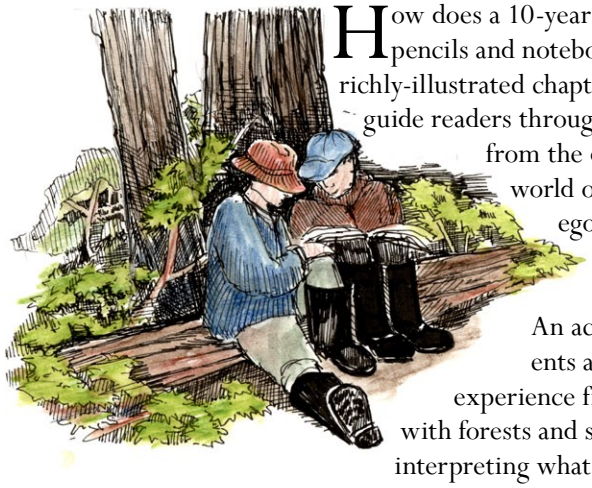
Andrews Forest NEWSLETTER

Issue 14 Spring 2013

"Ellie's Log: Exploring the Forest Where the Great Tree Fell"



Ellie's Log illustration by M.L. Herring.

How does a 10-year-old girl experience the Andrews Forest? With eyes wide open and colored pencils and notebook in hand. *Ellie's Log: Exploring the Forest Where the Great Tree Fell*, is a new, richly-illustrated chapter book aimed at 8–12 year-olds. Author Judy Li and artist Peg Herring guide readers through Ellie's exploration of the forest with her friend Ricky, who is visiting from the dry, eastside of Oregon. Ellie and Ricky marvel at birds and bugs, the wet world of mosses, fallen trees, rot, and much more. The book was published by Oregon State University Press with generous support of the OSU Valley Library, OSU Press, and a private donor. The book is one in a series of children's books that are part of the National Science Foundation's LTER program. An accompanying teachers' guide and website, *http://ellieslog.org,* will assist parents and teachers as they introduce the forest to readers who may never have that experience first-hand. Most important, this book prompts youngsters to actively engage with forests and streams—keenly observing, making notes and sketches, and, like scientists, interpreting what is going on around them. A great deal of interaction with teachers and students went into preparing this book to make the forest most welcoming and intriguing.

Author Judy Li is a stream ecologist who has conducted research at the Andrews Forest and a retired Associate Professor in the Department of Fisheries and Wildlife, OSU. Her collaborator and the book's illustrator, Peg Herring, is a science writer and artist who heads Extension and Experiment Station Communications for OSU's College of Agricultural Sciences. The book can be purchased from the OSU Press (*http://osupress.oregonstate.edu*), your local bookstore, or online.

Researchers Track the Arrival of Spring

Researchers at the Andrews Forest are tracking the arrival of spring across a mountainous landscape by observing bud break in native plants using a range of traditional and new approaches. Comparisons of the timing of bud break from site to site and year to year can tell scientists about how local sites might differ from one another and about trends over time.

Forest green-up in spring at the Andrews Forest. Phenocam photos taken 24 Feb 2013 (left), 16 Apr 2013 (middle), and 5 May 2013 (right). The deciduous tree leafing out in the foreground is a bigleaf maple (Acer macrophyllum)*. Conifers are Douglas fir* (Pseudotsuga menziesii)*. Photos by Mark Schulze.*

Phenocams, weather-proof cameras positioned in the field, help researchers track bud break and leaf expansion over a wide area at a daily interval. Cameras also can help in field testing new sensors and scaling up from ground observations to monitoring using satellite imagery. Kevin Briggs, a graduate student working with Warren Cohen, is using cameras and ground observations to develop methods to track canopy phenology by blending two types of satellite imagery—MODIS (500 m resolution, near daily frequency) and Landsat (30 m resolution, 16-day frequency)—to achieve higher spatial and temporal resolution than possible with a single imagery source. Satellite-based remote sensing makes it possible to monitor phenology across large areas. Heather Lintz's graduate student, Jake Kleinknecht, is using timelapse cameras to validate a prototype bud-break sensor. He uses a pair of fiber-optic cables attached to a branch below a bud to detect increased light levels as the bud expands.

Andrews plant phenology studies are part of a larger program aimed at understanding responses of organisms to climate variability in mountainous landscapes. Phenology measurements are used globally to help us understand more about the effects of climate change on ecosystems.

HJ ANDREWS EXPERIMENTAL FOREST

The Andrews Forest Newsletter
Issue 14 Spring 2013

The **Andrews Forest Newsletter** is a semi-annual publication of the Andrews Forest Program.

Editors:
Lina DiGregorio, OSU
Fred Swanson, USFS

Contact:
Andrews Forest Newsletter
College of Forestry
330 Richardson Hall
Oregon State University
Corvallis, OR 97331-5752

andrewsnewsletter@fsl.orst.edu

Website:
http://andrewsforest.oregonstate.edu

The H.J. Andrews Experimental Forest
Where Ecosystems Are Revealed

The H.J. Andrews Experimental Forest is the hub of a cooperative program of research, education, and research-management partnership involving Oregon State University and the USDA Forest Service's Pacific Northwest Research Station and Willamette National Forest. The mission of this partnership is to support basic and applied research concerning forests, streams, and watersheds, and to foster strong collaboration among ecosystem science, education, natural resource management, and the humanities.

Letter from the Leadership

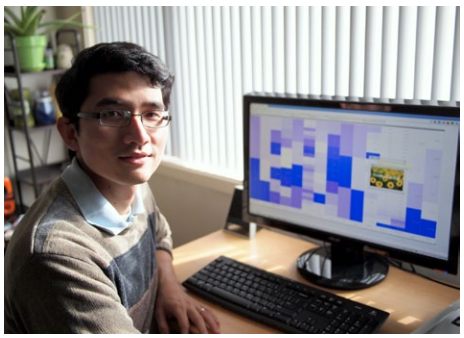

Michael Nelson in the field. Photo by Tom Spies.

Over the past few months the Andrews LTER program has begun a major task, the preparation of our LTER7 renewal proposal. We are currently engaged in discussions about themes and working to craft the possible directions and projects we might undertake over the next six years. We've also been engaging new team members as our more seasoned colleagues move toward retirement and other endeavors. For all of us this navigation of a research enterprise through its fourth decade is a journey into unexplored territory. At the same time we enter a period of unprecedented and unpredictable environmental change; complicating matters further, raising the stakes, challenging our ideas about the focus and the purpose of our work. It might not be unwise to pause and reground at such moments. We all have different motivations for why we do this work. For some it might be an expression of curiosity, the slow revealing of ecosystem processes. For others it might be the belief that the conservation of earthly systems requires intricate knowledge of those systems. For me it's many things, including a sense of reciprocity. I like the way author Jerry Dennis puts it: "A starling or a star waits for years, for a lifetime, for billions of years, until we notice it. When we do, when we give it our full attention, we realize it into being. This is our gift to the things of the universe. In return, and in gratitude, the star, the tree, or the pebble rewards us with its gift: its beauty." It's inspiring to imagine ecosystem science at the Andrews Forest in this way, as a kind of reciprocal relationship between the beauty the Andrews Forest offers and the "noticings" of the researchers. Maybe it's ethereal to think of our work as a meshing between a gift given and a gift received. Maybe it's an expression of integrity. Whatever it is, it helps me understand our Andrews LTER tagline—"Where ecosystems are revealed"—and the task of our looming LTER7 proposal in a new light.

–Michael P. Nelson, Principal Investigator of the Andrews Forest LTER, Ruth H. Spaniol Chair, Department of Forest Ecosystems and Society, Oregon State University

Student Spotlight—Tuan Pham

Tuan Pham, a Ph.D. student in Computer Science advised by Ron Metoyer, has been collaborating with Andrews Forest scientists and information managers to develop visualization tools to facilitate rapid evaluation of patterns within large ecological datasets. Tuan has made initial applications of these tools to several large, long-term, multi-species data sets, including the community structure of moths based on sampling started by Jeff Miller, and cone production of eight conifer tree species along the Cascade Range based on 50 years of sampling started by Jerry Franklin. In addition to data analysis, Tuan has been investigating how scientists use the visualization tools, asking them to record the progress of their analyses. Tuan's tools make quick work of exploring issues such as effects of change in sample size over time due to addition of new samples. Once the research questions are refined using the visualization tools, more refined hypotheses with the best-suited subsets of the data can be subjected to standard statistical analysis. Tuan's work involves both development and testing of the tools as well as participation in the ecological research; it is an interesting expression of the Ecosystem Informatics program.


Tuan Pham with computer visualization display. Photo by Tuan Pham.

Where Are They Now—Mike Kerrick

Mike Kerrick has had perhaps the longest and most diverse engagement with the Andrews Forest of anyone. As an undergraduate at University of Minnesota in 1952, Mike moved west to be a seasonal worker for the Willamette National Forest, including the Andrews Forest. The following summer he returned, and one of his duties was helping construct a stone monument to bear the plaque commemorating designation of the Blue River Experimental Forest as the H.J. Andrews Experimental Forest. After graduation in 1954 Mike became a full time employee, rising to the District Assistant position on the Blue River District, where he worked in fire and helped build trails in the experimental watersheds. He left and returned several times with local stints as District Ranger at Blue River in 1968-1970 and then finished out his career as Forest Supervisor in 1980-1991, touching five decades as a Forest Service employee.

Mike's tenure as Supervisor was during an especially critical period in the history of Andrews Forest and the entire Forest Service. The 1990 management plan for the Willamette National Forest was pioneering in many respects, including plans for stream and riparian management developed with Andrews Forest researchers Stan Gregory and Linda Ashkenas. Around 1990, innovative logging techniques, such as leaving live trees and dead wood in harvest units, were also pushing new ideas and creating field sites for critical public discussions. "We changed practices overnight," Mike recalls. Mike's participation in the strong management-research partnership played a critical role in shaping ideas that flowed into the Northwest Forest Plan that is still the policy of the land.

Mike Kerrick, 2013

Faculty Faces—Steve Wondzell

In 1988 when Steve Wondzell first came to Corvallis and the Andrews Forest from the Jornada LTER program in the desert Southwest, he moved from the shortest-statured ecosystem in the LTER network to the tallest. But that wasn't of much consequence, since a major focus of his research has been below ground—studying stream-groundwater interactions of the hyporheic zone. These saturated areas of the streambed, gravel bars, and floodplains form a critical zone of intersection of aquatic and terrestrial systems. More generally, Steve studies the ways in which physical processes within landscapes influence ecosystems, and in doing so, he often combines hydrology, geomorphology, soil science, and biogeochemistry with ecology. Steve also sustains his desert affinities by continuing a long-term study (started in 1955) of plant community dynamics in the semi-arid grasslands of the Chihuahuan Desert ecoregion which he encountered during his Masters degree research. He completed his PhD at OSU in 1994, continued studies of the hyporheic system in the Andrews Forest as a post-doc, and then took a scientist position at the Olympia Laboratory of the PNW Station. In 2012 Steve returned to Corvallis and is taking up new projects and extending earlier ones that include work in the Andrews Forest. Welcome back, Steve.

Steve installing a temperature sensor in the Little Martin River, Alaska. Photo by Luca Adelfio (USFS).

Willamette National Forest Update—CCAMP

Two workshops hosted by the Central Cascades Adaptive Management Partnership (CCAMP) had one common theme: natural resource management decisions always come back to basic human behavior and values. Though science plays an important role, it is only one piece in the larger drama playing out on the human stage. Our challenge is to tell the story of our landscapes, using science in an understandable fashion, while learning to understand and empathize with the wide variety of public opinion.

Mack Creek at the Andrews Forest. Photo by Lina DiGregorio.

In October 2012, CCAMP hosted a workshop of more than 200 practitioners to talk about thinning forest stands in riparian zones. In April 2013, CCAMP convened a discussion of landscape assessment and planning tools that reached several hundred people. Andrews Forest researcher Stan Gregory summed up the riparian thinning workshop by talking about "uncertainty" and how we should honestly express that factor in our scientific undertakings. Stan also talked about our attitudes and ability to maintain professional relationships while discussing ideas critically and moving forward. John Allen, Forest Supervisor of the Deschutes National Forest, eloquently described how they are using science to tell their "east-side story." Now that they are asking the public what they think, they are overwhelmed with the response! The workshops are available for viewing online at:
http://ecoshare.info/projects/central-cascade-adaptive-management-partnership/workshops/

Long-Term Ecological Reflections

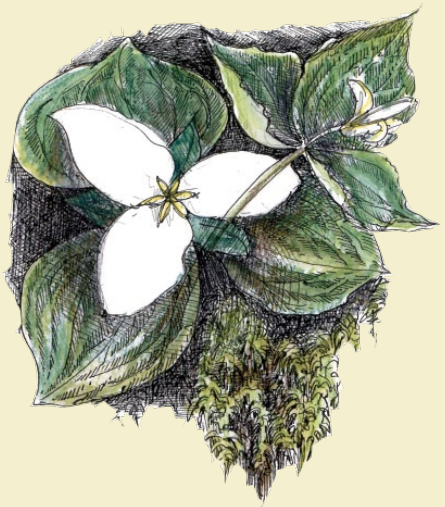
Photo of Andrews Forest part of the 2013 LTER art/writing exhibit at the National Science Foundation building in DC. Photo by Clarisse Hart, Harvard Experimental Forest.

A display of more than 50 pieces of art and text by 39 artists and writers from 11 LTER sites now graces the halls of the National Science Foundation building in Washington DC. The opening took place in conjunction with the LTER Mini-Symposium on International LTER hosted by NSF at the end of February. The title of the exhibit—Sense of Place in Changing Places—evokes thoughts about contrasting and parallel engagements of scientists and artists/writers in places of long-term ecological inquiry. Artists and writers have a great compulsion to communicate sense of place, while scientists probe places with different objectives and tools; the nature of change is especially critical to scientists—land use legacies, environmental change, future scenarios; all share a deep concern for many aspects of change affecting the world today. Works from Cedar Creek and North Temperate Lakes will be exhibited at the Ecological Society of America meeting in Minneapolis in August.

Findings Across a Network on Trends in Stream Nitrogen

A recent synthesis paper published in *Environmental Research Letters* displays several innovative trends in science communications. The paper concerns variation in trends in stream nitrogen concentrations for forested reference catchments across the USA. Lead authors Alba Argerich and Sherri Johnson were involved in a larger effort to assemble and make publicly available long-term data on stream water chemistry from long-term ecological research sites. Researchers analyzed records of stream nitrogen concentration of up to 44 years duration collected from 22 catchments at seven USDA Forest Service Experimental Forests across the country. Trends in stream nitrogen presented high geographic variability both among catchments at a site and among sites. Consistency of trends was greater for longer records, but long records are rare. Given changing atmospheric chemistry and other components of global change, it is important to maintain these long-term monitoring programs. Another component of the project is the development of a database that can be accessed by a data harvester like one that is already used for climate and streamflow records. The paper is accompanied by an online, 4-minute video to offer another form of storytelling.

Lookout Creek at the Andrews Forest. Photo by T. Iraci (USFS)



Trillium *illustration by M.L. Herring.*

Support for the Andrews Forest

The Andrews Forest Program is dedicated to research and education about forests, streams, watersheds, and our engagement with the land.

The Andrews Forest Fund enables individuals and organizations to support the important work at the Andrews Forest.

Our greatest need at this time is support for the GREENHouse, a residence for the Forest Director plus a studio and a one-bedroom apartment for visiting scientists, scholars, writers, and artists. The high-efficiency building design includes monitoring to assess energy use and loss. Thus, the building will be valued for learning as well as for housing.

The building's planning, engineering, and build were supported from the National Science Foundation, generous private donors, and the PNW Research Station. ***We need additional support for solar heating, electric systems, and furniture.***

The Andrews Forest program has many other funding opportunities, such as support of students and research programs. Please be a part of the Andrews Forest program by making a contribution. Call 541-737-8480, or donate online: *http://andrewsforest.oregonstate.edu/donate*