

# *Nature Trails*

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South Cove, Cape Arago

**Dr. Nora Terwilliger, Professor Emerita, Department of  
Biology, University of Oregon, and Oregon Institute of  
Marine Biology, Charleston, Oregon**

**"Swapping Skeletons: Change is Good"**

**Friday, 20 November 2009, 7:30PM, Room 100,  
Willamette Hall, UO Campus**

In June of this year several Eugene Natural History Society folk spent a weekend at the Oregon Institute of Marine Biology. On Saturday of that weekend there was a particularly low tide, and our November speaker, Dr. Nora Terwilliger, led us on an exploration of the intertidal zone at Cape Arago. Her enthusiasm was infectious at our initial rendezvous at the dining hall. Once we were among the rocks Nora shared her knowledge with any and all close by. Hours later as the last stragglers tore themselves away from the tidal pools, we were treated to a bonus: someone brought Nora a fresh crab molt and she used it to give us one last lesson. She showed us how they breathe, where they take in and expel water, how they mate, and, germane to what she will say to us in her talk, how molting is critical to their mating process. She was every bit as upbeat in this last interaction as she had been when she introduced herself hours earlier.

Nora was multi-tasking that morning: the other task was the return of several live specimens that she and her students had collected earlier for her class in Invertebrate Biology. She saw this as an opportunity to teach us. She handled each animal with care, told us what it was, pointed out distinguishing features, and then carefully placed it back where it belonged in this complex ecosystem, or had someone else do so. Those students who came along showed the same care, as did those of us who were watching. Powerful lessons do not always take words to convey.

Dr. Terwilliger was born in Connecticut and raised in a small town on Long Island Sound. As a child she and her friends roamed the marshes, catching crabs, digging clams, fishing... does this sound idyllic or what? As a youngster she even had access to a boat – a wooden dory that she rowed around on the backwaters. So Nora was becoming a marine biologist even before she knew what it was.

She went to the University of Vermont for her undergraduate work, switching back and forth between biology and medical technology every other semester or so, finally ending with a BS in med tech. From there she went to the University of Wisconsin, in the Medical School Anatomy

Department, for her Master's. She was doing electron microscopy, looking at subcellular organelles, but she missed the ocean. Nora saw a poster for a physiology course at the Marine Biological Laboratory, Woods Hole, on Cape Cod. She applied, and got a fellowship from the University of Wisconsin to attend. She worked on microtubules, using marine organisms such as sea urchins. And it was there she met Bob Terwilliger. She finished her MS at Wisconsin, and she and Bob were married. They lived in Boston for three years, then Bob got a post-doctoral position in the Friday Harbor Laboratory, the University of Washington's Marine Biology Institute. They fell in love with the west coast. Bob was hired as Assistant Director of OIMB in 1970. They moved to Charleston in January of that year, in the middle of the rainiest winter Nora can remember.

Nora's research on oxygen transport proteins in crustaceans began in 1976 while she and Bob were on sabbatical at Duke University's Marine Laboratory. This stint at full-time lab work rekindled her desire to finish her PhD, which she got in 1981 from the University of Oregon,

working under Bill Sistrom. She continued to do research at OIMB as well as occasionally teaching a class.

Tragedy struck in 1989, when her husband died of a heart attack. The Biology Department at UO maintained her in a temporary position for a year. When a search for a tenure-track position opened she applied

and got the job, hired as an Associate Professor in 1990. She formally retired in 2006 but as Professor Emerita continues to do research and teach part-time at the Institute.

In her research she became fascinated with the ways crustaceans get oxygen into their systems and how it is moved about. So she has studied the proteins that bind and transport oxygen, specifically the hemocyanin family. She has looked not only at the proteins themselves but also at how their syntheses and activities are regulated in response to the rapid changes in environmental conditions these animals must deal with every few hours, as the tides rise and fall. Her research has taken her to marine laboratories and universities



around the world and provided opportunities to dip her toes into many bodies of water, including the Atlantic, Pacific and Indian Oceans, the Baltic, Adriatic and China Seas, and the Rhine, Okavanga, and Mara Rivers.

What about the skill set needed to become a world authority in this field? Not only must one know protein biochemistry and molecular biology, there is also anatomy and physiology of several animal species, as well as their developmental biology. And then there is the ecology of the intertidal zone: how all these animals and plants fit together in a constantly changing environment. Any one of these disciplines might occupy a scientist for a lifetime. Judging from her articles and the prominent positions Nora has held in international societies, she has all these tools in her belt.

We get to hear her talk about one aspect of her broad professional experience, and I'm sure we'll be treated to a wealth of photographs of the varied and wondrous organisms in this species-rich habitat. Nora will tell us about molting; the title of her talk, perhaps more appropriate for October than November, is "Swapping Skeletons: Change is Good." Please join us at 7:30pm on Friday, 20 November 2009, in room 100, Willamette Hall, University of Oregon campus, for what promises to be a delightful evening. John Carter

### **Homesick, by Reida Kimmel**

For the first seventeen years of my life I lived in southeastern Connecticut and Rhode Island, near the Shore. It was a lovely place then. A few dairy and truck farms remained, but most of the farms were abandoned. The hardwood forest that had covered New England three centuries ago was slowly reclaiming the land. My favorite season has always been fall, and it is not surprising that my most vivid memories of home are of that season. The wonderful smell of the fallen leaves was everywhere. Fall is a dry season in New England and the sugar maples blazed in the sunshine, their leaves every conceivable shade of peach, orange and red. Oaks and red maples provided the deeper tones. And then there were the berries. You could almost forgive the ubiquitous, aggressive bittersweet because its orange and gold fruits were so pretty. I would wander through old fields, now woods, on my horse Pop. Broken down stone walls marked the pastures and orchards. We would stop to pick and

share apples. I have never eaten such apples again, small, crisp, and so intensely flavored. I know the long-dead farmers who planted the ancient gnarled and broken trees forgave my petty thefts. Years later, after I had moved West, I always planned my visits for fall color time, borrowed a horse and made my rounds. Nothing ever seemed to change except that every year there were more woodlands. After my father died, I would drive my mother all over eastern Connecticut. We wanted to immerse ourselves in the wonderful colors and scents of autumn. My family did not believe in maps, did not even possess a single map of the state. Mother would get a dreamy look in her eyes and say: "There's a church on a hill" and wave her tiny, immaculately manicured hand in a direction vaguely northwestwards. Off we would go, the giant old Chrysler breasting the hills and descending into the valleys like a lordly yacht. The view from every hill was more beautiful than the last, so many colors, maples bright in hot shades of yellow, red, pink and orange, the occasional ash trees an amazing smoky lavender. And somehow, of all the churches and hills in Connecticut, we would find the right one, pristine and white amidst the riot of color along a village street. Mother and I shared a passion for the broad lower reaches of the Connecticut River, its banks tan with tall *Spartina* grasses. "Salt marsh, the best pasture" she would always say. And once again we would drive home in the chilly late afternoon, racing the setting sun, following the Connecticut, 'the long river', downstream towards its wide mouth.

Oregon's falls are nothing like New England's. Everyone knows that. Even a most glorious fall like the one that we have been experiencing cannot compare. Well why not? In the first place our climate is very different. New England's trees turn color when the muggy rainy weather of summer turns dry. With lower humidity the nights become chilly and yet the days are sunny and quite warm. We on the other hand have dry sunny summers that turn to damp and cloudy or foggy falls. Even in New England, if the fall is wet, the color is very poor. We are also much poorer in species of colorful native trees. In addition to its four or more species of maples, most of New England has two intensely red-turning oak species, various birches, and other species like tulip trees [*Liriodendron tulipifera*] and sassafras that can be spectacular in the fall. We have only

two species of maples. Our dogwoods, cottonwoods, and even our native willows sometimes put on a great show, but the palate is mostly in shades of yellow. Our white oaks are a very sorry lot in the fall, but they can be forgiven, for their dull brown leaves are hiding treasure, and after they have fallen, every branch and stem is bright with lichens, grey green *Usnea* and *Ramalina*, deep green *Lobarina*.

For the most part, we are a region of conifers, and “fall color” is often the contrast of a tall golden cottonwood or big leaf maple tree standing out against the many greens of the firs, pines and cedars. We despair. We plant our yards and our streets with *Liquidambar* trees and that is the fall color we enjoy annually. But we are making a big mistake short-changing our native woodlands at this time of year. It’s a bit too late to appreciate the full wonder of the color, but a drive along Siuslaw River Road, winding downstream under a canopy of huge golden bigleaf maples glowing in the noonday sunlight can compete with most Eastern displays. So also can the scree slopes of mountain lakes like Huckleberry Lake near Oakridge, vine maples blazing scarlet against the grey rocks. Search and you will find fall color aplenty, very close. Homesick? Not me. I’m here and that’s good enough.

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(Ed. note: In the September issue of Nature Trails Tom Titus issued “a moderate challenge... That we begin to embrace an expansive collective vision in which our enthusiasm for the natural world translates into wisdom about how humans might walk upon the earth. That our Society contribute in some way to the rediscovery that humans don’t just inhabit the earth: we are a part of Her.” The following essay was submitted in response.)

### **A Change in Rafe, by Bob Ross**

Rafe, my eight-year-old grandson, and his parents came to visit us a year ago. We like lots of kinds of fruits, and when mealtimes came around, we would offer him fruits. It turns out that he is a very picky eater, and though he would eat blueberries and strawberries, he wouldn’t touch most other fruits, so he turned us down on most of our offerings. We went to the coast for a few days, and while at Cape Perpetua we took a hike along a trail that goes along a stream. As we walked I

picked some salmon berries. He asked if they were any good. I said that some were and some weren’t. He asked what made the difference, so I told him about genetic differences and how the amount of solar energy makes a difference. His curiosity was piqued just enough that he sampled a berry and discovered that it was sour. “Oh yes,” I said, “and then there are developmental differences, and one needs to pick berries that are ripe.” So he started asking which berries might be better than others, and soon Rafe was testing berries all along the trail. We conducted the same taste tests with several other berry species, and also wood sorrel and miner’s lettuce. He was surprised by how much variation there was in the berries of any given species. Kids are curious, and curiosity has an amazing effect on people. He asked about poisonous things, and we talked about rules that might help us to be food-smart.

This year, Rafe, now nine, wanted me to take him on a backpacking trip – this grandfather’s greatest desire! We hiked into Pamela Lake and set up camp, went for a swim, and then took an evening hike up to the Pacific Crest Trail crossing of Milk Creek. The next day, Rafe wanted to go exploring, so we hiked along a stream. Soon, I was eating black caps, trailing blackberries, thimble berries – about eight kinds of berries all together. Rafe joined right in, and soon he concerned me about how many berries he could handle without having diarrhea. We played in the stream (actually building habitat for fish and making a safer crossing for hikers) and did things that kids like to do out of doors. After returning to camp and having supper, we went for an evening hike to the south end of the lake where we watched Canada geese for a while. Rafe thought that this day had been the best one in his life. It was certainly one of mine.

It started raining during the night. Would that spoil our next day? We were lucky that it didn’t rain while we ate breakfast, took down the tent, and loaded our packs, but it did start raining once we reached the trailhead. I asked Rafe what he wanted to do for the rest of the day. To my surprise, he said, “Let’s go huckleberry picking!” So we drove to a huckleberry patch near the top of the Western Cascades (Don’t ask for more specific directions!) and began picking huckleberries in the rain. Rafe was sampling each berry bush and reporting its taste-worthiness. Soon, he asked for a container so that he could

pick some to take to Grandma, in hopes that she would make him some huckleberry pancakes. He picked enough such that the extended family could have huckleberry pancakes. Way to go, Rafe!

Rafe lives in Pennsylvania, so I don't get to interact with him very much. That is bad. The good news is that he has an e-mail account. When on outings, now, I take a series of photographs that can be used to tell a story about my hike, tidepooling or whatever. I then write him an illustrated story about my interactions with nature. He likes to read my narratives, and he is now telling me what he wants to do on our backpacking trip next summer. He wants more days out and more berry-picking. And mushrooms too. And what else can we eat in nature? That is quite a transformation, isn't it?

I have read many times and in many places that if you want people to change, you need to provide them with good experiences, and preferably in new settings. It sure worked for my grandson and I also know that it works for my students in my Oregon Ecology class. I'll write about some of those transformations another time. If we want people to care for nature, they need to value it. People rarely value nature unless they have experienced it in some significant and meaningful way, and it isn't until they value nature significantly that they are willing to take actions to support nature. So if we want people to support nature, we need to help them to have good experiences. Rafe noticed that huckleberry bushes only grow in some places, and he is showing signs of concern for them now. Is he becoming infected with interest in nature? I think so, and his health will improve as he spends more time in berry patches, and maybe nature's health will improve as well.

## **Eugene Natural History Society at the Mushroom Festival, 25 October 2009**

For as long as the Mount Pisgah Arboretum has been having a Wildflower Festival in the spring and a Mushroom Festival in the fall, the ENHS has had a presence to share its interests. Presence in the early days meant little more than handouts spread across a borrowed table in shared space with another organization. We eventually bought a little collapsible picnic shelter, a few folding tables, and then the classy EZ-UP canopy we now use. It protects the interior from sun, wind, or rain and offers a nice backdrop for our growing collection of natural history posters. We have a rich collection of natural objects to display on the tables.

At the 25 October Mushroom Show, the ENHS booth was set up close to the big tree round at the junction of the ZigZag trail and the Bufords' trail, near the upper end of the non-profits' colony. The initial fear that our booths would be out of the way of regular traffic was unfounded, as the scarecrow contest guided families to the booth alley. Families with children found the ENHS booth to be a great stopping place: instead of "don't touch!", here was a "Please Touch Table." Andrew Sermak's live-salamander display was a huge draw.

The booth tenders – Chuck and Reida Kimmel, Connie Wagner, Judi Horstmann, John Carter, and Rebecca Hazen – were continually busy, as the booth was always filled with unofficial greeters and fascinated festival goers. Thanks to all who helped out, cheers to all who visited us.

David and Connie Wagner, ENHS booth coordinators

After his presentation last month, David Noakes made a financial contribution to our Society. Thank you David! He also wanted us to remind our members of the opportunity next summer for study and travel in Iceland. The course, administered by OSU, is directed to undergraduates but will also appeal to graduate students and anyone interested in Iceland and environmental sustainability.

Many of us get a warm feeling when we think of the Malheur Field Station; we've stayed there, smelled the sage, been awed by their sunsets, stoked up on their food. This outfit needs to be there. But the MFS is in a severe financial crisis. They will end the year with a deficit in excess of \$50,000, and their bank credit line has been used up. The MFS is poised to expand its leadership in educational opportunities for life-long learning in the Northern Great Basin if it can overcome its monetary difficulties. The ENHS is not able as an organization to offer assistance other than this heads-up to our members, so we urge you to consider donating to this eminently worthy cause. MALHEUR FIELD STATION, 34848 Sodhouse Lane, Princeton OR 97721.

**Check out the new, improved ENHS website! Thank you, Tim Godsil!**  
<http://biology.uoregon.edu/enhs/>

## **Events of Interest in the Community**

### **Audubon Society**

**Tuesday, 24 November, 7:30pm. Madagascar.** Last year avid birder and world traveler Jim Regali took us on a vicarious trip to Cameroon. This year, Jim returns to show us slides of his trip to Madagascar, the oldest and fourth largest island in the world. Because of its unique natural history, much of the fauna and flora is endemic. Jim will show photos of his trip, with an emphasis on the birds and lemurs.

### **Mount Pisgah Arboretum**

34901 Frank Parrish Rd., Eugene, 97405. Located off I-5 Exit 189, 15 minutes southeast of Eugene. Call Peg Douthit-Jackson at 747-1504 or email [mtpisgjp@efn.org](mailto:mtpisgjp@efn.org) for more information or to sign up for any of the following Arboretum activities.

☐ **Sunday, 15 November, 3:00 to 4:30pm. Annual Meeting.** Get the latest Mount Pisgah Arboretum news, and elect new board members for the organization. Potluck and raffle included. This free event will take place at the EWEB Community Room, 500 E. 4th Avenue, Eugene.

**Sunday 22 November, noon-4pm. Holiday Wreaths and Centerpieces.** Decorate your door and table with your own seasonal wreath and centerpiece using native evergreens, cones and other natural materials. Bethany Little, talented local florist and owner of Sparhawk Farms on Seavey☐Loop Road, teaches this annual fundraiser for the Arboretum's Education Program. Participants are encouraged to bring items to add to their wreaths or to share. Dress warmly as we will work in the White Oak Pavilion for this workshop. Rain or shine. Meet at the☐MPA White Oak Pavilion. Fee: \$25 (MPA☐members/20). Reservations required. ☐

### **The North American Butterfly Association**

**Monday, 7 December, 7:00pm refreshments, 7:30pm presentation. Enhancing and Restoring Prairie and Savanna.** Jason Blazar, local landscape ecologist, stewardship coordinator for Friends of Buford Park & Mt. Pisgah, forest manager for the City of Eugene Parks and Open Space Division, and Executive Director of the Camas Educational Network, will discuss regional efforts to enhance and restore prairie and savanna landscapes within the central southern Willamette valley. He will utilize three case studies to showcase efforts across the spectrum of land stewardship to improve habitat for butterflies and other creatures on small and large scales; providing benefits for butterflies, plants, and the broader community. EWEB Training Center 500 West 4<sup>th</sup>, Eugene. Free and All Welcome.

**WREN** For more information on the following activities call 683-6494.

**8 December, 9-10 am. Wetland Wander - Tsanchiifin Walk.**

### **Nearby Nature**

**Saturday, 21 November, 3-6 pm. Nearby Nature's Lessons in the Learnscape Workshop:**

**Backyard Habitats.** November is the time to plant trees and shrubs so they develop root systems and naturalize before our dry Willamette Valley summer. Join Nearby Nature at this workshop for people interested in creating backyard habitats that support native wildlife. Learn about Willamette Valley habitats, plants, and pollinators and try some hands-on native plant propagation. Take starts and seeds home to plant in your own yard for beautiful spring color and to contribute to our regional natives restoration seed bank. Bring a drawing and photos of your yard and we will help you figure out the best places to plant your natives. Instructors: Bruce Newhouse (Principal, Salix Associates and Nearby Nature Advisory Board Member--[www.salixassociates.com](http://www.salixassociates.com)) and Yotokko Kilpatrick

(Founder and Operational Director, Walama Restoration--walamarestoration.org). To register, see [www.nearbynature.org/programs/lessons-in-the-learnscape](http://www.nearbynature.org/programs/lessons-in-the-learnscape), call 687-9699, or email [info@nearbynature.org](mailto:info@nearbynature.org) with Backyard Habitats in the subject line.

**Saturday, 21 November, 10 am-noon. Tails of the Night.** Learn about raccoons and other creatures of the night and find out how they stay warm in winter. Snacks provided. Fun for all ages—families especially welcome. We meet outside the Alton Baker Park Host Residence, rain or shine. Cost: \$2/person, \$5/family. Pre-registration is suggested: 541-687-9699.

**Wednesday, 9 December, all day.** Join us at Papa's Pizza for a Nearby Nature fundraiser in support of our partnership with the Rachel Carson Center at Churchill High School. All year long, a dedicated group of students and staff will be doing environmental restoration work twice a month in Alton Baker Park's Wildflower Hollow. You can help support this important project: On 9 December, all day long, Papa's Pizza on 11th will donate 50% of the cost of your food order (not for delivery items) to Nearby Nature if you bring in our special coupon. Coupons are available at <http://www.nearbynature.org/membership/benefit-days>. Coupons will not be available at Papa's—bring your coupon with you! BRING FRIENDS! TELL YOUR NEIGHBORS! ORDER PIZZA FOR YOUR STAFF MEETING! THANKS!

**Saturday, 12 December, 10 am-noon: Warm in the Wild.** Build a simple shelter and learn how to stay warm in the wilderness using common sense and a few simple materials. We meet outside the Alton Baker Park Host Residence, rain or shine. Cost: \$2/person, \$5/family. Pre-registration is suggested: 541-687-9699.

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**We welcome new members! To join ENHS, fill out the form below. You will receive *Nature Trails* through December of next 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*.**

**MEMBERSHIP FORM**

Mail checks to **Eugene Natural History Society  
P.O. Box 3082, Eugene, OR 97403**

Name \_\_\_\_\_

Phone \_\_\_\_\_

Address \_\_\_\_\_

E-mail (optional) \_\_\_\_\_

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

**Generosity is Appreciated**

Do you have any special experience in natural history? \_\_\_\_\_

Would you like to organize/lead field trips? \_\_\_\_\_

Teach informal classes? \_\_\_\_\_

Work on committees? \_\_\_\_\_

What natural history topics interest you for future talks? \_\_\_\_\_

## ENHS Schedule of Speakers and Topics 2009-2010

- 20 November** - Nora Terwilliger – Marine Biologist: "Swapping Skeletons: Change is Good"  
**11 December** - John M. Marzluff – Ornithologist: "In the Company of Crows and Ravens"  
**15 January** - Rick Boatner – Wildlife Biologist: " Stop the Invasion: Invasive Wildlife in Oregon"  
**19 February** - Greg Retallack – Geologist: "Past Climate Crises"  
**19 March** - Sue Beilke – Herpetologist: "Turtles"  
**16 April** - Dean Walton -- Ecologist, Science Librarian: "Freshwater Tidal Swamps of the Atlantic Coast"  
**21 May** - Pat Kennedy – Ecologist: "Habitat Conservation in NE Oregon"

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