

Nature Trails

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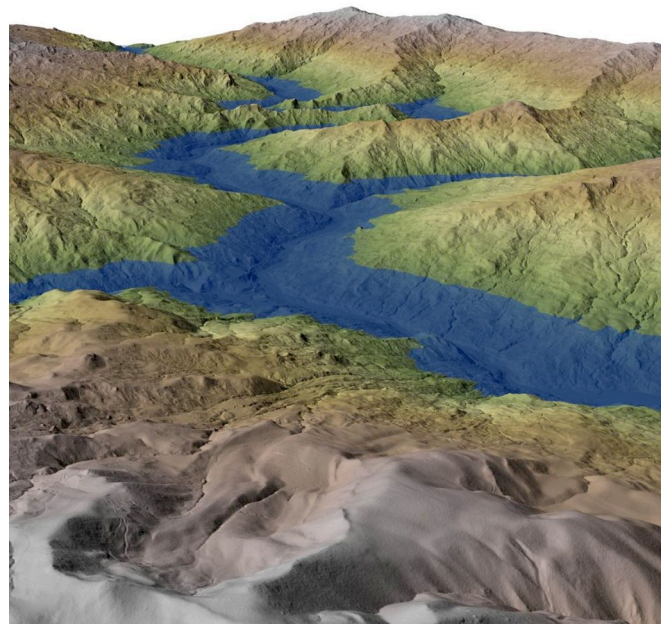


Eel River Mainstem. Humboldt County, California

**Are Mountains
Like Giant
Sandpiles? A
Tale of
Catastrophic
Landslides,
Ancient Lakes,
Big Floods, and
Fish Evolution**

**Dr. Josh Roering,
Professor of
Geological Sciences,
University of Oregon**

**Friday, 19 April
2013, 7:30pm,
Room 100
Willamette Hall,
UO Campus**



Eel River Mainstem reconstruction showing lake

When I walked into Professor Josh Roering's office in the Department of Geological Sciences here at the U of O the first thing I noticed was his Minnesota Twins shirt. Then he told me he had grown up in St. Paul! Our interview lasted way longer than it should have because we had lots of Minnesota stuff to talk about.

Roering's introduction to the natural world was what he called typical for a Minnesota kid: camping, drives in the country, canoeing in the Boundary Waters, swimming in lakes, taking in the sights along the St. Croix River – as Garrison Keillor would say, a pretty good life. I'm guessing that as a child he was above average, even though he lived on White Bear Lake and not Lake Wobegon. And in his lexicon, what you bring to the family picnic is a hotdish, not a casserole, and bars are not just the places where beer is served they also are those sticky square desserts your aunts used to bring to potlucks in cake pans.

Roering's older sister had chosen to attend Stanford University, and while still in high school he visited her and liked the school so much that he also went there. His interest in geology stems from a course he took as a freshman. He got both his B.S. and M.S. degrees from Stanford, in Geological and Environmental Science, finishing the M.S. in 1995. Roering went across the Bay to the University of California at Berkeley for his Ph.D., in geology, which he obtained in 2000. His dissertation was "Topographical, experimental, and numerical investigations of nonlinear sediment transport and hillslope evolution."

He got a postdoctoral appointment at the University of Canterbury, in Christchurch, New Zealand, which was to begin as soon as he finished his degree at U.C. Berkeley, but then he was offered a faculty position at the University of Oregon. He had other offers as well, and one of the reasons he chose Oregon was that when he told them about his post-doc they said "fine, we'll see you when it's done." He and his family were in NZ for about 15 months – a little short for a post-doc, he said, but long enough for him to make some good connections. He has been able to return to that tectonically active region for shorter stints to continue his research and maintain those collaborations.

Roering's research interests are still basically the same as those he worked on as a Ph.D. student, but their scope has broadened. He expresses them in the form of such questions as:

- How do climate change, vegetation, and ecosystem dynamics affect the evolution of landscapes?
- What is the 'signature' of life on landscapes?

- How do earthquakes and landslides shape mountain ranges?
- How do biota contribute to rock weathering and erosion in forested terrain?

Roering and his graduate students have taken full advantage of new remote-sensing technologies to study why landforms look the way they do and how they change over time. His interest in the linkage between biological and geomorphic processes has important practical applications. For example, what effects do practices such as clearcutting have on sediment delivery to salmon-bearing streams? The relationship between such forest-management practices and erosion may seem straightforward, but you might be surprised, as I was, to learn from Roering that clearcutting does not necessarily enhance the probability of all landslides. In his words, "In the forested steeplands of Western Oregon the connection between clearcutting and shallow landslides is well established, but land-use effects on deep-seated landslides, such as those that recently scuttled the Highway 20 cutoff between Corvallis and Newport, are less clear."

To get at the question of how life drives the evolution of the earth's surface, Roering recently connected with soil scientists and ecologists in South Africa, a tectonically quiescent area brimming with patterns etched by biologic and physical forces over millions of years.

What we will be treated to will not be South Africa, however, but remote and beautiful areas of Humboldt County in northwestern California, where, using high-

resolution topographic mapping, satellite interferometry, and airborne LIDAR (laser imaging detection and ranging), Roering and collaborators have discovered the site of an ancient huge lake formed by a massive landslide that blocked the Eel River 22,000 years ago and separated two populations of steelhead trout, influencing their subsequent evolution.

Roering's research program is first-rate. He has had NSF and NASA support from the start of his tenure here, and as many of us know, these grants are not easy to come by. His publication record is another indicator: upwards of 50 articles in high-quality journals. In 2011 he got the G.K. Gilbert Award for Excellence in Geomorphic Research from the American Association of Geographers.

There are big words in the titles to Roering's grant proposals and journal articles. If you have some trepidation about coming to hear him for fear your vocabulary might not be up to the task, let me allay your fears. Roering received the Ersted Award for Distinguished Teaching in 2005 from the University of



Oregon, and students who have taken his classes praise him for making his material easy for them to understand (The phrase “cheesy jokes” appeared in several student comments). The U of O says the Ersted Award “honors faculty members who have taught comparatively short periods and have demonstrated exceptional abilities to induce students to reason and not merely memorize.”

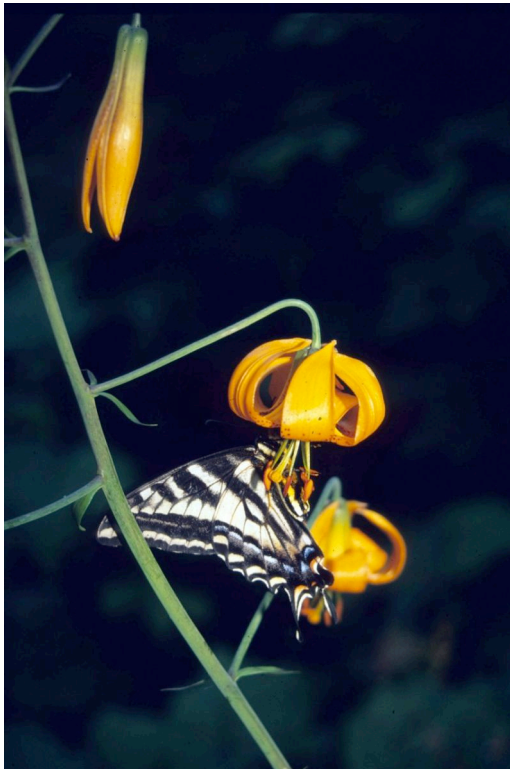
We can expect marvelous photos taken from a small plane flying over remote backcountry in Southern Humboldt County (what is that lush, bright-green patch over there?), videos of landslides, and pictures of the basic landforms with all the vegetation digitally scrubbed away. We will learn about how mountainous landscapes evolve, the importance of tectonic activity,

about big, slow landslides that move only meters per year (soil glaciers), and catastrophic landslides whose speed is measured in meters per second, how these geological processes are affected by climate change, and the new technologies that make this research possible. All this delivered by a Twins fan who has been honored for his teaching ability and accused of telling cheesy jokes. I don’t see how you can go wrong, coming to hear Professor Josh Roering’s talk, “Are Mountains Like Giant Sandpiles? A Tale of Catastrophic Landslides, Ancient Lakes, Big Floods, and Fish Evolution.” Join us in room 100 Willamette Hall on the U of O campus on Friday, 19 April, at 7:30 pm. See you there. John Carter

Reminder! The May meeting is our annual business meeting (the business part will be short).

Out and About

“Out & about” is a periodical encouragement to Eugene Natural History Society members to get out and experience our magnificent Oregon. Photos and descriptions provided by David Stone.



Wildflowers and butterflies are coming on strong this month. They often come together and some butterflies are so particular about their needs that they limit their association to one or just a few plant species such as the Fender’s Blue butterfly and Kincaid’s lupine, declared endangered in 2000. Through conservation and intensive management, it is starting to make a comeback.

Fortunately, Tiger Swallowtails (pictured at left) remain plentiful, due in part to their association with many plants. Host plants include bigleaf maples, willows, black cottonwood and others. They nectar on tiger lilies, blackberries, thistles, teasel, yarrow, columbine and rhododendron, to name just a few. Search for many butterfly species in the West Eugene Wetlands.

ENHS will have its booth at the Wildflower Festival at Mt. Pisgah Arboretum on 19 May. We need booth sitters. Sign up for a two-hour slot. You don’t have to be a natural history buff because there will be one around to help. It’s fun, you meet new folks, you get to watch kids ooh and aah over our displays, and you might entice someone to join our august organization. There will be a sign-up sheet at the April meeting.

President's Corner

Nettles by Tom A. Titus

Many of my special places have changed dramatically in the nearly two decades since my return to western Oregon, mostly under the influence of chainsaws and tree planters. But over the years one spot has remained stable. Nothing is obviously special about it, no big old trees or snowy peaks or plunging water or pools with spawning salmon. It's just a flat creek-bottom stretch of paved logging road that traces the foot of a north-facing hill and then ascends steeply to twist and burrow like a black worm deep into the folded green flesh of the Coast Range. From the sandy bottomland, red alders rise four stories on silver-gray trunks mottled with patches of moss and eventually branch into March limbs that sport only maroon catkins. The trees and hill block most of the sun, even in summer.

The attraction is a very dependable patch of nettles. In late winter the first shoots are pushing upward from moist leaf rot at the edges of the road. This growth is diminutive—only a few inches high, with prickly serrate leaves so darkly green they seem to be resurrected from the alder litter that accumulated last autumn. In the biological world of nutrient cycling this is not metaphor—the nettles literally *are* the composted alder foliage of autumns past. These small shoots are a marker of time as well as place, and in the center of my chest I know they form the leading edge of a spring tsunami of new growth. A little flush of feel-good chemicals floods my brain; winter is over.

Nettles haven't always engendered fondness on my part. When I was young and out and about with my family, stinging nettle was one of the first plants that Mom taught my brothers and me, with an emphasis on *stinging*. Her admonitions didn't always work, and our energetic lack of attention sometimes caused a brush that raised small painful welts that we wore like little-kid badges of our toughness. As a teenager, I made a solo summer fishing trip on a narrow creek meandering between farm fields along the McKenzie River bottom. Clad only in shorts and t-shirt, I spent the morning plowing through tall green nettles thinking I was too tough to care and then spent a sleepless night while my firebrand legs burned with lightless intensity.

Trauma sticks with me, and physical pain is great reinforcement. Even my field botany professor capitalized on human fascination for things that bite and sting. While I have forgotten the majority of my plant taxonomy, I still remember that *Urtica dioica* is in the family Urticaceae—they “urt” you. And the things that “urt” are hollow spines containing formic acid that are capable of piercing human skin. This causes what textbooks euphemistically call an

“irritation,” but the reality is that nettle pricks can urt like ell.

None of this painful familiarity and formal taxonomy drew me into my current love affair with nettles. This latest chapter began with a very used original copy of Erna Gunther's *Ethnobotany of Western Washington* (1945). I learned that the people who populated this green crease of land between the Cascades and the Pacific for thousands of years before European settlement knew nettles. They knew that the vitamin-laden shoots were available when winter food stores were dwindling, knew that in summer when the plants were tall the long fibers could be harvested and twisted into cordage of incredible strength. They also knew that when nettles are cooked or dried, they don't urt; the penetrating spines are no longer held erect by water pressure inside the cell and thus become flaccid and harmless. I would like to have known the risk-taking individuals who first discovered this truth about nettles. Were they infamous for their foolhardiness or renowned as adventurous geniuses?

Regardless of who started the nettle ball rolling, I am grateful. On the way home from pruning fruit trees in the Coast Range, I stop at my nettle place, put on a pair of leather gloves, and grab my loppers. Clipping the top from every other shoot, I am careful to avoid pulling up the rhizome from which new shoots will grow next February. A powerful pungency envelops my face, defying description with bytes and phosphors or black-and-white type. In my brain nettles smell like a decaying winter reincarnated as spring, dank valley floors about to be overcome by a burgeoning groundswell of cow parsnip, bleeding heart, and delphinium. Arriving home, I return to my gloves, wash the nettles, and place them in a steamer, and soon the nettle vapor is making one final trip around the house. I doubt that my ancestors dressed their greens with balsamic vinegar and olive oil.

In late summer I often stop again, this time to cut the tallest plants, which barely fit into my six-foot pickup bed. They dry in the August sun until they can be stripped of their fibers. When winter rolls back around I return to my chair by the woodstove, holding two groups of the longest fibers in my left hand. Using my right thumb and index finger, I twist and wrap the two bundles together, pinching the spun strands together with my left fingers, content to watch the jade green cordage slowly lengthen into my lap. Clockwise twist, hold, counterclockwise wrap, hold. When I close my eyes I can feel the rhythm and motion in my fingers. This helps me sleep.

Twist, hold, wrap, hold. That lengthening, strengthening strand of nettles ties me here. In *Tending*

the Wild, M. Kat Anderson explains that people become strongly connected to their bioregion when they incorporate into their lives the other organisms living there. This view seems contradictory to those of us dedicated to conservation. We rightfully spend much of our time seeking to reduce our impact on the world: we recycle, reuse, compost, drive less, shut off the lights, and eat locally. Honorable as they are, none of these environmental pursuits connects us in a direct

A Plague of Parasites by Reida Kimmel

It's Spring and all the birds at my feeders look so very bright, positively glowing with health, ready to start building nests and families. But one loathsome group of summer breeders is not yet here. Perhaps they won't come. Maybe they have all died, like the Brewer's blackbird family that tried unsuccessfully to nest at the barn door. Four years of failures and then they were gone. I'm afraid I am suffering from wishful thinking when I entertain negative hopes about the cowbirds that came here for the first time three springs ago. Admittedly there were only four of them, and it was cute to see them riding around on horseback catching flies, but still they were cowbirds, those nest predators that are pushing so many species to the brink of extinction.

For millennia, brown-headed cowbirds (*Molothrus ater*) roamed the plains with the buffalo. There was no way they could incubate eggs and keep up with the restless herds. So cowbirds evolved some amazing reproductive strategies, starting with laying eggs in other birds' nests and letting someone else rear the young. Then, beginning in the nineteenth century, the forests of the Midwest were cut down and cowbirds moved east onto the new farmland, eventually parasitizing the native woodland species all the way to the Atlantic coast. Soon the buffalo herds were decimated, and cowbirds sought new hosts in the patchy tree cover surrounding the grain fields and cattle ranches of the West. Today brown-headed cowbirds range all the way into Southwest Alaska, and wherever the tree cover is disturbed and wooded areas are patchy, wood-nesting birds suffer very high proportions of parasitism.

Before depositing an egg in another's nest, the female cowbird observes the surrogate parents' nesting activities. After the selected nest contains more than one egg, the cowbird lays hers and removes one egg, eating it or carrying it away. Instinct tells her that to lay an egg in an empty nest might cause the surrogate parents to notice the intrusion and abandon the nest and its cowbird egg. Most species of birds, but not all, accept the egg, and feed the hatchling that emerges a day or so before their own young. The cowbird chick demands and receives more food, and in seasons when

way to our place. We should not be digging camas and fawn lily bulbs—there simply are too many people and too few plants occupying our damaged landscape for such a harvest to be sustainable. But after fifteen years my nettle patch remains healthy, indicating that the plants can sustain themselves and carry along at least one attentive heterotroph. With their continued permission I will twist that cord ever stronger.

food is not abundant, it may be the only chick to fledge from the nest. Sadly, many of our most sensitive species, like warblers, vireos and phoebes, are birds that are completely accepting of cowbird eggs in their nests. Other bird species are lucky. Ducks and ruby-throated hummingbirds fail as foster parents. Many non-accepting hosts abandon the parasitized nests, or like robins and jays, get rid of the intruder's egg. Some research has found evidence that the ability to recognize and reject cowbird eggs is increasing in a number of host species. But the cowbirds seem to have evolved a counter strategy. Jeff Hoover, a researcher for the Illinois Natural History Survey, has found that the cowbirds in his study area, the Cache River catchment, hang around and retaliate against those surrogate parents that reject alien eggs, tearing up the nests and breaking all the eggs, forcing the birds to start over and probably to suffer predation again.

Only about three percent of cowbird eggs actually make it to adulthood, so how can we know that cowbirds are pushing some species like the Kirtland's warbler to the brink of extinction? Herein lies another amazing fact of brown cowbird reproductive physiology. The female has a uniquely long reproductive cycle. She is capable of laying eggs continuously for two months, the whole summer season. During the two years that the average female cowbird is reproducing, she lays about forty eggs a year. If three percent of those eighty eggs survive to adulthood, then she will produce 2.4 offspring in her lifetime. That is far higher than the replacement rate, and much higher than the success rate of other species.

Is this, then, a hopeless situation? Not necessarily. The key to the cowbird problem is habitat. The Midwest is the most affected area in the nation. Formerly densely forested, it now has few forests that are larger than woodlots. A huge study by Scott Robinson and Therese Donovan with the Illinois Natural History Survey found that songbirds living in forest fragments were five to thirty times more likely to have cowbird eggs in their nests than those same songbird species nesting in continuous forest. Many wood thrush, red-eyed vireo, and ovenbird nests contained not one, but two or three cowbird eggs. Cowbird control can work as part of the solution.

Starting in the 1980s an attempt to save the Bell's vireo, a Southern California species that has lost 95% of its habitat in the past century, involved trapping and killing about two thousand cowbirds a year at Camp Pendleton where habitat was relatively intact. Nest predation dropped from fifty percent to less than one per cent of nests. The Bell's vireo population has rebounded there, but not of course in San Diego to the south or in the Los Angeles megalopolis to the north. A better approach to the problem, one that was taken by the state of Illinois, the Nature Conservancy, and numerous other partners, was to reconnect the fragmented forest in part of the Cache River catchment. The Conservancy acquired a 2,775-acre vegetable farm rife with cowbirds, and the partnership, assisted by volunteers, has reforested the farmland. Now two decades later, 1,700 acres of thriving woodland and 700 acres of wetlands connect the two already existing forest preserves. Nest parasitism is down from eighty percent to only twenty-one percent. Filling in the gaps in forests where cowbirds thrive,

really works. In the Northeast, farmland has been reverting to forest over the past half century, and cowbird populations have decreased. Except, however, where suburbs, malls and highways fill in the landscape.

It is odd that Fox Hollow, a place where the old clearcuts and small ranches are returning to forest, should suddenly acquire a cowbird population. They do not come because they are attracted to the industrial plantations of monocultured Douglas firs between here and Cottage Grove. They could have come over the hill from the farmland in the Creswell area or from the Lorane Valley – pioneers seeking rich new breeding grounds. Whether they thrive and remain, or disappear is still a question. I remain hopeful and plant more trees.

Enjoy learning more about cowbirds and others in *Silence of the Songbirds*, Bridget Stutchbury, Walker & Co. *The Birder's Handbook*, Paul R. Erlich, David Dobkin, Darryl Wheye, Simon & Shuster. *Nature Conservancy Magazine*, #4, 2012.

Come to our annual summer potluck picnic on 9 June at the Kimmel's farm, commencing at 2 pm. We'll put the directions to the farm in the May issue of NT. Everybody's invited. There will be a brief board meeting at some point in the afternoon.

Events of Interest in the Community

Lane County Audubon Society

Saturday, 20 April, 8 am-12:30 pm. THIRD SATURDAY BIRD WALK. Mount Pisgah Arboretum (Nature Conservancy Confluence Project Site). Guide Diane Horgan will explain some of the site's history and plans for habitat restoration in the greater Mt. Pisgah area. The tour will explore the Confluence Project, which is only accessible with a guide. We should see lots of birds this time of year in an infrequently visited habitat! Meet at the South Eugene High School parking lot (corner of 19th and Patterson) for carpooling at 9 am. Plan to return by 12:30 p.m. All birders are welcome. A \$3 donation is suggested. As a precaution, please remember not to leave valuables in your car. Questions? Call Maeve Sowles at 541.343.8664 or president@laneaudubon.org.

Tuesday, 23 April, 7:30 pm. The Himalayas. Over the years, **Bob Fleming** has visited many parts of the Himalayas, and his presentation will offer a naturalist's overview of the system, ranging from One-Horned Rhinoceros and Giant Hornbills at low elevations to Tibetan Snowcocks, who dig for tubers amid clumps of golden edelweiss and sedums at 18,000 feet. 1645 High St.

Mount Pisgah Arboretum

34901 Frank Parrish Rd., Eugene, 97405. Call Peg Douthit-Jackson at 541-747-1504, email mtpisgjp@efn.org, or look at <http://mountpisgaharboretum.org/> to find out about current Arboretum activities.

Saturday, 13 April, 1-3 pm. Guided Walk - Tree Talk Walk: Trees of the Southern Willamette Valley. Led by Tom Bettman.

Saturday and Sunday, 4, 5 May. Native Plant Society of Oregon and Mount Pisgah Arboretum present a two-day workshop with professional botanist and scientific illustrator, Dr. Linda Ann Vorobik, "**An introduction to Botanical Art**". All skill levels are welcome. Location: LCC, Bldg 16, Room 115. Fee: \$125 for NPSO or MPA members, \$150 for non-members. **This workshop, co-sponsored by the Native Plant Society, is one of many events during May Wildflower Month.** www.MountPisgahArboretum.org/WildflowerMonth is where to go for the full list of events.

Sunday, 19 May, 10 am-5 pm. Wildflower and Music Festival. It's not too early to take notice of this marvelous annual event.

Nearby Nature

Go to <http://www.nearbynature.org/events> to view NN's calendar, or call 541-687-9699.

Saturday, 13 April, 1-4 pm. Family-Friendly Park Clean-up and Nature Walk. Gloves and tools provided. Dress for the weather and meet outside the Alton Baker Park Host Residence on the Waterwise Garden patio. Clean-up continued on **Sunday, 21 April, 1-4 pm and Saturday 27 April, 10 am- 1 pm.**

Sunday, 12 May, 1-4 pm. Lessons in the Learnscape: Mother's Day Drawing Workshop and Nature Walk. At the Nearby Nature Yurt in Alton Baker Park.

University of Oregon Museum of Natural and Cultural History, 1680 E. 15th Ave.

<http://natural-history.uoregon.edu/>

Free Admission Wednesdays, 11 am – 5 pm.

Fridays, 1 pm and 3 pm, Guided Tours.

Ongoing Exhibits: 1) Out in Space Back in Time; 2) Nick Sixkiller, The Man Behind the MIC; 3) Geophotography; 4) Site-seeing: Snapshots of Historical Archaeology in Oregon.

Native Plant Society of Oregon, Emerald Chapter

Monday, 15 April, 7:30 pm. The Row River Trail Project. Wes Messenger, a botanist from the Army Corps of Engineers, will talk about native plant resources as well as opportunities for public involvement in interpretation and stewardship activities. EWEB Training Room, 500 E 4th Ave., Eugene. For more information call 541-349-9999.

WREN

Saturday, 13 April, 10 am. – 2 pm. WREN'S Family Exploration Day at Stewart Pond. Get your feet wet! Catch insects, investigate plants, watch wildlife, and enjoy experiential learning in nature. WREN staff and volunteers will be on hand to check out nature exploration equipment. Meet at the parking lot on Stewart Rd., east of Bertelsen Ave. Bring waterproof shoes or boots, water and a picnic lunch or a snack. Rain or Shine! For more information please call 541.338.7047 or email info@wewetlands.org

North American Butterfly Association – Eugene/Springfield Chapter

Nothing this month but be sure to visit their booth at the Wildflower Festival at Mt. Pisgah Arboretum on 19 May.

We welcome new members! To join ENHS, fill out the form below. You will receive *Nature Trails* through November of this year. 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 _____

Address _____

City _____ State & Zip _____ Phone _____

E-mail (if you want to receive announcements) _____

I (we) prefer electronic copies of NT rather than paper copies. ___ Yes ___ No

If yes, email address (if different from the one above): _____

ANNUAL DUES:	Contributing	20.00
	Family	15.00
	Individual	10.00
	Life Membership	300.00
	Contribution	_____

Make checks payable to: The Eugene Natural History Society
P.O. Box 5494, Eugene OR 97405

<p>Annual dues for renewing members are payable in September. Memberships run from September to September. Generosity is encouraged and appreciated.</p>

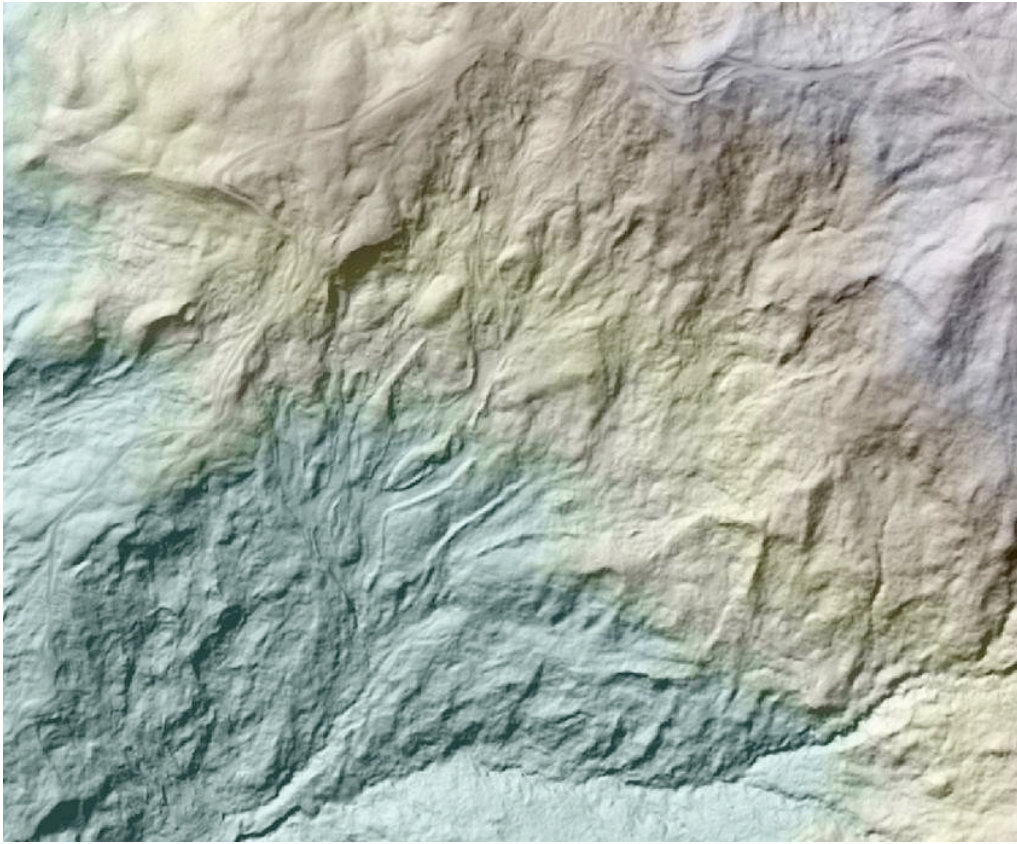
The following information is voluntary, but appreciated:

Would you like to: ___ lead field trips ___ teach informal classes ___ work on committees?

What would you like to hear a talk on? _____

Do you have special experience in natural history: _____

INTERESTS:



Eel River Catchment, LIDAR image

ENHS Schedule of Speakers and Topics for 2013

- | | |
|---|---|
| 19 Apr. 2013 – Josh Roering
Ancient | – Are Mountains Like Giant Sandpiles? A Tale of Catastrophic Landslides, Lakes, Big Floods, and Fish Evolution |
| 17 May 2013 – Jason Dunham | – Historical and Projected Patterns of Change in Pacific Northwest Streams: Implications for Persistence of Threatened Bull Trout |
| 20 Sept. 2013 – Scott Pike | – The Ness of Brodgar, Orkney's Ancient Temple Complex: Using Geochemistry to Unravel its Mysteries |
| 18 Oct. 2013 – Robin Kimmerer | – Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge and the Teachings of Plants |
| 15 Nov. 2013 – Ray Rivera | – Native Salmonid Fishes of the McKenzie River. |
| 13 Dec. 2013 – Daniel Robey | – Caspian Tern Predation in the lower Columbia River Basin |

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Nature Trails: Editor, John Carter, jvernoncarter@comcast.net; Support Staff: Ruth BreMiller and Reida Kimmel