008 were dominated by ponderosa pine but had several other overstory species including aspen, oak, and juniper.

Fire	Jurisdiction	Year	Size (ac)*	Avg. Elev. (ft)	Forest Type
Breed	Apache-Sitgreaves N.F.	1978	428	7,257	ponderosa pine/Gambel oak/juniper
Bridger-Knoll	Kaibab N.F. (North)	1996	53,374	6,539	ponderosa pine/Gambel oak
Indian	Prescott N.F.	1996	1,322	5,892	ponderosa pine/oak/juniper
Pot	Coconino N.F.	1996	5,817	6,759	ponderosa pine/Gambel oak
Dude	Tonto N.F.	1990	20,913	6,444	ponderosa pine/oak/juniper
Outlet	Grand Canyon N.P.	2000	13,052	8,235	ponderosa pine/aspen/mixed-conifer
Pine Mt.	Prescott N.F.	2001	6,985	5,407	ponderosa pine/oak/juniper/locust
Rodeo-Chedeski	Apache-Sitgreaves N.F.	2002	460,554	6,578	ponderosa pine/Gambel oak/alligator juniper
Aspen	Coronado N.F.	2003	13,815	7,434	ponderosa pine/aspen/ mixed-conifer/oak
Poplar	Grand Canyon N.P.	2003	11,642	8,451	ponderosa pine/aspen/mixed-conifer
Muddersbach	Kaibab N.F. (South)	2005	7,308	6,589	ponderosa pine/Gambel oak/pinyon-juniper
Warm	Kaibab N.F. (North)	2006	58,624	8,058	ponderosa pine/mixed-conifer

*Acreages were acquired from GIS coverages.

We will be analyzing the data this winter and will be writing a report in the spring discussing the results of the study. The post-wildfire crew did a great job and their efforts are much appreciated. Thanks!

[Click here to see a slide show of some of the areas where we worked.](#)

Alumni Corner

by Robin Long



Wedding bells continue to ring for ERI alums! **Faith Rudebusch** (B.S. Environmental Science '06) married Rick Pongratz this past summer. Faith and Rick met at Idaho State University where Faith graduated in August with her B.S. in Botany. They married in a mountain meadow with her aunt officiating and catering done in dutch ovens. Some of you may remember that Faith's senior project as an undergraduate involved looking at vegetation responses to longterm grazing. You won't be surprised then to hear that her affinity with cows continued! Her master's thesis focused on the impact of the introduction of cattle on the food-web of an Aleutian Island. Faith and Rick still live in Pocatello where Faith is mooooving in the direction of getting her teaching certificate.

Congratulations to Nikki Cooley (B.S. Forestry '02 and M.S. Forestry '04) and Craig Ahrens who were married on October 17, 2008 in a traditional Navajo wedding ceremony. Nikki continues to work in the summer as a river guide for Arizona Raft adventures. She is also the project coordinator for the San Juan River Basin program with NAU's Ecological Monitoring and Assessment Program. Nikki coordinates a special program teaching Native Americans about river guiding and the boating industry. She writes, "I am enjoying my life river guiding and being with friends and family. Most of all, my life with Craig is what makes my life complete." Wonderful news indeed.



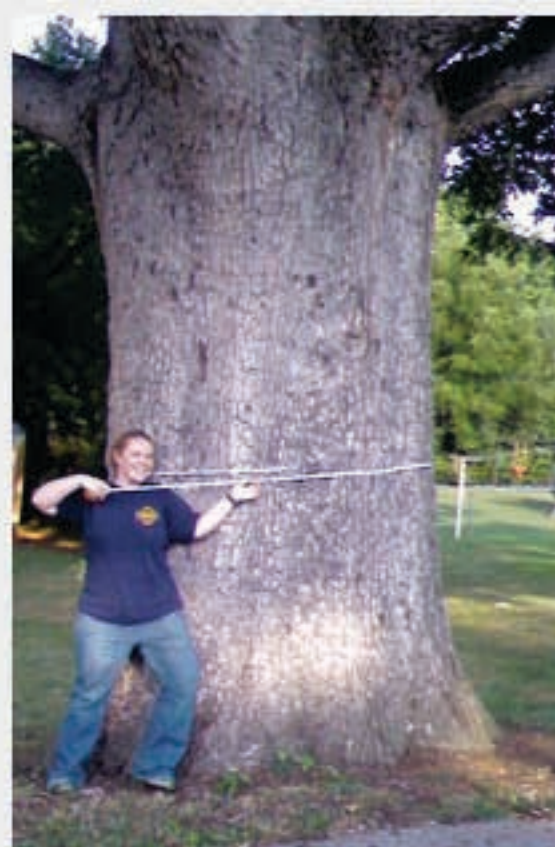
May brought a surprise snowstorm for the wedding of Mike Stoddard and **Juliana Suby** (B.A. Spanish/International Affairs '03 and M.A. Spanish '07). ERI friends were heard singing "It's a nice day for a white wedding" under their breaths as Mike and Juliana were married in a beautiful blizzard ceremony up at Arizona Snowbowl. Longtime faculty mentor and friend, Dr. Thom Alcoze, performed the ceremony. Many ERI alums were in attendance – more on that later. Mike continues doing what he does best at the ERI as a Research Specialist while Señora Suby is a very popular Spanish teacher at NAU.



Got worms? **Danielle Gift** (B.S. Forestry '07) sure does and lots of them too! Danielle is busy working on her master's thesis at Virginia Tech looking at potential remediation effects of earth worms to help urban foresters. In her spare time she's been helping out with a tree inventory in Roanoke, Virginia. Check out this picture of Danielle in front of a white oak that has a 62 inch DBH! Danielle writes, "I have good news in that I officially became part of the scientific literature community." Her senior research project looking at riparian restoration and nitrate removal by denitrification just got published in *Restoration Ecology*.



Also working on his master's research is **Jake Dyer** (Forestry '06). Jake is busy collecting data to quantify the change in growth and carbon sequestration of vegetation in response to canopy gaps. Back in the Midwest at the University of Wisconsin-Madison, Jake finds that "the bugs are incredibly bad with mosquitoes and black flies swarming around your head, and I pull 4 to 10 ticks out of me daily." Now that's dedication!; Jake is also joining the ranks of scientists with his first peer-reviewed publication in the works. He and his wife Sarah volunteer doing community prairie restoration and take time to have some fun dressing up for Halloween.



Finally, we close with a picture of two ERI buddies, **Sam Bourque** (B.S. Geology '03) and **Brent Tyc** (B.S. Physics '04) whooping it up at Mike and Juliana's wedding. Don't hold back, boys! Sam just got hired by Dutch Gold Resources as its lead underground geologist. Haven't heard of Dutch Gold? The company is engaged in mining and processing of proven gold reserves in North America. Meanwhile, Brent and **Claire Fuller** (B.S. Geology '06) continue to enjoy life in Jackson Hole, Wyoming.





Get to know Lucy Murfitt, ERI's new Director of Partnerships and Collaboration

Lucy is originally a resident of the East Coast, and attributes her focus and drive to growing up in New Jersey, where her extended family lives. Lucy studied philosophy and history as an undergraduate at the University of Scranton, and law at Loyola Law School in Chicago. After law school, she worked in rural Pennsylvania, where she traveled an extensive circuit to see clients. It was an intensive job; in addition to travel, she was often in court five days a week. During this time, a judge suggested that she consider becoming a military lawyer because her interests were varied, and the military would allow her to explore different areas. Additionally, the military had an environmental law program that she was particularly interested in. She joined the Judge Advocate General Corp (JAG) and, after spending three weeks learning what it was like to be a soldier at Ft. Lee, Virginia (JAG boot camp), she spent three months in Judge Advocate School to learn military law.

Lucy was first stationed at Fort Bragg, North Carolina, which was like a small city. She dealt with environmental issues such as clean air, safe drinking water, and endangered species. She left Fort Bragg to work at the Pentagon, where she was responsible for supervising administrative environmental compliance litigation.

Lucy eventually left the Army to work for U.S. Senator Kyl in Washington, D.C. The change of position meant that she began to focus on crafting legislation and policy rather than the practice of law. A benefit of working for Senator Kyl was the ability to travel around Arizona. It is the Senator's philosophy that seeing the environment that will be affected by a piece of legislation helps one to understand the issues that relate to it, so every couple of months Lucy would come out to Arizona to see places and meet people who would be affected by pending policy and/or legislation.

As a child, Lucy once told her mother that she'd like to be a forest ranger. Getting out into nature and working with the environment has been a long-term interest. When the position at the ERI opened up, Lucy saw the opportunity to get outside, and have an impact on the environment, while using her legal skills and the skills she obtained on Capitol Hill. Although she left a close-knit Irish/Italian family in New Jersey, including a one-year old niece, she is enjoying the Flagstaff/Sedona area, as is her 4.5-year-old dog, Dante, who accompanied her on the move. The area suits her athletic nature: Lucy played soccer throughout school and was in crew in college. She likes to bike and ran a marathon in 2003.

Lucy also likes to travel, and has enjoyed visiting Latin America, particularly Guatemala.



Meet Systems Administrator Extraordinaire: Shanyn Money

One of three sisters, Shanyn grew up in southern California and the central California coast. When she was in her early teens, her family moved to Solvang, California--a quaint little Danish replica village. Solvang was the kind of place where people rode horses around town, and Shanyn was no exception. After high school, she moved around southern California and Nevada (Reno), and finally ended up in Bullhead City, Arizona, where she earned her A.A.S. Degree in Information Systems Management.

She came to Flagstaff in 2001 with her son and daughter. When growing up, Shanyn took annual road trips from southern California to Indiana via Route 66 to visit her grandparents. The first stop out was always in Flagstaff, and good memories of the town led her back. She feels very much at home in Flagstaff, and has contributed greatly to her hometown. Shanyn is on the Board of Directors for the Flagstaff Kitchen, which makes sack lunches for various organizations in town that help the under-employed. She has served as chairperson for her department for Bike to Work Week, and has Adopted a Highway, which she recommends to others. She has also volunteered for local animal-related organizations and is an avid dog person.

Shanyn has a 14-year-old Chihuahua named Pecos that came from a rescue, and a new family member, named Madigan, who came from Boxter Rescue in Phoenix.

Shanyn's son and daughter both started college this fall; her son is attending the University of Arizona while her daughter is at NAU. Now that her kids are grown, Shanyn hopes to do some overseas travel. She is an avid hiker and biker, and would like to do a bike tour of Holland with her daughter some summer in the near future. Her favorite hiking places are the Escalante area of Utah and the Grand Canyon.

ERI Environmental Education Activities

The ERI has educational materials for classroom use and other educational outlets. These kits are available for checkout in the Ecology Lab (rm. 246). Descriptions of the kits are available at </files/EnvEdActivities.pdf>

New additions include, 2 Ponderosa Pete activity kits, extra Ponderosa Pete supplies, and additional tree cores and cookies. If you are interested in environmental education, please feel free to check out these materials.

Monitoring Workshop

October 15-17 the Southwestern Ecological Restoration Institutes (SWERI) held a biophysical monitoring workshop in Flagstaff, AZ for land managers and scientists entitled: "Moving Toward Tomorrow: Developing a Framework for Monitoring the Forested Ecosystems of the Southwest."

The workshop was stimulated by a lack of effectiveness monitoring being conducted on federal lands due to common misperceptions that monitoring has to be expensive and exhaustive to be credible.

Through a series of presentations and collaborative discussions participants analyzed and agreed on a set of robust and cost effective monitoring variables, at both the project and landscape level, that can be used by land managers and scientists in tracking the effectiveness of restoration and for informing adaptive management. Participants also discussed large scale obstacles and possible solutions to monitoring such as collaboration, funding, sampling design, and data storage.

Currently, a collaborative team of workshop participants is in the process of writing a paper that will document the final recommendations and discussions of the workshop.

ERI Video Digitization Project

The ERI has spent the last several months converting most of our VHS video collection onto DVD. Many videos also feature clips on our website that can be viewed through Windows Media Player. To see the list of digitized videos click [here](#). Video clips are currently being captioned and will be done by the end of December. To borrow DVDs, see Krista Coquia in 104a.

Ian Hyp's Internship with WILDCOAST



I spent the majority of this summer (June through early August) working for WILDCOAST--a non-profit organization in Imperial Beach, California. WILDCOAST is a binational organization established by Serge Dedina in 2001 to protect coastal land areas in the Baja Peninsula. As industry and tourism explode on the Pacific Coast of the Baja Peninsula, coastal habitats, including sea turtle nesting sites and grey whale breeding waters, are threatened with commercial development and pollution. By working with private landowners and the Mexican governments, WILDCOAST strives to either establish land easements or purchase coastal lands for the use in conservation and ecotourism. During my time with WILDCOAST, I participated in a wide array of grassroots support, including community meetings and watershed cleanup. I provided support for WILDCOAST's booth at a surfing competition, a sand castle competition, and at the National Council of La RAZA Annual Conference where both Senator McCain and then-Senator Obama made an appearance. Much of my time, however, was spent trying to find new sources of funding that would allow expansion of WILDCOAST's land acquisition efforts. My focus was on carbon credits. This is a new idea for WILDCOAST, and I led the research to discover if it would be possible to gain carbon credits through their conservation efforts. I gained valuable experience in research and project development, grant proposal construction, and the inner workings of a non-profit organization.

After three months of research I was disappointed that I would not be able to bring in money for WILDCOAST. The land that had been conserved was not rich enough in species and, therefore, did not sequester enough carbon to

be accepted on the Chicago Climate Exchange registry (one of the United States' few international carbon markets). I did open up the possibility for WILDCOAST to expand into higher elevations where there is more species richness and ample carbon sequestration. Before I left, I developed a binder of specific procedures and methodology for gaining project registry through the Chicago Climate Exchange in areas where sufficient carbon sequestration may be present. Hopefully my research eventually will allow WILDCOAST to gain project registry and, ultimately, money for the use in other conservation initiatives.