

Nature Trails

Published by the Eugene Natural History Society

Volume Fifty, Number Four, April 2015



Grande Ronde basalt flows in the Joseph Creek Canyon, Oregon. The Grande Ronde Basalt is part of the Miocene Columbia River Basalt Group. Photo by Marli Miller

Oregon Geology, One Road at a Time

Marli Miller

**Senior Instructor, Department of Geological
Sciences, University of Oregon**

**Friday, 17 April 2015, 7:30pm, Room 100 Willamette
Hall, University of Oregon Campus**

How many ENHSers have a copy of *Roadside Geology of Oregon*? Probably most of us. But you might not be aware that the second edition came out in October of last year. And the author of the new edition is none other than our April speaker, Marli Miller. To get ready to write her book Miller took a road trip. Many road trips. She drove every major paved road in our state, some several times, to gather the data she needed. Doing geology at 60 miles an hour is not easy, so you can imagine that she put considerable wear on the brakes of her vehicle. She says the second edition is much different than the first. It includes many of her maps and photographs. Both the maps and the photos are in color, a decided improvement from the first edition.

Miller grew up in Cincinnati, Ohio. Her interest and long experience in photography started while she was a teenager, when a neighborhood friend taught her darkroom techniques. As you will see if you come to her talk, her skill with a camera has reached a high level. As a child she got to go to a summer camp in Colorado, and fell in love with mountains. And rocks. When it came time for college she went to back to Colorado: to Colorado College, in Colorado Springs. She already had a hunch that she was going to dig (ahem) geology, so she took a class in it her first year there. Surprisingly, she didn't do well. She got a C+, and began to think maybe history might be more to her liking. But during a break while on a road trip she had an epiphany: she was watching water cascade from the top of a road cut and realized the erosion she was watching was geology in action, and she got excited again about the discipline. Even with this renewed interest, geology did not come easily to her, but she finished at Colorado College with a BA in geology, in 1982. The Geology Department there hired her as an assistant in their lab and field classes for the year following her graduation, and it was during this year she discovered she liked to teach. Miller now realizes her initial difficulties with her chosen field have helped her be a better teacher, since she can empathize with those who struggle in her classes.

Following her time in Colorado, Miller took a year off from her formal education. Among her destinations during that year was Death Valley, where Lauren Wright, who had begun working in Death Valley in the late 1940's and was a leading authority on the geology of the region, took her under his wing. The two continued to collaborate over the following decade and co-authored several publications, including the book *Geology of Death Valley National Park: Landforms, Crustal Extension, Geologic History*, now in its third edition.

After that year of experiential learning Miller went on to graduate school at the University of Washington. There she completed a Master's thesis on a fault zone in southern British Columbia but maintained her fascination with the geology of Death Valley, where she completed her Ph.D. She became especially interested in the Black Mountains, on the eastern edge of Death Valley, and the three turtlebacks in that range – Badwater, Copper Canyon, and Mormon Point. The exposed faults in these places provide a natural textbook for those few who make the effort to visit.

Miller is a structural geologist. Her current research focus has grown out of her early efforts: she wants to reconstruct the structural and kinematic histories of fault zones, and is especially interested in the brittle-to-ductile transition in these zones. Fault zones, besides being fertile ground for geologic research, also provide a rich source of photographic subject matter. If you want to see photos of faults –or anything else geological, go to <http://marlimillerphoto.com/> and look through Miller's geology photos. Or buy her book!

Her experience as a teaching assistant at the University of Washington coupled with the teaching she had done at Colorado College convinced Miller that what she wanted to do with her professional life was to teach geology at the college level. After finishing her Ph.D. she taught for three years at the University of Wisconsin, Eau Claire, following which Miller joined the Department of Geological Sciences at the University of Oregon as an adjunct

professor. She is now a tenured Senior Instructor.

With *Roadside Geology of Oregon, Second Edition* ticked off her to-do list Miller is now planning to write the next edition of *Roadside Geology of Washington*. The research she is doing in



preparation for this effort is leading her to enlarge her research focus. She has suggested to her latest graduate student that he consider a project in Washington.

Of the many courses Miller teaches, she seems especially enamored of the Field Course. This is a six-week summer course, half of it in Oregon, half in Montana. The class makes its way to western Montana in vans, and stays in dorms at the University of Montana, Western. Students typically spend entire days out in 90-degree heat with no shade, doing hard

physical work, often running out of water before running out of thirst. Last year, on the way home, two vans broke down at the same time in Spokane, and Miller had to spend the night there while one was repaired. Not a fun experience, but certainly memorable. She said it is fulfilling to see the students in her class get so excited, even enraptured, by the geology she introduces.

In her talk Miller will tell us about the six main geological provinces in Oregon. After giving us the highlights of these provinces she will go over four roads in more detail: route 197, on the east side of Mt. Hood, route 82 as a way to get into more detail about the Wallowas, then route 199 to touch on the southwestern corner of the state, and finally US 101 for the coast. Be prepared to be amazed by what you will learn about the lava flows that formed the Columbia River Basalts, as just one example of Oregon's unique geological features. Miller's expertise as a photographer will be on full display. Please join us on Friday, 17 April, at 7:30pm in room 100 Willamette Hall, on the U of O campus to hear "Oregon Geology, One Road at a Time," by Marli Miller.

John Carter



The Yuck Factor Reida Kimmel

Everyone knows a few things that are really unbelievably repulsive. Often anything to do with snot, carrion and excrement will make a good proportion of the population feel queasy, and that has its evolutionary advantages because these yucky things are intimately connected with the possibility of disease transmission. Some of us find certain foods and species of animals disgusting. The durian fruit, hagfish, naked mole-rats, and carrion eaters like vultures come to mind. But keep in mind that once you get past the smell, the durian is said to be delicious. In Asia, hagfish are considered a good food, and the skins are made into sturdy leather goods. Vultures and other carrion eaters perform a function without which our planet would be uninhabitable. So what if their heads are naked and they do horrid things inside the bellies of the dead! And then there are mole-rats, especially the females. Do we have prejudices about what a proper mammal should look like and do?

I confess, that is my problem. Since childhood I have found opossums repulsive. Perhaps it's their teeth, all fifty of them, more than any other North American mammal and shaped and arranged in the "primitive" marsupial manner, quite naturally, because *Didelphis virginiana* is a marsupial, the only one in the United States. Its only defense is to pass out, play dead, and pass poop and a nasty smelling green slime from its anus. The only live opossum I

ever came close to was a caged laboratory animal, so defeated and dispirited that it was allowing the mice it was supposed to eat to gnaw on its tail. Instead of feeling pity and outrage, I felt only disgust. The master race always despises its slaves.

An article in *National Wildlife*, April/May 2015, featuring "The Opossum: Its Amazing Story," by William Krause, University of Missouri-Columbia, set me on a journey of discovery. I've been learning a lot about this despised animal recently. We might have only one species of opossum, but there are a lot other Western Hemisphere opossums, 103 species in 19 genera of the super order *Ameridelphia*. When Europeans came to America, our opossums inhabited only the southeast of what would become our nation. The eighteenth century saw them migrate northward and westward. Opossums have a soft fur lacking both guard hairs and down. They also lack subcutaneous fat. The homes, sheds and barns of the settlers provided the winter shelters that enabled the species to inhabit colder climates. How did they get to Oregon? Both Oregon and Washington claim to have had the first opossum in the Pacific Northwest, and apparently opossums were brought to Portland in 1910 as pets, believe it or not! Of course they subsequently escaped or were turned loose and have managed to thrive in the wild, near habitations for the most part, all over the western parts of Oregon and Washington.

Opossums will eat just about anything – fruits, vegetables, trash, slugs, snakes or carrion, and they are very good at finding that food and remembering where it is. They score better than rats or dogs when tested at these skills, which is very surprising because marsupials are small brained and generally considered to be intellectually inferior to placental mammals. Opossums have a very short life span, never longer than three years and often no more than a year. Automobiles are opossum killers, as are coyotes, bobcats and owls. To survive the cold of winter a female must weigh five and a half pounds or more. Less and she will die of hypothermia. To compensate for their short lives, opossums can produce two litters a year. Their sexual story is pretty interesting. Being marsupials, the males have a bifurcated penis and the females a two-horned uterus. As many as twenty-two embryos may be born twelve days after fertilization, but there are only thirteen teats in the pouch. Usually the litter numbers only seven or eight 'joeys', and they nurse for about one hundred days. Unless they are females with litters, opossums are usually solitary. They build dens lined with warming materials, which they can carry in their scaly, nearly hairless, partially prehensile tails. They move from den to den frequently, perhaps to avoid

predation, probably not to avoid disease, because the species has a remarkable immune system. A factor in their blood neutralizes toxins, making opossums immune to botulism, scorpion and bee stings, and even rattlesnake bites. Researchers are studying opossum blood in the hope of developing anti-venom for humans.

By now you are surely thinking that opossums are not so icky after all, or maybe just a little gross. Now comes the Yuck Meets Yuck story. Ticks can make anyone cringe, unless you are a researcher like Richard Ostfeld at the Cary Institute of Ecosystem Studies in Millbrook, New York. He and his colleagues found that ticks are very fond of opossums. An individual in summer can have two hundred ticks on its little body at any time. Opossums of course are immune to Lyme disease and other tick-borne infections and poor carriers for the disease. A tick feeding on an opossum will not drop off infected, if it does drop off. Ostfeld's group planted one hundred ticks on study opossums, and an equal number on white-footed mice (*Peromyscus leucopus*). While fifty percent of the ticks on the mice fed and dropped off full of blood, the opossums shed only three or four full fed ticks. What happened to the rest? Well, as a generalist with a taste for almost everything, the opossums groomed, scratched, licked, and ate the horrid parasites. Ostfeld estimated that in a single week an opossum could kill four thousand ticks. Now that's a yucky story, but knowing how many ticks we have in our woods, if an opossum moves into my neighborhood, I'll welcome it, provided it doesn't get under my house and die.



Support Herbicide Reform Tom A. Titus

I rarely use this column to lobby. Politics are not my thing. A helicopter with booms protruding like thin wings on either side sending a mist of herbicides drifting over a clearcut is not an image that inspires poetry. But it is an image you should keep in mind as you contemplate Oregon's herbicide future. Imagine the whirling blades propelling the chemical cloud downward and outward. Ask the question: What is a reasonable buffer zone around water and human habitation for aerial spraying? Currently Oregon's pesticide protections are less restrictive than those of Alaska, Idaho, Washington, and California. Oregon Senate Bill 613, the *Public Health and Water Resources Protection Act*, is the first legislation in four decades designed to bring the state's herbicide regulations out of the dark ages.

Currently our state requires only a 60-foot buffer zone around fish-bearing streams and no buffer for streams without fish, even though many of these waterways contain amphibians and most flow into

fish habitat. In 1996 Oregon removed all buffer zones around homes, only a few years after the federal government abandoned herbicide use on public lands. In contrast, Washington State requires a 200-foot spray buffer around human habitations and a 300-foot buffer along fish-bearing streams. Thus, Oregon's buffer zone for fish-bearing streams is 1/5 that of Washington, and our protection for humans reflects the level of care for people living in herbicide application areas: zero.

SB 613 is not wild-eyed environmental legislation. The bill is not a ban on aerial spraying. It dictates reasonable protections for humans in areas of herbicide application by requiring advance notification of spraying and a publicly accessible database containing details of the herbicides applied, and it directs the State Department of Agriculture to establish buffer zones around places where people live, drinking water, and fish-bearing streams by the year 2017.

A vast literature now exists documenting the toxic effects of herbicides on animals. Atrazine causes feminization in amphibians and reduced sperm counts in all vertebrates studied so far. Dioxins in herbicides such as 2,4,5-T and 2,4-D influence a well-characterized biochemical pathway that can cause immune system impairment, developmental abnormalities, and cancer. Glyphosate is the most commonly applied herbicide in the United States and is used in western forests to control broadleaf competitors to Douglas fir. Pure glyphosate has a variable half life of 2-197 days, is bound to soil and degraded by soil microbes, and is "relatively" nontoxic to vertebrates. However, detergents and other so-called "inert" ingredients included in sprays to facilitate spreading and absorption on leaf surfaces can increase toxicity to fish and amphibians by an order of magnitude above that of pure glyphosate. The herbicide Roundup Regular kills 50% of Pacific Chorus Frog tadpoles that are exposed to concentrations of less than half the EPA-accepted level for human drinking water. Toxicity studies on fish and amphibians are typically performed on life stages that do not address herbicide sensitivity of early embryos, particularly at stages before the development of the liver, the primary organ of detoxification. Studies on early life effects are especially important for amphibians because herbicides are often applied during the spring breeding season when eggs are laid.

Most ecotoxicology studies have dealt with the direct effects of herbicides on organisms. There are few data on indirect ecosystem effects. What is the effect on elk and blacktail deer populations of removing early succession browse? How do

endocrine-disrupting chemicals affect sex ratios of exposed vertebrate animals, their fertility, embryonic and larval growth, and size at maturity? Why are there now so few crayfish in many coastal streams, and what is the outcome of removing these key scavengers on nutrient turnover and on their predators such as sea-run cutthroat trout and river otters? What we do not know is daunting, and yet it is precisely because we don't know that timber and chemical companies say we should persist with the status quo. Shall we continue to accept that the burden of proof for chemical toxicity falls on people who are worried about or have experienced harmful effects? What has become of the doctrine of "Do No Harm"?

We are self-centered animals and respond more strongly to human health concerns than to those of our fellow creatures. Herbicides make people sick. This is now well documented in a huge body of biomedical literature that is beyond the scope of this essay. Just last month, a research paper implicated glyphosate in elevated risk of non-Hodgkin's lymphoma. Stories of people and animals sickened by herbicide overspray come from a dozen Oregon counties, the most recent out of Cedar Valley in southwestern Curry County (see the documentary film *Drift: A Community Seeking Justice* by University of Oregon Environmental Studies students:

<https://www.youtube.com/watch?v=fTZnSpioab8>). Residents were thwarted by the Oregon Department of Forestry in their efforts to find out what had happened to them and why.

As the fight over SB 613 becomes increasingly public, you can count on the timber and chemical industries with a profit margin at stake to play their

economic card. Yet there is no reasonable economic justification for rejecting SB 613. Chorus frogs don't earn minimum wage. Salmon and trout do not care about board feet or economic "growth." These are human abstractions imposed on the biosphere that are now accepted as reality in biological cost-benefit analyses, as though they mattered to anyone other than people. Even if economics were a reasonable platform from which to argue best forest practices, the largest companies applying herbicides on Oregon forests also operate in Washington, Idaho, and California under stricter rules without economic hardship. They might be making more money in Oregon because of our lax regulations, but they are certainly not going broke elsewhere.

Speaking of human constructs, shall we be beholden only to property lines? The U.S. Forest Service has not allowed aerial spraying on public forests since 1984. The Bureau of Land Management does not even spray their roadsides. Yet we bow to imaginary lines of ownership and allow vast tracts of private forest land to be sprayed, largely as the owner sees fit, even though streams flowing through that private land continue into public waterways that harbor drinking water and coho salmon and giant salamander larvae. The owners of private lands care about profits, not the public trust, and will act accordingly in their forest practices. As long as the laws follow property lines and profit at the expense of ecosystem health, including human health, then making money will remain the name of the game.

Call and write to your state senator and representative and tell them you support herbicide reform in Oregon. For more information, visit the Beyond Toxics website: <http://www.beyondtoxics.org/>.

ENHS FIELD TRIP TO THE COAST, 5-7 JUNE. This year's field trip will be Friday-Sunday 5-7 June at the Oregon Institute of Marine Biology in Charleston. We will travel in cars; carpooling is encouraged.

Accommodations: We will spend the nights of Friday and Saturday 5-6 June in the Institute's cottages, apartments and dorm. Most of the beds are twin sized, plus a few queens and futons. The cottages have fully equipped kitchens, but we must bring our own bedding and towels. We will fend for ourselves Friday night, cooking there or eating somewhere in Charleston or Coos Bay. Breakfast, sack lunch and a special seafood dinner on Saturday plus breakfast on Sunday will be provided at the marine station cafeteria. Vegetarian and other dietary options are available, if reserved in advance.

Activities: After breakfast on Saturday we will explore the tide pools at South Cove, Cape Arago. The low tide is -1.3 at 9:36am. Getting to the tide pools involves walking up and down hills. The path and tide pools can be slippery. Besides the pools that we will be visiting, there are also quite accessible, though somewhat less exciting, pools at South Cove for those who would like to explore but do not want to clamber over rocks. Saturday afternoon and Sunday are unstructured to allow time to explore South Slough National Estuarine Research Reserve (open dawn to dusk every day) and Interpretive Center (10am-4:30pm on Saturday), beaches, North Spit's dunes, the gardens at Shore Acres, ... so much to see, so hard to choose.

Costs: Expenses for the weekend will total \$93 per person. Rooms will cost \$40 per person for two nights and 4 meals will cost \$53.

To participate: Participation is limited to 25 people. Your name(s) will be added to the list when we receive payment. Make out checks to the Eugene Natural History Society and give them to Kim Wollter at the monthly meeting or mail to Kim Wollter, 3550 Mill St., Eugene, OR 97405. Be sure to provide participant name(s), phone numbers, snail mail addresses, e-mail addresses, and any dietary restrictions. All payments **must be received by 1 May**. Refunds may be made only in the case of emergencies, prior to 1 May. After 1 May if you must cancel you will need to find a replacement. For more information, contact Kim Wollter at 541-484-4477, kwollter@comcast.net. JOIN US. IT WILL BE GREAT FUN!

About eighteen hardy souls showed up for the beach cleanup on 22 March. Our mile was surprisingly clean on the southern end, but more stuff started showing up the further north we got. We ran out of time before reaching the northern terminus, so next time a few of the gleaners will need to start on the north end and work back to Ten Mile Creek. One discouraging note was the huge number of tiny pieces of plastic. Based on our small sample there must be countless billions of these bits strewn along the shores of the world's oceans.

Reminder: the May meeting is the annual business meeting and members will be asked to vote on whether to accept the slate of officers and at-large Board members. Also to be voted upon is whether annual dues should be raised.

Events of Interest in the Community

Lane County Audubon Society

Saturday, 18 April, Third Saturday Bird Walk. Led by Jim Regali. Carpool from the corner of Patterson and 19th at 8am to a destination to be announced.

Tuesday, 28 April, 7:30pm. Africa: Babblers, Barbets, Blue Monkeys, and Beyond. Join us at the Eugene Garden Club at 1645 High Street for a vicarious journey with Bob Fleming through Africa.

Mt. Pisgah Arboretum

Multiple dates, first 3 weeks in April. Spring Nature Guide Training. Become an Arboretum Nature Guide. Lead two-hour nature walks weekday mornings mid-April through mid-June. Help make elementary students' classroom science education come alive and reconnect them to the outdoors. To apply, contact Jenny Laxton, Education Program Coordinator.

Sunday, 12 April, 10am-noon. Pollination Ecology Walk. Find out how floral characters influence pollination and how flowers "choose" their visitors. Learn the foraging and nesting habits of common native bees, and meet a bumblebee-mimic fly that finds a home on Mount Pisgah's prairies. Meet at the Arboretum Visitor Center. Fee: \$5, members free.

Sunday, 19 April, 10am-noon. Wildflower Walk. Ecologists Peg Boulay and Bruce Newhouse will identify and talk about flowers and trees, birds and bees, and anything else you please! Rain or shine. Meet at the Arboretum Visitor Center. Co-sponsored with Native Plant Society of Oregon. Fee: \$5, members free.

Saturday, 2 May, noon-3pm. Botanical Photography Workshop. August Jackson will cover the basics of composition, focusing, and lighting and will review the more technical aspects of close-up photography. Plan to spend the last half of the workshop in the field, reviewing the techniques and experimenting with your equipment. Jackson's work may be viewed at www.ecolingual.com. Fee: \$10 members, \$15 non-members. **Pre-registration required.** Call (541) 747-3817 to register.

Saturdays, 9 May, 23 May and 6 June, 8am-noon. Bird Songs and Calls Workshop. Chris Roth and Julia Siporin will help participants recognize bird vocalizations. Each session will mix classroom time – in which we talk about bird sounds, listen to sample recordings together, and explore other learning tools – with time outdoors listening to the birds we are learning about.

Pre-registration required. To register call: 541-747-3817. Fee: \$35 members, \$40 non-members.

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.

Nearby Nature Go to <http://www.nearbynature.org/events> for information on NN activities, or call 541-687-9699.

Saturday, 25 April, 1-4pm. Restoration Celebration: Join us for an Earth Day themed clean-up of the pathway between the University of Oregon and Autzen Stadium. Tools, gloves and equipment provided. Dress for the weather, be ready to get dirty and bring your water bottle. RSVP by clicking [here](#), calling 541-687-9699, or emailing parkhost@nearbynature.org.

Sunday, 26 April, 1-3pm. Slime Time Nature Quest. Learn about snails, slugs, and other slimy creatures in Alton Baker Park. Meet in Nearby Nature's Learnscape for a slime patrol. Families welcome! Members free, non-members \$2/person, \$5/family. Pre-register: 541-687-9699 or on-line at nearbynature.org/pre-registration.

Saturday, 2 May, noon-4pm. Second Annual Adventure Fest. At Dorris Ranch Living History Village. Local outdoor recreation and education organizations will come together to provide fun activities for you and your family. Most activities designed for ages 12-18. Enjoy Bicycle Touring,* Longboarding, Earth Art, Slacklining, Obsidian Knife Making, Archery, Circus Arts, Hatchet Throwing and Crosscut Saw, Child Play Area. * Preregistration is required for the Bicycle Touring activity; call (541) 682-5329 to register. Adventure Fest is a free event.

Spring Seminar Series: Oceans: Fathoms Unexplored

This three-part Spring Seminar Series, a *free* and *public* event hosted by GrEBES (Graduate Evolutionary Biology and Ecology Students), an ASUO-supported student organization, brings three distinguished speakers from UO Oregon Institute of Marine Biology and Oregon State University to give public talks about current scientific research that focuses on exploring life in the ocean.

Wednesday, 15 April, 7-8pm. Sex Under Pressure: How Babies Are Made in the Depths of the Sea. Dr. Craig Young, Director, Oregon Institute of Marine Biology. 282 Lillis Hall, U of O campus.

Wednesday, 22 April, 7-8pm. Loss of Intertidal Sea Star “Asteroid Belts”: Catastrophe or Not? Dr. Bruce Menge, Oregon State University. 282 Lillis Hall.

Wednesday, 29 April, 7-8pm. Observing the Unseen: Studying Marine Predators in our Changing Coastal Ecosystems. Dr. Markus Horning, Oregon State University. 282 Lillis Hall.

WREN (Willamette Resources and Educational Network)

Saturday, 11 April, 10am-2pm. Family Exploration Day at Meadowlark Prairie. WREN staff and volunteers will be on hand to check-out nature exploration equipment and provide guidance for independent exploration of the wonders in the wetlands. Meet at the parking area located on Greenhill Rd, north of West 11th Ave. Bring water and wear sturdy shoes. For more information call 541.338.7047 or email info@wewetlands.org

Tuesday, 14 April, 9-10:30am. Wetland Wander, held this month at Wild Iris Ridge. Park on Bailey View Drive, walk to the end of the street and meet our group at the entrance. Bring water and wear sturdy shoes. WREN will provide binoculars. This is a free event. For more information call 541.338.7047 or email info@wewetlands.org

North American Butterfly Association, Eugene-Springfield Chapter

Monday, 13 April, refreshments 7pm, presentation 7:30pm. Monarch Waystations: A Milkweed Railroad along Migration Routes. By Tom Landis. Eugene Garden Club, 1645 High St. Free. Tom Landis will present an in-depth look at how to create pollinator habitat. Specifically, he will show us how to create monarch waystations — specialized pollinator gardens that link up to create a “milkweed railroad” along the migration route.

Native Plant Society of Oregon, Emerald Chapter

Thursday, 16 April, 7 pm. The Flora of Oregon Is Coming. The first volume of Flora of Oregon by the Oregon Flora Project (OFP) is now in press. Linda Hardison, OFP Director, will present highlights in the twenty-year journey to publication, give a preview of the book's content, and present what's next on the horizon for OFP. Location: Conference Room at Lane County Mental Health. 2411 Martin Luther King Blvd. For more information call 541-349-9999.

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 _____

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	_____

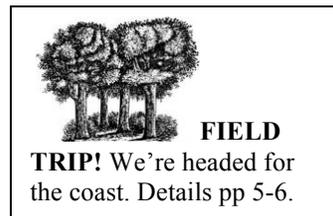
<p>Annual dues for renewing members are payable in September. Memberships run from September to September. Generosity is encouraged and appreciated.</p>

Make checks payable to:

The Eugene Natural History Society
P.O. Box 5494, Eugene OR 97405



Steens Mountain from the Alvord Desert. Photo by Marli Miller.



ENHS OFFICERS AND BOARD MEMBERS 2014-2015

President: Tom Titus titus@uoregon.edu 541-510-2500

Vice President: Rebecca Hazen <mailto:rebeccahazen2011@comcast.net>

Immediate Past President: David Wagner davidwagner@mac.com 541-344-3327

Secretary: Reida Kimmel rkimmel@uoneuro.uoregon.edu

Treasurer: Judi Horstmann, horstmann529@comcast.net

Board: Ruth BreMiller, John Carter, Tim Godsil, Rebecca Hazen, Pete Helzer, Phil Johnson, Kris Kirkeby, Herb Wisner, Kim Wollter. Emeritus: John Fentress

Website Webmaster: Tim Godsil, tgodsil@uoregon.edu

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

ENHS Schedule of Speakers and Topics for 2014-2015

17 April 2015 – Marli Miller – Oregon Geology --One Road at a Time

15 May 2015 – Pat Ormsbee – Wings in the Night: A Glimpse into the Mysterious World of Bats

ENHS Schedule of Speakers and Topics for 2015-2016

18 Sept. 2015 – David Harrelson – Kalapuya Perspectives on Place

16 Oct. 2015 – Suzanne Simard – Mycorrhizal Communication in Forests

19 Nov. 2015 – Nora Terwilliger – Galapagos Islands

11 Dec. 2015 – Paul Bannick – Journey With Owls

15 Jan. 2016 – Madonna Moss – Anthropology of Pacific Herring

19 Feb. 2016 – Greta Binford – Spiders

18 Mar. 2016 – August Jackson – Pollination Biology

15 Apr. 2016 – Rebecca Vega-Thurber – Coral Reef Decline

20 May 2016 – Mark Blaine – Copper River Salmon

Alternate – Dean Walton – History of Oregon Naturalists