



Centennial Plot Reading

Long-term datasets are a hallmark of any long-term research program. The Andrews Forest program has been fortunate to have had foresighted leaders who initiated studies that resulted in long-term datasets. Examples include streamflow and climate records beginning in the 1950s and cone crop observations dating from the 1960s. The granddaddy records of the Andrews Forest Program are three forest plots which had centennial readings this year. The first forested permanent study plot in the Pacific Northwest was established in 1910 by Thornton T. Munger, the USFS Pacific Northwest Research Station's first director. Originally established to assess growth and yield in a forest production context, these plots were adopted by forest ecologists to address ecological questions such as change in forest composition and structure in the transition from mature to old-growth forest conditions (Acker et al. 1998. <http://andrewsforest.oregonstate.edu/pubs/webdocs/reports/pub2513.pdf>). The centennial plots are now part of the Permanent Sample Plot system of 145 plots (most 1 ha) dispersed across the Pacific Northwest and beyond.

PERMANENT SAMPLE PLOTS

Yonipqua^{SS} Study Plots
 File designation Permanent Sample Plots
 Talled by F. P. Hill
 Measured by T. T. Munger
 Date, April 20, 1910

Diams. b. h.	Crown Class	Length in feet	Tree No	Species	Diams. b. h.	Crown Class	Length in feet
Calipers Tape					Calipers Tape		
3.45 3.50	S		156	D. Fir	17.90 17.80	I	
3.20 3.20	S		157	.	9.10 9.20	I	
5.05 5.05	S		158	.	18.30 18.50	D	110
10.25 11.45	I		159	.	10.55 10.70	I	90
15.35 15.60	I		160	.	7.95 8.10	I	74

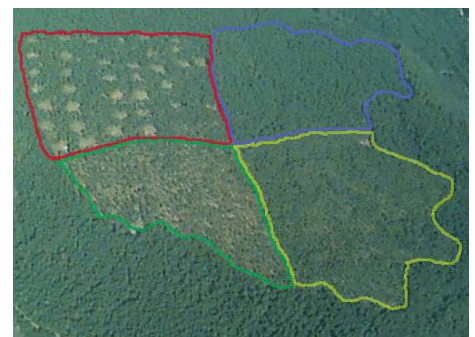
Sample from one of T.T. Munger's data sheets from a 1910 measurement of a permanent sample plot now managed by the Andrews Forest Program. Image courtesy of the US Forest Service.

Silviculture—From Study to Practice

Faced with the challenge of how to manage hundreds of thousands of acres of young forest plantations created after clear-cutting, the science-management partnership of the Willamette National Forest created the Uneven-Aged Management Project (UAMP) and the Young Stand Thinning and Diversity Study (YSTD). Both silviculture projects have passed their tenth year post-treatment mark. Key findings have ranged from surprises (flying squirrels don't like stands to be thinned) to "no-duhs" (Douglas-fir can grow well under partial canopy and in small gaps).

The majority of vegetation management projects currently planned on the

Willamette National Forest is in 35-60 year-old stands. Findings from YSTD and UAMP are flowing directly into decisions about thinning projects with the objectives of restoring and conserving key components of biodiversity while providing timber products. Although the studies felt "novel" at the time they were created, key aspects of the studies are commonly implemented today over thousands of acres. These studies continue to advance our understanding of how thinning influences the development of forest vegetation, particularly the understory, and how different wild-life species respond to those changes in forest habitat.



Landscape view of the Young Stand Thinning and Diversity Study. The colored outlines designate different experimental treatments: the small gaps treatment (upper left), the control treatment (upper right), the heavy thin treatment (lower left), and the light thin treatment (lower right). Photo from the YSTD program.



HJ ANDREWS EXPERIMENTAL FOREST

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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

I am proud of the way the Andrews Forest program is developing new modes of communication with non-science communities. Our program has long been recognized for its effective research-management partnerships, and we've supported excellent K-12 teaching programs for many years. More recently, we've been exploring new horizons on what is often called "outreach" or "broader impacts" by the National Science Foundation (NSF). These efforts are helping to forge stronger ties between the scientific community and the rest of society, helping bring scientific knowledge to decision-making both by policy makers and private citizens, helping scientists connect with the needs and interests of the broader society, and nurturing aesthetic connections with the natural world for all of us.



For example, the collaborations with OSU Extension described in this newsletter offer exciting prospects. The Extension program has many decades of experience communicating technical information with private landowners, 4H programs, rural households, and urban communities. These groups are grappling with issues and decisions concerning environmental quality and global change. Partnerships between LTER sites and Extension are an ideal way to meet these needs.

Likewise, our collaborations with humanities and arts are providing new paths for taking science findings and the spirit of the forest to wider audiences than ever before. Visiting Scholars have published books with text inspired by a week in the Andrews Forest. With funding from NSF, the Spring Creek Project hosted a gathering of artists, writers, scientists, architects, and a historian on the theme of engaging arts and humanities in consideration of future scenarios of land change.

We all stand to benefit from the synergy that comes from bringing together the scientific expertise and the beauty of the Andrews Forest with the communications and artistic skills of our colleagues.

—Barbara Bond, Lead Principal Investigator of the Andrews Forest LTER, Ruth H. Spaniol Chair, Department of Forest Ecosystems and Society, Oregon State University (photo by Cheryl Hatch/OSU).

Student Spotlight—Eric Sproles



Eric Sproles weighs a snow sample to determine the amount of water in the snowpack. Photo by Erika Harris.

After guiding river rafting trips in Costa Rica, Colorado, and Chile, Eric Sproles' passion for mountain rivers and snow led him to pursue a PhD in Water Resources Science at Oregon State University. His dissertation research examines how predicted climate may affect snowpack and stream runoff

in Oregon's McKenzie River watershed. Sproles is also developing an innovative graphical analysis tool for decision makers and other end users in natural resource management and education. The Eugene Water and Electric Board has incorporated Sproles' research into long-term drinking water supply planning and for the selection of a new meteorologic monitoring site for dam operations. In addition to his dissertation research, Sproles is also a faculty member at Lane Community College in Eugene, where he leads GIS-focused workshops for high school teachers and instructs Water Resource and GIS courses. Sproles' research is funded by a Doctoral Dissertation Research Improvement grant from the National Science Foundation.

New Publication— Climate Change Adaptation Strategies for Federal Forests

A new publication with roots in the Andrews Forest program addresses ecological, policy, and socio-economic perspectives concerning the topic that serves as its title, “Climate change adaptation strategies for federal forests of the Pacific Northwest, USA.” Tom Spies and co-authors echo others in the science community that conserving biological diversity in a changing climate poses major challenges for land managers and society. The paper first highlights some of the projected ecological responses to climate change in the region and then identifies possible adaptive actions available to federal forest managers. These include manipulating stand and landscape structure to increase ecological resistance and resilience, moving species and genotypes, and engaging in regional, multi-ownership planning to make adaptive actions more effective. Although the language and goals of environmental laws and policies were developed under the assumption of stable climate and disturbance regimes, they appear to be flexible enough to accommodate many adaptive actions. It is less certain, however, if sufficient social license and economic capacity exist to undertake these actions. The paper was published in the journal *Landscape Ecology*, 2010.

Partnering Researchers with Extension Service



Researchers and Extension faculty met at the Andrews Forest in August 2010. Photo by Brad Withrow-Robinson.

The Andrews Forest program has a history of linking research findings with forest land managers. In keeping with these outreach efforts, researchers from the Andrews Forest have partnered with faculty from the Oregon State University Extension Service to communicate scientific findings from the Forest. In August, researchers and Extension faculty met at the Andrews Forest for a four-day workshop. The purpose was to share information and perspectives, form working relationships, and lay the groundwork for broader collaborations. As researchers shared key findings on climate change, Extension agents identified educational needs and opportunities to work together. By the end of the workshop, the group identified more than a dozen activities where researchers and Extension colleagues would begin collaborating immediately.

Ted Dyrness Memorial

Ted Dyrness, a contributor to the Andrews Forest program for over 50 years, died in the presence of his loving family in August after a brief illness. Dyrness first encountered the Andrews Forest as a student in the 1950s. He continued on as a Forest Service scientist to conduct studies on effects of forestry on soils, vegetation succession following clearcutting and burning, and basic soil characterization of the Andrews Forest. The book *Natural Vegetation of Oregon and Washington*, which Dyrness co-authored with Jerry Franklin, remains a frequently-cited classic, despite its roots more than 40 year ago. In 1974, Dyrness journeyed to central Alaska to head a Forest Service interdisciplinary ecosystem research team, and later helped found the Bonanza Creek Long-Term Ecological Research program. After retiring in 1990 and returning to western Oregon, he helped get various Andrews Forest datasets cleaned up for placement in the Forest Science DataBank. Dyrness leaves many legacies in the long-term studies and historical records, and especially the spirit of collaboration he exemplified.



20-year Anniversary of Owl Listing

June 26, 2010, marked the 20th anniversary of one of the most controversial decisions ever for Northwest forests. On June 26th, 1990, the Northern Spotted Owl was put on the Endangered Species list. Scientists at the time were worried the Northern Spotted Owl was on the brink of extinction. Loggers feared protections would mean the end of their industry. Oregon Public Broadcasting visited the Andrews Forest in June to interview owl researcher Steve Ackers.



Spotted Owl at the Andrews Forest. Photo by Tom Manning/OPB

<http://news.opb.org/article/7714-spotted-owl-surviving-20-years-after-controversial-decision/>

Long-Term Ecological Research Network Wins Award

The American Institute of Biological Sciences Distinguished Scientist Award is presented annually for significant scientific contributions to the biological sciences. While normally presented to an individual, the 2010 award was made to the LTER Network. Full press release: www.aibs.org/aibs_recognizes_2010.html

Long Term Ecological Reflections

In past newsletters we have featured brief samples of the work of writers in residence at Andrews Forest. The Long-Term Ecological Reflections program, sponsored by the Spring Creek Project and US Forest Service, also supports gatherings of humanists and scientists to consider big questions. These gatherings are bearing interesting fruit. For example, a gathering of environmental philosophers, convened in 2007 at the Andrews Forest by Kathleen Dean Moore and the Spring Creek Project, was the setting of an idea which culminated in the publication of the powerful new book, *Moral Ground*, from Trinity Press. This book, edited by Moore and her philosopher colleague, Michael Nelson (Michigan State University), presents arguments from 80 of the world's leading thinkers about the urgency of confronting environmental change. A 2008 assembly of 20 writers, scientists, and other scholars addressed this same issue and made the argument for new collaborations spanning four cultures—environmental sciences, social sciences, creative arts, and philosophy/religion—to bring together their empirical knowledge, communications capabilities, inspiration, and representations of ethics and values. These ideas are presented in the new publication, *Four Cultures: New Synergies for Engaging Society in Climate Change*. <http://andrewsforest.oregonstate.edu/pubs/webdocs/reports/pub4630.pdf>

Research Experience for Teachers

As a participant in the National Science Foundation-sponsored Research Experience for Teachers program, Rima Givot, a biology, geology, and astronomy teacher at Sisters High School, shadowed several researchers at the Andrews Forest in 2009. Givot interviewed scientists and field assistants, participated in field research, and visited field sites at the Andrews Forest with the intent of gaining experience and ideas for implementing field science projects as part of her teaching. Givot worked with Elizabeth Borer and Eric Seabloom and assisted with field research and data collection for the Nutrient Network (NutNet) study of nitrogen and phosphorous dynamics in grassland (meadow) soils at two high meadow sites. She learned about sampling biomass and invertebrates, wrote lesson plans about plant identification and



Teacher Rima Givot at the Andrews Forest.
Photo by Kari O'Connell.

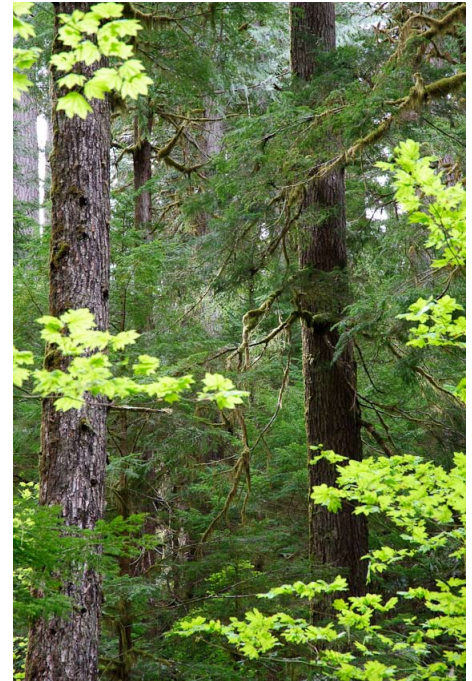
collection, and contributed a written overview of the NutNet project at a level targeted towards high school students. She also worked with Jay Sexton to develop a long-term decomposition study that she could conduct with her biology classes in a forest near the high school.

Canopy Connections Putting Kids in the Trees



Photo by Katie Nussbaum.

In 2010, 185 middle and high school students participated in the Canopy Connections program at the Andrews Forest. Students climbed into the old-growth tree canopy, studied the characteristics of old growth forests, discovered medicinal and food plants, and learned about tree anatomy.



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Please Support 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. There are many opportunities for support—from Spotted Owl research, to writer and scholar residency support, to support for research and student programs.

By making a contribution to the Andrews Forest Fund, you can make an investment in the long-term viability of our forested ecosystems and in the training of future forest scientists, educators and managers. Tax-deductible donations of funds, appreciated securities, or property of any amount can be used to support the Andrews Forest Program. To make a gift, please contact the OSU Foundation (800-354-7281) or go to our online giving page at:

<http://andrewsforest.oregonstate.edu/about/forestfund.cfm?topnav=171>