

# Science

FINDINGS

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*“Science affects the way we think together.”*

Lewis Thomas

## LONG-TERM ECOLOGICAL REFLECTIONS: WRITERS, PHILOSOPHERS, AND SCIENTISTS MEET IN THE FOREST



Michael Furniss

*A scientist, medical ethicist, writer, and landscape planner discuss the meaning of “watershed health” in the old growth of the H.J. Andrews Experimental Forest.*

*“How should a person live in a world that erupts catastrophically, sliding down and down? On a flank of this big volcano we call Earth, how should a person live?”*

—Kathleen Dean Moore

Few people would disagree that management of public lands should be informed by the best possible science. And, indeed, objective research has been at the heart of Forest Service decisionmaking since Gifford Pinchot took the reigns of the young agency over 100 years ago. The problem, though, is that science is not equipped to address all facets of the land management challenge. How can science conceptualize and

communicate the deep emotional and cultural relationships that society has with forests and landscapes? How can science be used to manage the inspirational qualities of an old-growth forest or a looming volcano?

From Fred Swanson’s perspective, “There are many ways of knowing. The scientific method is one way. Learning through doing is another. Thoughtful reflection and storytelling is yet another.” It is this latter approach that has been missing from the Forest Service agenda, at least explicitly.

Swanson is a research geologist at the Forest Service’s PNW Research Station in Corvallis, Oregon. But these days, he’s as likely to be contemplating metaphors in language as he is metamorphism in rock. He is helping lead a collaboration

## IN SUMMARY

*Over the past 7 years, a strong collaboration has emerged between the H.J. Andrews Experimental Forest ecosystem research group and the Spring Creek Project for Ideas, Nature, and the Written Word, an independently funded program for nature writing based in the Department of Philosophy, Oregon State University. The program is called Long-Term Ecological Reflections and it brings together scientists, creative writers, and environmental philosophers to consider new ways to conceptualize and communicate views of long-term ecological change in forests and watersheds and the participation of humans in that change. The program is designed to parallel the Long-Term Ecological Research program, a national science program initiated in 1980 and involving the Andrews Forest. Both programs focus on primary inquiry and have 200-year planning horizons, which have resulted in some uniquely farsighted perspectives and astute ecological observations.*

*The Reflections program integrates the humanities with traditional scientific approaches to learn about the special places for which the Forest Service is responsible, such as experimental forests and ranges, Mount St. Helens National Volcanic Monument, and other charismatic landscapes. The work is conducted through a writer-in-residence program at the Andrews Forest and special events to address specific themes held at inspirational places throughout the region. The emerging body of written work conveys a sense of awe, respect, and hope for the natural world.*

of ecosystem scientists and creative writers in a program called Long-Term Ecological Reflections.

The Reflections program is based at the H.J. Andrews Experimental Forest—15,800 acres of temperate rain forest in Oregon’s western Cascades that is the region’s nucleus of ecological research relating to old-growth forests, spotted owl ecology, watershed management, and alternative forestry practices. The Andrews, as it is more commonly known, is one of 26 major ecosystem research sites in the United States funded through the National Science Foundation’s Long-Term Ecological Research (LTER) program.

“The Reflections, LTER, and experimental forest programs all share a commitment to long-term inquiry into ecological and human change spanning generations,” explains Swanson.

“Society has designated areas such as experimental forests and ranges and the Mount St. Helens National Volcanic Monument as places for learning, and the Forest Service—both Research and the National Forest System—has the role of steward of the learning process. We also have a responsibility to help convey the lessons learned to wide and diverse audiences,” he says. “One way that responsibility is expressed is through the commitment of resources to scientific study. However, the public does not see or understand the magnitude of that commitment, and it does not fully appreciate the dynamics of Pacific Northwest ecosystems. Engaging creative nature writers

<b>KEY FINDINGS</b>	
<ul style="list-style-type: none"> <li>• The Long-Term Ecological Reflections program developed, implemented, and shared a method for bringing together ecosystem scientists and creative writers to consider how ecosystems change over long periods of time and the implications for humans. The method involves (1) retreat of an individual or small group to a compelling place, (2) discussions among scientists and writers while in those places, (3) oral communication of ideas to wider groups, and (4) even wider dissemination of lessons through publications and other venues.</li> </ul>	
<ul style="list-style-type: none"> <li>• As of spring 2008, 18 writers have spent 1-week residencies at the H.J. Andrews Experimental Forest, visiting Reflections plots (several of which are also research plots), conferring with scientists, writing, and closing with an oral report and a public reading in some cases.</li> </ul>	
<ul style="list-style-type: none"> <li>• The collaboration between the natural sciences and the humanities is beginning to produce a rich body of literature, increase public understanding of the roles of the natural world and science in our lives, and add a new dimension to interpretive programs.</li> </ul>	

in these places where the Forest Service has invested in learning with the tools of science will ultimately increase public understanding of ecosystems and, possibly, respect for the agency’s efforts.”

For the past 7 years, through writers’ residencies and special gatherings, the Reflections program has brought creative writers and environmental philosophers to the Andrews and Mount St. Helens, where they conduct their own brand of inquiry while interacting with scientists and recording and publishing their observations.

For Swanson, including creative writers and philosophers in land management research and planning is perfectly congruent with the mission of the agency and the Andrews Forest. “The plants, animals, forests, and streams have been studied for decades, through major investment in long-term science. We believe it is time to bring the humanities and arts into the study of these places as well,” he says. “Decisions about how to use the land and water are among the most complicated and critical that we are called upon to make, so let’s use as many approaches as possible.”



Michael Furniss

*The Reflections program sponsored public readings and commentary on ideas from a gathering on the topic of new metaphors for restoration of forests and watersheds.*

**Science Findings is online at:** <http://www.fs.fed.us/pnw/>  
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## WRITERS-IN-RESIDENCE

The Reflections program is a partnership between the Andrews Forest Long-Term Ecological Research group, the U.S. Forest Service, and the Spring Creek Project for Ideas, Nature, and the Written Word, an independently funded program in the Department of Philosophy at Oregon State University that is dedicated to “bringing together the practical wisdom of the environmental sciences, the clarity of philosophical analysis, and the creative, expressive power of the written word.”

Kathleen Dean Moore, Professor of Philosophy and Spring Creek’s Director, and Charles Goodrich, a poet and Spring Creek program director, work with Swanson to facilitate two writers-in-residence programs at the Andrews, each occurring twice per year.

“We receive 20 to 30 applications each round,” explains Goodrich, “and what really impresses me is where they are all coming from: New York City, Alaska, Arizona, the Midwest—all over. And these are people who are largely paying their own way—we offer just a miniscule stipend—to spend a week at the Andrews.”

“We view the Reflections residences in strong parallel with the Long-Term Ecological Research program,” explains Swanson. “As with newly arriving scientists, we want visiting writers to come in with their own questions and their own tools, capitalize on what’s been learned previously, and make new things happen intellectually. Just like the scientists, the writers collect data, which are typically journal entries, and put them into the Andrew’s databases. Eventually the ‘raw data’ are refined into publications and presented to the world in essays, poems, and books.”



Tom Iraci

*A process of observation, inquiry, reflection, and communication serves scientists and poets alike as they strive to understand the natural world.*

Swanson is quick to note that, although this is all about communication, it is not science journalism. The core of the Reflections program is discovery. “We’re asking people to go out and engage with the forest, the streams, and the volcanoes and do their own inquiry and then communicate it with the public through writings and presentations, just like the scientists.”

“It is really intriguing, to me, to think about all the parallels between the poet and the scientist: Their work may be largely solitary, creative. Expressive capacity is really important, including demonstrative reading and public speaking, as well as writing.

And, despite the solitary nature of the job, working in groups and getting reaction through seminars, meetings, peer reviews, and writing groups is a vital commonality,” he says.

“All the writers we’ve had so far have really appreciated the collaborative aspects of interacting with scientists, which runs counter to some of the stereotypes of poets and creative writers as being essentially solitary,” explains Goodrich. “I think the program encourages a sense of camaraderie toward deeply understanding a place and being in it for the long term.”



Michael Furniss

*Participants discuss catastrophe and renewal in a volcanic landscape during a Reflections gathering while watching a steam plume rise from Mount St. Helens.*

## THE POETRY OF PLACE

As with visiting scientists at the Andrews, there are no formal expectations for the writers-in-residence. All that is asked is that they visit three “long-term reflections plots,” assuming the weather permits. The plots are in areas where long-term ecological research has been ongoing for many years, including one site that tracks the decay of downed trees over a 200-year research horizon. The writers have access to a short history of the sites and the relevant research, just for context. Within this loose structure writers have great latitude to write as they wish.

“We test the hypothesis that these places will speak to people,” says Goodrich. “And, in every case, even when writers have shown up with their own work to do, they have ended up writing about the forest and saying: ‘After experiencing this place, how could I write about anything else?’”

The first writer in residence, Robert Michael Pyle, published a short essay in *Orion* called “The Long Haul.” In it, he reflected on his



## LAND MANAGEMENT IMPLICATIONS



- There are many ways of knowing. The scientific method is one way. Learning through doing (adaptive land management) is another. Thoughtful reflection and storytelling is yet another. Decisions about how to use the land and water resources are among the most complicated and critical that we face, and using many approaches can provide valuable insights.
- The cultural and spiritual values of people, often expressed in metaphors and stories, strongly influence the decisions they make. Uncovering these human instincts, examining them, and being clear about them will increase the chances that decisions are wise and widely acceptable.
- Bringing together creative writers, scientists, and land managers constitutes a fresh approach to a communications program. Land managers can consider developing such collaborations as part of planning restoration or other resource management projects.

time spent at the 200-year log decomposition study site. He wrote: “When I get to the laid-out logs and the sawed off tree-rounds the fallers call cookies, I know I’ve arrived at the place where the druids of forest research make offerings to Rot. ... The moss grows, the raven barks, the trees go to soil—first

hemlocks, then firs, finally cedar. All the while, the decomp team is there, watching how the cookies crumble.”

Then he reflects more deeply, “To peer much further down the line requires not only empathy for those who follow, but also faith in the future—even if you won’t be there

to see it for yourself. ... Maybe looking to the future is a way of hoping there will still be something to see when we get there. Maybe it’s the only way to make sure of it.”

This essay was quoted in a major speech by the Director of the National Science Foundation on that agency’s role in environmental research. “The Director and Pyle are making the point that we must pursue environmental research for the long haul in order to understand both gradual and abrupt change and the changing societal context of environmental issues—these are central themes for the Reflections program and of Forest Service Research,” says Swanson.

## FORAYS INTO METAPHOR

The other major component of the Reflections program is the organization of larger group events. Each “foray,” as they are called, addresses a specific theme, such as “New Metaphors for Restoration of Forests and Watersheds,” or “Exploring the Meaning of Watershed Health” and are typically located on a landscape that inspires discourse related to that theme.

Again, the program builds the humanities framework around an existing scientific approach toward discovery.

In the 1970s, forest ecologist Jerry Franklin began a tradition called the “science pulse,” wherein groups of upwards of 100 scientists, students, and technicians, from several disciplines, descend on a landscape for up to 2 weeks to collect massive amounts of data and ideas. Pulse locations were chosen for their

ecological significance and their potential to stimulate discourse: the Hoh River valley, Sequoia National Park, the posteruption Mount St. Helens landscape. By bringing in a breadth of expertise, much could be learned in a very short amount of time.

According to Swanson, the forays are loosely based on the pulse framework in that a diverse group of people go out in the land and think deeply about a landscape and an issue, then come back and share their experience and insights.

The parallels were particularly evident at the Mount St. Helens foray that occurred in 2005—on the 25<sup>th</sup> anniversary of the volcano’s eruption. As a geologist, Swanson has participated in four scientific pulses on Mount St. Helens since 1980, to chart the ecological changes following this singular event. The Reflections foray into the blast zone was designed to examine the language and metaphors that are linked to the volcano, such as catastrophe and change in geological, ecological, and human dimensions.

Michael Furniss



*Small-group discussion was part of the Reflections event on new metaphors for restoration of forests and watersheds.*

“We invited 20 distinguished writers, philosophers, artists, ecologists, and geologists to camp for 4 days on a high ridge near the volcano. We asked: What can this radically altered landscape tell us about nature and how to live our lives?” says philosopher Moore.

“Key perspectives from our reflections at Mount St. Helens were that change is

inevitable, that landscapes and human understanding are constantly moving forward through time on the foundation of the past, and that what appears to be a disaster may harbor astonishing new opportunities. The terms restoration and recovery imply a return to former conditions, but for parts of the Mount St.

Helens landscape, there is no going back,” recounts Swanson.

A collection of writings from this field symposium, titled *In the Blast Zone: Catastrophe and Renewal on Mount St. Helens*, was recently published by Oregon State University Press.

## LEADING THE WAY

The Reflections program, though still quite young, has been remarkably successful in reaching new audiences. The writers in residence have made good use of their residencies—many publications are in print and in the works (see “For Further Reading”). Also, every foray concludes with a public lecture or performance, where the writers are asked to reflect on the theme.

“Participants in these events have told us the experiences changed the way they do their work,” explains Swanson. “For example, Robin Lambert, a Tillamook County watershed extension specialist, learned that restoration work benefits by a sense of family engagement with a watershed—the trees you plant by a stream in a pasture may be like your teenagers—they don’t always cooperate just as you’d like, but you do the best you can. This changed the ways she communicates with private landowners about restoration work on their land.”

With the poignancy that only a poet could offer, Goodrich notes “With a high degree of regularity, people leave Reflections events at a different angle than they came in.”

This might explain why several other research organizations have contacted the group to inquire about emulating the Reflections programs. For example, the Bonanza Creek Experimental Forest and LTER site in central Alaska has begun a Reflections-like program to address themes surrounding wildfire, landscape, and climate change. Corvallis writers have started an informal writing program on Oregon State University’s research forest, largely inspired by the Reflections program. Each of these has its own spin on themes and means of expression; Bonanza Creek, for example, blends a strong component of dance with writing, visual arts, and theater in the collaboration with science.

Although virtually everyone that has interacted with the Reflections program has sensed the value of this endeavor, Swanson, through the bureaucracy of grant writing, annual reports and the like, is occasionally faced with the question: What is the practical value of this work?



Michael Furniss

Alaskan singer/songwriter Libby Roderick vocalizes before Mount St. Helens during a Reflections event.

He answers, “At this point, we are building a foundation for the basic humanities in the same way that basic science built an understanding of old growth, the biology of northern spotted owls, and watershed science well before it had practical importance. We hope to keep the program going for 200 years to continue to build the body of work and begin to look for trends over time. We expect many surprising, practical outcomes to emerge along the way. For example, we see a case of applied humanities in debates in the conservation literature about possible problems with using militaristic metaphors in dealing with invasive species.”

Throughout, they will continue to ask the hard questions: How can we make this world better? In a world where everything is changing, what do we want to save, what will we need to let go of? Not the kind of questions that a strictly scientific approach can answer.

*“The owl doesn’t make a sound.... She is still. She watches us. What is the consciousness of a spotted owl? There she perches perceiving us, and here we sit perceiving her. We exchange the long, slow, inter-species stare—no fear, no threat, only the confusing mystery of the other. Perhaps she thinks we are owls. We do not look like owls. But we do, briefly, behave like owls, catching and offering prey, being still, and turning our eyes to the forest.”*

—From *The Owl, Spotted* (2006, OnEarth), Alison Hawthorne Deming, Professor of Poetry, University of Arizona, after an hour-long stare-down with a northern spotted owl as part of her writer’s residence at the Andrews.

## FOR FURTHER READING

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FRED SWANSON, a research geologist with the PNW Research Station, has been studying forests and watersheds in the Pacific Northwest for more than 30 years. Much of this work has been in interdisciplinary teams at sites such as the H.J. Andrews Experimental Forest and Mount St. Helens. Over the past few years he has greatly enjoyed collaborating with the community of creative writers through the Spring Creek Project.



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