Nature Trails

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Photo by Peter Hayes

Exploring Positive Forest Pathways: An Update From the Field

Peter Hayes

Hyla Woods

Cosponsored by Beyond Toxics

Friday, 20 October 2017, 7:30pm,
Room 100 Willamette Hall, UO Campus

The Pacific tree frog (*Pseudacris regilla*), also known as the Pacific chorus frog, no doubt because of the male's incessant ribbit, ribbit call during mating season, are abundant in the Pacific Northwest. It is the state frog of Washington. Its prevalence in a Pacific Northwest forest is a good indicator of the health of that forest: lots of Pacific tree frogs, healthy forest; few frogs, sick forest.

Back in 1986 when Peter Hayes's parents bought the first portion of their forest they had plans. Fast-forward to 2004 and some of those plans became reality when the family began milling and direct marketing wood. At that point they decided they needed a brand. They knew that the Pacific tree frog was to a forest what a canary is to a coal mine, so they named their acquisition after this cute little amphibian. Before it was in the genus *Pseudacris* the Pacific tree frog was in the genus *Hyla*, and this is the name the Hayes family knew it by, so this is roughly why their operation is called Hyla Woods. Over the intervening three decades Hayes, his family and the scores of volunteers who have worked in Hyla Woods with them have tracked many health-related aspects of their forest—variables such as stream temperature, plant and animal species diversity, and age diversity among salable timber species. Pacific tree frogs are doing well in Hyla Woods, which indicates its three forests are also healthy. 'Healthy' is a relative term, though, and the family is well aware that there is always room for improvement.

Peter Hayes will tell us about Hyla Woods at our October meeting. Hayes is a native Oregonian, one in a long line that has been involved with forests from 1680 to the present. Earlier family members were more committed to capital than place: they harvested trees and moved on, making their way from Massachusetts to the Pacific Northwest. After White Pines were mostly gone in Wisconsin his grandfather moved from there to Oregon in 1920, continuing in the timber industry. Hayes's parents began the family evolution from timber as capital to forests as multi-use areas. Active environmentalists, they were early players in the Oregon Nature Conservancy. Their love of the natural world was instilled in their son "from the get-go," Hayes said.

After three years of high school in New Hampshire Hayes returned to Oregon and entered the University of Oregon's Clark Honors College. He said he loved the Honors College: the combination of the feel of a small institution, the excellent faculty, and the ready access to the larger University and its advantages made for a powerful experience. His focus during his four years there was the relationship between people and land, which continues to be the central focus of both his professional and personal lives.

Hayes's main career has been in education. From 1976 to 2003 he worked in various conservation education positions throughout the Northwest. He taught in Lakeside School, in Seattle, for 23 years, where his primary role was leading the school's Ecological Studies program. While in Seattle at Lakeside School he enrolled in the graduate program at the University of Washington, emerging with an M.S. in historical geography. He is no longer formally affiliated with an educational institution either as a student or a teacher but Hayes continues to educate, his classroom now a forest, his students ranging from children to timber-industry magnates to state and federal forest-policy makers.

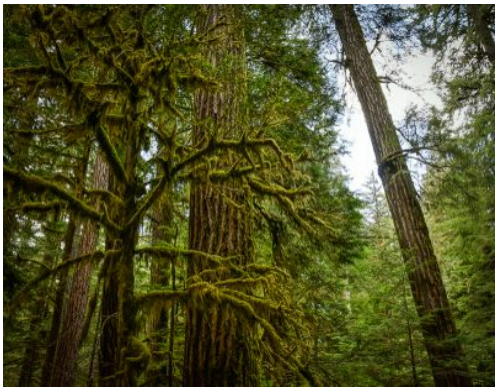
Hyla Woods is an experiment. It is made up of three forests, all in the coast range of northwestern Oregon, close to Forest Grove. The present holding is about 1000 acres. It was logged between 1920 and 1950 so it doesn't contain the giants it once did, but it does not resemble the plantations that come after clear-cuts are re-planted nowadays. Three generations of the Hayes family have been involved in it so far. Peter's parents made the original purchase; Peter, his sister, and his wife Pam are now the principal players but Peter and Pam's children are now taking an increasingly active part in the management and data collection. The goal of the Hyla Woods experiment is to find middle ground in the ongoing timber wars, to develop practices that allow forests to be ecologically healthy and at the same time financially productive: sustainable in both environmental and economic senses. To this end, Hayes, often the operation's spokesperson, is quick to point out the importance of the contributions other members of his family and the growing number of likeminded foresters are making.

If the goal of Hyla Woods is realized the effects will extend far beyond its 1000 acres. The idea that a forest can continue to be economically productive *and* physiologically healthy over generations is not new. For example, the Menominee Indians of Wisconsin have logged their 230,000-acre forest for generations and it is as healthy now as it was when they started. Huge Maples that come from their land command top dollar because of their quality and

rarity. Theirs has been the long view since the beginning, planning for the seventh generation even while taking enough wood to maintain a profitable business. But this concept has not been adopted by large commercial timber companies or, frankly, by agencies that have the authority and power to render it common practice.

We can do more than hope the model being developed at Hyla Woods and espoused by this family becomes widely adopted in the Pacific Northwest and elsewhere. We can put our money where our mouths are and buy wood products in which the raw material comes from forests that are both ecologically and financially sustainable.

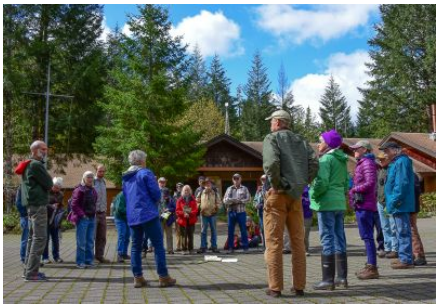
Hayes gave me this short summary of what he will talk about. "Oregon's once magnificent and productive forests and related communities continue to be diminished by intertwined economic, cultural, and political factors. How and why did this happen and why does it continue? How are forward-looking owners, foresters, millers, designers, policy makers, advocates, and community members working together to develop and test new models of forestry and forest economics that regenerate forests and sustain people? As a fifth generation forest owner and Oregonian, I will share lessons learned from hands-on experimentation in applying lessons from the past and analysis of the present to the challenge of prospecting for positive pathways into the future." Please join us on Friday, 20 October at 7:30pm in room 100 Willamette Hall on the U of O campus to hear "Exploring Positive Forest Pathways – An Update from the Field," by Peter Hayes. Save room for a cookie. John Carter



"One tree is like another tree, but not too much." - Mary Oliver, *Upstream*

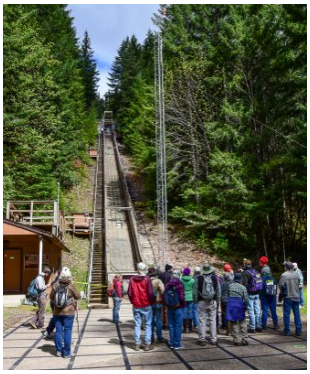
ENHS Field Trip to the H. J. Andrews Experimental Forest Review and photos by Jim Maloney

As I sit here, now, writing at my computer, in the deep end of August, in the smoke flavored air of the southern Willamette Valley, I'm having to make an effort to remember the details, or, more importantly, the feelings and sensations of a Saturday in early May when some 24 folks made the journey from the valley floor up to the cool, and at that time wet, forest near Blue River for a day in the field at the H.J. Andrews Experimental Forest (hereafter The Forest).



We were warmly greeted by Fred Swanson and Julia Jones, both on staff at The Forest and at Oregon State University. They went on to give us an orientation to and history of The Forest and its role as one of the charter members of the National Science Foundation's Long Term Ecological Research program (LTER). There are now (as of March 2017) 27 sites in North America, with the HJ Andrews the only one in the Pacific Northwest.

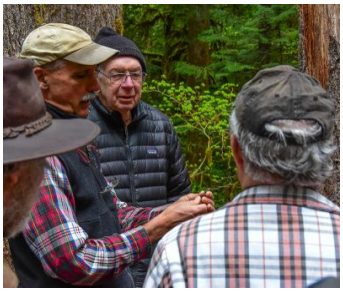
Established in 1948 as a USDA Forest Service Experimental Forest, it joined the LTER in 1980. According to their website, "The Andrews Forest is a place of inquiry. Our mission is to support research on forests, streams, and watersheds, and to foster strong collaboration among ecosystem science, education, natural resource management, and the humanities." Fred and Julia also described the multiple ways in which The Forest conducts "outreach" programs meant to convey the work done and knowledge gathered there. These include opportunities for undergrads and grad students to have field courses and for K-12 teachers and students to participate in guided activities. Outreach also includes a strong emphasis on the arts and humanities through the Long Term Ecological Reflections project conducted in collaboration with OSU's Spring Creek Project.



Greetings and introductions accomplished we embarked on a short hike to a location near headquarters where an early innovation in hands-on study was impressively on display. Constructed in 1991, the debris-flow flume allows for the artificial creation

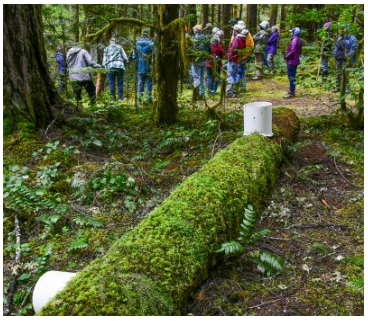
of actual debris-flows (think Mt Saint Helens in microscale) and avalanches. Once loaded with materials (rock, soils, mud, snow, etc) the "load" can be triggered down the flume. Removable glass windows built into the side of the flume allow flows to be observed and photographed as they sweep past.

After the visit to the flume we hiked a portion of the trail to our second stop to discuss the replacement of the outdated paradigm of "perfect ecological balance" with those of dynamics and change, an evolving theme in The Forest. A great deal of the research conducted at The Forest is related to disturbance (flood, fire, wind, landslides), hydrologic change (snow, drought, rapid water fluxes), carbon and nutrient cycling, and how all of these are evolving due to increasing climate change. In addition to the natural history discussion Fred and others shared a couple of personal stories including our own Tom Titus who offered an impromptu micro-field note about an unlucky Western Fence Lizard (*Sceloporus occidentali*).



We somewhat retraced our route back to headquarters and the covered picnic area where lunch beckoned. Fred provided a rundown on books that have been published either directly about or influenced by the research at the Forest (a short list is given at the end of this trip report).

After lunch we returned to our set of vehicles and travelled to another part of The Forest where some specific long-term research has been conducted and continues today. We spent some time at one of the sites of the long-term log decay experiments. Started in 1985 and planned to continue until 2185 it is intended to study the ways that carbon and other nutrients flow within the complex network of the forest's heavy woody debris (downed trees) through



forest floor leaf litter, into the soil/microorganism matrix, and back into growing young trees. This location was supremely suited to displaying the complexity of time scales and size scales – from Stair Step Mosses to towering conifers.

This was also our final opportunity to hear a last couple of stories from Fred and Tom before we departed back to Eugene.

The HJ Andrews Forest official website is:
https://andrewsforest.oregonstate.edu/
Publications related to research conducted at or related to the Forest are listed at:
https://andrewsforest.oregonstate.edu/publications
A few of the books noted by Fred during his lunchtime presentation include:
***Forest Under Story - Creative Inquiry in an Old-Growth Forest*,**
Edited by Nathaniel Brodie, Charles Goodrich, and Frederick J. Swanson; March 2016; University of Washington Press.
The Hidden Forest – The Biography of an Ecosystem; by Jon R. Luoma; 2006; Oregon State University Press.
Old Growth in a New World – A Pacific Northwest Icon Reexamined; Edited by Thomas A. Spies and Sally L. Duncan; 2009; Island Press.
Trees, Truffles, and Beasts – How Forests Function; Chris Maser, Andrew W. Claridge, and James M. Trappe; 2008; Rutgers University Press.

Sagebrush Lizard Genome Project

by Tom Titus

On a late September afternoon, Kim and I rolled off Highway 31 onto Red House Road in south-central Oregon. The pavement lulled our citified Toyota Corolla into a premature sense of complacency. Just past the enormous ZX Ranch feedlot, the surface became a shuddering gravel washboard that eventually devolved into a bed of softball-sized rocks. We tacked northward across a shallow basin toward Diablo Mountain, stopping just beyond a dry water hole. Silence settled around us, broken occasionally by a whisking breeze. The midday sun was subdued, slouching in the southern bluestone sky, casting a blanket of 70-something warmth onto dusty gray sagebrush. Rabbitbrush blooms had mellowed from yellow to toasted marshmallow brown.

This trip wasn't exactly recreational. Kim and I had come to work at the fuzzy interface of science, art, coincidence, and over three decades of congenial companionship that has often included lizard hunting. Today we sought the diminutive Sagebrush Lizard. I outfitted each of two children's fishing rods with a

dental floss noose, and we traipsed off into their favorite habitat: sandy soil and chest high sagebrush.

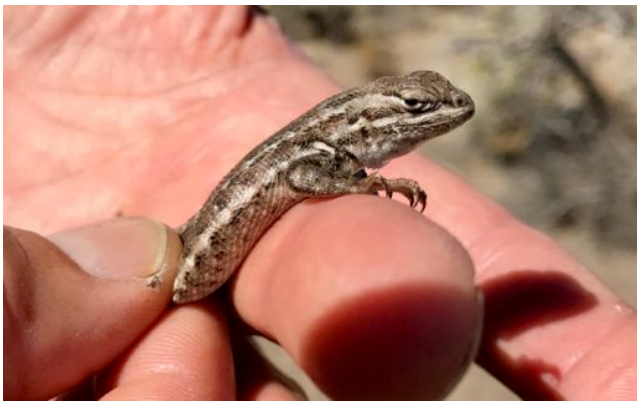
Finding Sagebrush Lizards means meandering and watching for a small gray streak zipping across the loose soil. They zip because for eons Sagebrush Lizards have been the ecological cannon fodder of the High Desert. Everybody eats them: larger lizards, Whipsnakes, Racers, Shrikes, and Burrowing Owls see Sagebrush Lizards primarily as moving morsels of high-quality protein. As a result, they have evolved a level of wary evasiveness not often seen in larger animals with fewer daily threats. Fortunately, Sagebrush Lizards don't zip very far. When they stop, you must locate the lizard, slip the dental floss loop around its head, and lift the scrabbling animal into your hand. Writing these instructions is a lot easier than implementation.

The backstory that brought us to this lonely basin was detailed in my *Oregon Quarterly* article (Spring 2017) entitled "Lizard Tales" (http://www.oregonquarterly.com/lizard-tales). Twenty years of teaching herpetology led to a writing project that led to a pair of 12,200-year-old Sagebrush Lizard mummies excavated from Paisley Caves that led to a writing residency at the PLAYA Institute at Summer Lake that led to the beginning of the Sagebrush Lizard Genome Project. This was exciting and peculiar territory, where science blurred into art, coincidence overlapped with opportunism, and literal blended with metaphorical.

The goal of the Sagebrush Lizard Genome Project is to establish a modern DNA sequence template to which ancient DNA sequences from the Paisley Caves lizard mummies can be matched. Modern sequencing technology has spectacularly lowered both cost and effort and has moved genome sequencing from big labs with enormous resources into the hands of the many or at least those with a handful of laboratory skills and access to a high-throughput DNA sequencing instrument. The Sagebrush Lizard Genome Project is an orphan, dirt-poor, grassroots program helped along by volunteer time, congenial people in the genomics center at the University of Oregon, and materials donated by the biotechnology company Illumina. To date, sequencing has been accomplished using cutting edge and largely experimental methods. Even with these early efforts the number of genes in the assembled sequences is on par with a published genome for the Green Anole, *Anolis carolinensis*, currently considered the most complete publicly available lizard genome.

Kim and I were searching for lizards on this early autumn afternoon because the next step of the Sagebrush Lizard Genome Project required long-read DNA sequencing. These are about 20,000-30,000 DNA base pairs per sequencing read, and require long, unbroken strands of DNA. The fragment sizes of the DNA I had coerced from the tail of a female Sagebrush Lizard from this place almost exactly one year ago were too short. To acquire a new DNA sample of higher quality, we made this spur-of-the-moment midweek trip, trying to take advantage of perhaps the last warm days of the year. Winter can come early and dramatically to the High Desert.

After about an hour of searching, the world of modern genome sequencing and the wild agnostic silence of a High Desert afternoon converged on a gray dart escaping into the shade of a large sagebrush. Kim and I teamed up, one on either side of the shrub. The animal held still, but hid its head in a scruff of dry cheatgrass. I cussed. I cajoled. But I could not get the noose around that lizard. It streaked off, stopping in the open just short of the next bush. Using my best imitation of a slowly stalking cat, I closed the distance and slipped the loop over its head. Lifting upward, I brought the thrashing lizard, about



the length of my middle finger, into my hand. The mottled blue throat and paired blue belly patches identified it as a male. Kim looked away, I apologized to the lizard, then popped off an inch of its tail. Because Sagebrush Lizards have for millennia been eaten by everything large enough to eat them, they have evolved fracture planes in the tail vertebrae that make tail dislocation and escape from predators very easy. Tail regrowth is a part of life. I placed the sample in a Ziploc bag and put it on ice in a small cooler. After some photos, the animal was released to do what Sagebrush Lizards do on an early autumn afternoon: eat without being eaten.

We rattled the unfortunate Corolla back over the rocks and onto Highway 31. On the way home, we stopped at PLAYA, the creative arts institute where I spent one wonderful month of my life last fall. We strolled into the office wearing our dirty field clothes to say hello. Ellen Waterston, extraordinary Oregon writer and now the director, and John Martin, poet

and residency manager, were unfazed by our appearance and welcomed us warmly. The four of us talked about new projects, new funding, writing, and big ideas at the interface of science and art. Home was still 200 miles distant, and a lizard tail waited in the cooler. Kim and I reluctantly took our leave. A few miles north is the Summer Lake Store, where we stopped for fuel and Fritos. North of Hole in the Ground, Kim took the wheel. A forest of big ponderosa pine glowed orange in the setting sun. In the closing darkness, I wandered into my head and wondered if I owed anything else to the fading day.

Events of Interest in the Community

Lane County Audubon Society
Saturday, 21 October, 8am-noon. Third Saturday Bird Walk. FMI: Jim Maloney at 541.968.9249 or jimgmal@comcast.net.
Tuesday, 24 October, 7:30pm. Upland Game Birds and the Greater Sage-Grouse Monitoring and Mitigation Program at ODFW. Dave Budeau and Pete Baki are biologists from the Oregon Department of Fish & Wildlife. Budeau will talk about Greater Sage-Grouse population monitoring, as well as projects with a couple other species, including Mountain Quail. Baki will discuss the program and the tools set up to ensure that a net conservation benefit is achieved for construction projects that will have an unavoidable impact on Sage-Grouse habitat. 1645 High St., Eugene.

Mt. Pisgah Arboretum
Saturday, 14 October, 10am-1pm. Invasive Species Removal Work Party. Join us as we work to remove invasive species (blackberries, teasel, hawthorn, etc.) along the entrance road. Wear long pants. Meet at the Arboretum Visitor Center. Tools, gloves, and a parking pass will be provided to volunteers (we suggest you bring along a water bottle). Please RSVP to site@mountpisgaharboretum.org if you plan to attend.
Sunday, 15 October, 8-11am. Bird Walk. We'll use vocalizations, habitat, and behavior clues for identification of our fall migrants and year-round residents. Come discover the Arboretum's avian diversity. Please bring binoculars. Option to continue the walk until noon for those who are interested. Rain or shine. Meet at the Arboretum Visitor Center. $5, members free.
Saturday, 21 October, 11am-4pm. Mushroom Cultivation Workshop. Led by Ja Schindler of Fungi For the People. We will begin with a presentation of 24 species of mushrooms that are regionally appropriate and useful as food, medicine, or plant partners. We will then install 5 of these species amongst the native flower gardens of Mt. Pisgah Arboretum. We will work with mushrooms that grow in soil/compost mixes, woodchip beds, and planted logs or stumps. Mushroom starter spawn of a variety of mushrooms will be available for purchase. A major focus of this workshop is developing a working understanding of dynamic microhabitats for growing a diversity of mushrooms at your homes and gardens. Meet at the White Oak Pavilion. Members $40, Non-members $50. Pre-registration required. To register call 541-747-3817 or visit http://www.mountpisgaharboretum.com/learn/workshop-registration/
Sunday, 29 October, 10am-5pm. 2017 Mushroom Festival! With Lane Community College and the Cascade Mycological Society. Hundreds of local mushroom species on display, live music, nature walks, Scarecrow Contest, a plant sale, fresh-pressed apple cider, food booths, and local arts and craft vendors. Suggested donation $8, Arboretum members free.

We need booth sitters for the ENHS booth at the MPA Mushroom Festival. No natural history expertise necessary—you'll be paired with a seasoned veteran. Contact Dave Wagner: davidwagner@mac.com

Saturday, 4 November, 10am-noon. Forest Ecology Walk. Explore the plants and animals of the Arboretum and their place in our native ecosystems with ecologist and LCC instructor Pat Boleyn. From our oak savanna to our conifer and incense-cedar forests, the interrelationships are fascinating and complex. Come away with a clearer understanding of the importance of these forests to us and the organisms that make them their home. Rain or shine. Meet at the Arboretum Visitor Center. $5, members free.

Friends of Buford Park and Mt. Pisgah
Monday Morning Regulars. 9am-noon. Contact volunteer@bufordpark.org for more information.
Tuesdays and Thursdays, 9am-noon. Nursery Work. Meet and work at the Native Plant Nursery at Buford Park. Enter Buford Park from Seavey Loop Road. Turn LEFT after crossing the bridge and drive 1/4 mile to the nursery.

WREN (Willamette Resources and Educational Network)
Saturday, 11 November, 10am-3pm. Play in The Rain Day. Play in the Rain Day is a free community event at Mt. Pisgah Arboretum for families of all ages to play outdoors, rain or shine, and connect with nature. Activities include tree climbing, archery, campfire cookery, nature exploration / hikes, nature crafts, backcountry horse demos, hayrides, scavenger hunts, Smokey Bear, and more. Parking is free courtesy of Lane County Parks**.**

The University of Oregon's Museum of Natural and Cultural History
Wolves and Wild Lands in the 21st Century. How can wolves and people coexist in our modern world? From Alaska to Oregon to North Carolina, explore the epic story of North America's wolves—and the vital role humans play in shaping their future. On exhibit 11 August 2017 through 11 February 2018**.** Exhibit Hours: Tuesday through Sunday, 11am-5pm.

Native Plant Society of Oregon, Emerald Chapter
Saturday, 21 October, 6:30pm. Little Shops of Horror—Oregon's Carnivorous Plants. Charlene Simpson is a long time NPSO member. Her program stars cobra lily and a supporting cast of sundews, bladderworts, and butterworts. She will feature the lures and traps of flesh-eating plants found in the killing fields of Oregon's bogs and fens. Go to http://www.npsoregon.org/calendar.html - EM for information.

Nearby Nature
Saturday, 21 October, 5:30-9pm. Haunted Hike. Go to http://www.nearbynature.org/events/haunted-hike-2017 for more information. Go to **http://www.nearbynature.org/events** for information on other Nearby Nature October events.

ENHS welcomes new members! To join, fill out the form below. Membership payments allow us to give modest honoraria to our speakers, as well as to pay for the publication and mailing of *Nature Trails*. Our web address: http://biology.uoregon.edu/enhs

MEMBERSHIP FORM
Name_____
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E-mail (if you want to receive announcements)_____
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ANNUAL DUES: Family $25.00
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Contribution _____

Make checks payable to:
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Annual dues for renewing members are payable in September. Memberships run from September to September. Generosity is encouraged and appreciated.

The Society thanks those members who gave us more than they had to when they paid their dues.

A good place to park for our meetings is the Physical Plant lot: turn north from Franklin onto Onyx, go about a block and you will be in the lot. After 6pm it's open to the public.

DUES ARE DUE!

Photo by Peter Hayes

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Schedule of Speakers and Topics for 2017-2018

20 Oct.	Peter Hayes	Exploring Positive Forest Pathways – An Update From the Field
17 Nov.	Chris Goldfinger	The Really Big One: How Did It Come to This?
8 Dec.	Matthew Betts	Hummingbird Highways: Why Landscape Connections Matter to Pollination in the Tropics
19 Jan.	Nathan Reynolds	Mountain Goats Return to *Lawetlat'la* (Mt. St. Helens)!
16 Feb.	Gayle Hansen	Seaweeds on Japanese Tsunami Debris: Have They Invaded Our Shores?
16 March	Leigh Torres	Insights into Whale Ecology
20 April	Fred Swanson	Humanities, Arts, Science Collide at Andrews Forest, Mount St. Helens, and Beyond
18 May	Ron Larson	The Natural History of Lake Abert, Oregon's Salt Lake