Nature Trails

Published by the Eugene Natural History Society

Volume 60, Number 4, April 2026

The Eugene Natural History Society is based out of the traditional homelands of the Kalapuya peoples, most of whom are citizens of the Confederated Tribes of Grand Ronde and the Confederated Tribes of Siletz Indians. These Indigenous people stewarded this land for millennia and continue to play an active role in local communities. We commit to supporting the many Tribes and Indigenous scholars and organizations working to shape the future of these lands and waters that we mutually cherish.

The spreading branches and wide ranging roots of white oak create shelter and space for many other creatures to flourish.
Heron Brae

For the Love of Oaks: Ecology, Community, Stewardship

Heron Brae

Brae Botanical Ways, Eugene

Friday, 17 April 2026, 7:00 pm

This month's meeting will be a hybrid of in person and real-time Zoom. The in-person lecture will be held at **7:00** in **221 Allen Hall, University of Oregon campus. Snacks provided!** The Zoom lecture link is https://zoom.us/j/97499095971?pwd=eE9sdG9hSHMvOHhIUEJuU21wT20rdz09 or see our website at https://eugenenaturalhistorysociety.org/

This Month's Speaker: Heron Brae

The Eugene Natural History Society and the Emerald Chapter of the Native Plant Society of Oregon are excited to welcome Heron Brae as our speaker this month. Heron is a natural choice for our joint program because she is knowledgeable about many aspects of native plants and has a deep and multidisciplinary approach to the study of ecosystems in Oregon. Titles such as "botanist" or "ecologist" fall short for describing Heron's engagement with the natural world, which includes education, foraging for edible and medicinal plants, ecosystem restoration, and community organizing.

To acquire such a wide breadth of knowledge and experience, Heron's educational journey spanned numerous institutions and took a less traditional path. As early as high school here in Eugene, Heron knew she wanted to work with plants and that she wanted a stronger hand in her own education. Inspired by the unschooling movement, which encourages young people to "rise out" of school and lead their own education guided by their own interests and community involvement, she left high school to pursue an apprenticeship as an herbalist. She followed this with naturalist studies at the Wilderness Awareness School in Duvall, WA and 2 years of in-depth field study at the Columbines School of Botanical Studies in Eugene. Concurrently, Heron enrolled at Lane Community College (LCC) and took as many natural history and biological science courses as she could, especially reveling in the botany coursework with Gail Baker. At LCC, Heron's instructors noticed her ability to think broadly about the material and her self-directed learning style and suggested Evergreen State College in Olympia, WA as a natural next step.

Evergreen is a public undergraduate university that offers both stand-alone classes and programs in which multiple courses from various disciplines are taught in a cohesive way that encourages interdisciplinary thinking, and students can design their own majors. During her time at Evergreen, Heron continued to focus on botany and ecology, getting degrees in both, but also became deeply engaged with courses related to human (primarily Indigenous) cultures, education, and language.

These educational experiences varied in topic and institutional philosophy, which allowed Heron to observe different teaching styles and to develop her own. She says she benefitted most from the educational approaches such as those at Columbines, where learning was active, experiential, and based on traditions of oral repetition involving humor and mnemonics. Through these hands-on experiences, such as gathering plants for medicine with a strong emphasis conservation and locating wild plants through recognizing ecological patterns, she developed a strong connection to the land and a sense of belonging in the natural world. As an educator, she strives to incorporate this sense of connectedness and community with both humans and nature.

Heron's current professional work is mostly through her botanical consulting business, Brae Botanical Ways. Her projects are often centered in the Willamette Valley or just east of the Cascades in Oregon's high desert. During botanical inventories, Heron makes sure to emphasize the cultural resources on the sites where she is working, describing populations of species that are First Foods. This is one of many ways she aims to highlight Indigenous culture and how it can be better integrated into botanical work. She also recently worked with Live Oak Consulting in Eugene, where she has led decolonization workshops and trainings for the last 5 years. Other of courses and workshops she has offered have focused on oak acorn eating, queer community and connection with nature, and restoration. One of her favorite experiences

from her work was founding and co-organizing the Winter Social Forestry Camp in Dexter, a temporary residential community program focused on oak tending where participants camped together for weeks as they conducted ecological and cultural burns, engaged in land-based crafts, and sang and cooked as a group. Throughout Heron's many professional pursuits, she is happiest when she is part of a community of people who are collaboratively learning about and stewarding the land.

I always love to ask those that work in natural resources whether they have a favorite organism. The answers are usually fun, informational, and deeper than one might expect. Like any true ecologist or botanist, Heron couldn't just name one species but was able to narrow it down to two genera of plants: biscuitroots (*Lomatium* spp.) and oaks (*Quercus* spp.). Reflective of her wholistic approach and interests, these genera are her favorites for a multitude of interrelated reasons. Heron says she loves oaks because they are a foundational species that holds together many complex and intricate relationships in the natural world and their acorns are a major source of delicious and sustainable food. Much of her restoration work has centered around oaks. She loves the biscuitroots for the overall vibrant energy of the plants and for their unique and widely diverse scents and flavors, which makes them useful as medicine and attractive as a sweet, nutritious, and crunchy snack. The challenging taxonomy of this diverse genus means that it is important to look closely at the details of each species. Lomatiums may have been the most important group of plants that guided her learning about the central importance of First Foods (and access to them in their natural habitats) for the Indigenous cultures throughout the region. This humbling learning taught her how plants and people are interconnected and led her to seek active ways to be a responsible inhabitant of this place while supporting the priorities of Indigenous people regarding land care and access.

Heron's talk will be centered around her work with oaks in Oregon, and much of the information will be presented through storytelling. She will discuss what it means to steward our local oak woodland and prairies habitats, the uniqueness and special species of oak ecosystems, how we can each connect to the land in a personal way, and the benefits of supporting cultures and ecosystems simultaneously. She hopes to impart a feeling of hope and possibility, emphasizing that anyone can be an engaged steward of our native landscapes.

If you can't join us in person, connect with us on Zoom: https://zoom.us/j/97499095971?pwd=eE9sdG9hSHMvOHhIUEJuU21wT20rdz09 or join from our website at https://eugenenaturalhistorysociety.org/

—Sarah Erskine

An Amazing After-Dark Apparition

by Whitey Lueck

I used to dread the change every fall from Pacific Daylight Time to Pacific Standard Time because it meant that my weekly day in the woods of Oregon's western Cascades would be dramatically cut from about 9.5 hours to only 6.25 hours. All summer long, I'd catch the 7:15 pm bus back to town, but with the return of PST, it would be dark before then, so I had to switch to catching the 4 pm bus instead.

One October, on my day upriver, there was going to be a full moon and the skies were clear, so I decided I'd stay after dark, for once, to enjoy the moonlit forest from the time the moon rose until I had to catch the last bus home. I positioned myself at sunset near a little forest road, only a mile or so from the main highway, so that even after dark it would be easy for me to find my way to the bus stop by 7:15 without having to use a light.

I had so much fun that evening that I thought to myself, "Why don't I from now on *always* stay until the late bus, now that I know how different and equally beautiful my sylvan paradise is after dark?" And if I can't see well enough to walk out with the ambient light, I'll just use a flashlight. Thus was born a routine that I've maintained ever since. Only on the very coldest or wettest winter days do I now occasionally return to Eugene on the 4:00 bus—and each time I do, I feel like I've been shortchanged and had my batteries only partially recharged.

The month of November is the hardest for me; that's when the sun sets earlier every week through the end of the month. But by the end of the first week in December—yes, well before the Solstice—we reach (in Eugene) our earliest sunset of the year at 4:34 pm, and every week after that, the sun sets progressively later. So if I can make it through November, I'll be just fine for the rest of the winter.

On days when I'll be out after dark, I make my way from the deep forest to the little forest road around sunset and find a nice spot just off the road to spend an hour or so before I need to walk back to the highway to catch the bus. If it's cold, I just put on all of my layers—undershirt, shirt, sweater, jacket, and down vest—and sit down on my foam sit-upon with my back against the base of a big conifer then cover my legs with my wool blanket. I always have three light sources with me—a flashlight, a candle lantern, and a key fob with a tiny LED light on it—but I don't like to use artificial light at night except in an emergency.

And there I sit as darkness falls and the world around me gets blacker and blacker. It's both beautiful and enchanting to experience all alone and with only the sound of the tiny nearby creek to break the stillness.

One evening, shortly after I'd settled down in my dark and quiet spot, I saw out of the corner of my eye something whitish and spherical in shape bobbing slowly along through the blackness, just above the ground. My goodness, I thought, what on earth could *this* be? I'm not a believer in the paranormal, so I assumed that whatever was approaching me from the roadside would at some point be revealed. When I turned my torso to get a better look, the little white sphere stopped bouncing briefly and just hung suspended there, maybe a foot off of the ground before continuing to advance toward me.

I was at a complete loss to figure out what I was looking at. As it got to within maybe 3 feet of me, I got just the hint that I needed to identify my visitor; I noticed that the white ball was connected to a black body with large white spots. Here, a spotted skunk was out for its nocturnal walk, and on its way down toward the little stream it happened to pass within only a few feet of me. I don't think the skunk even noticed me—I sat completely still, not at all out of fear, but out of interest—because it continued nonchalantly toward the creek after passing me. The white ball I'd seen was the all-white tip of its upright tail that was bouncing jauntily along above the skunk's body. Initially, because of the angle I was observing it from, I could see only the white at the tip of the tail. But as the rest of the black skunk came into view, I finally was able to identify the little guy.

Thanks to my decision that day to stay after dark, I got to see the first—and so far the only—skunk I've ever seen in the woods because most of my woods time had been during daylight. Or, when I was in the woods after dark, I was always inside a tent where I would never have had the opportunity to encounter this remarkable little forest denizen.

[This essay first appeared in *Lasting Lessons,* a collection of essays by Whitey Lueck, 2020.]

Lost and Found Again by Chuck Kimmel

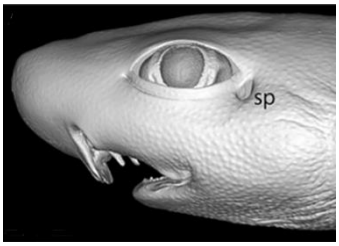
This Winnie-the Pooh–like title spoofs an interesting rare happening in evolution: specialized ancestral traits are frequently lost as descendant species evolve in new environments, but once lost, only very rarely are these same traits found again, reappearing in descendent lineages. Here I'll describe evidence that nailed a cool case of "found again" in evolution.

As a prelude, suppose for a minute you lost a beloved slipper made of soft pink wool. Then later, you find it again, deep in your closet. But wait! The found slipper was made of green leather, not pink wool. Scientists, philosophers, and 6-year-olds would all agree that the found slipper was not the same as the one you had lost!

But, ho, ho! Some months later you find a slipper in your garden trash heap. This found slipper is made of wool, but it's dirty white instead of pink. The slipper is not very fluffy and is rather tight on your foot, as if shrunken. In spite of these differences, you might hypothesize that this time you had found the same slipper you had lost earlier, now sadly damaged by the weather.

The principal character in our evolutionary Winnie-the-Pooh story is the spiracular organ (SpO), which is present in many species of

jawed fish and underlies the spiracle of sharks and skates.



Micro CT scan of a young shark; note spiracle (sp). *A. Gillis*

The SpO functionally associates with a neighboring cranial bone, the hyomandibula. This bone connects the jaws to the skull, and by mechanically interacting with the hyomandibula the SpO functions to inform the brain whether the jaws are open or shut. In spite of this interesting function, the SpO was lost when fish evolved into land-dwelling tetrapods, which occurred during the late Devonian period, roughly 400 million years ago. The organ remains lost in several tetrapod lineages (e.g., it is not present in modern amphibians and mammals). But in the Carboniferous period, perhaps 100 million years or more later, the SpO reappeared, seemingly specifically in diapsids, the lineage that gave rise to all modern reptiles and birds. The organ, now with a new name, the paratympanic organ (PTO), is present in the tuatara (*Sphenodon*), a relict ancient diapsid species found today on islands around New Zealand.

Tuatara. *Sid Mosdell*

The PTO is present in birds, such as the chicken, where its embryonic development has been well studied. Its new name reflects a new location: the middle ear (a fish doesn't even have a middle ear!) and a new sensory function. It reportedly signals as a barometer, sensing pressure changes on the bird's tympanic membrane (eardrum), and as an altimeter, allowing the bird to precisely maintain altitude during flight. With these striking differences between the SpO and the PTO, how can we imagine that the organ that was lost is in fact the same organ that was found (again)? After all, no one was around to watch evolution happen.

In biology, evolutionary sameness is described as homology. Sir Richard Owen invented the term and defined it as "the same organ in different animals under every variety of form and function." This definition remains important because it captures the idea that the "same" organ in different beasts might differ, as with the lost and putatively found slippers of our prologue. Owen was not an evolutionist and attributed homology to the mystical "great chain of being" (see "Evolution's Arrow" in December 2025 *Nature Trails*). Just a few years later, Darwin clarified the central role of evolution in understanding homology. Homologous organs in different creatures share inheritance from a common ancestor.

Correctly assigning homology is often tricky but is more straightforward when there is continuity, a close ancestor-descendant relationship along the lineages being examined. Continuity is clearly gone when, as in the SpO/PTO case, the organ disappears for many millions of years and then reappears. But there are other criteria. Homologous organs share structural features and are expected to be connected similarly (e.g., homologous muscles connect to homologous bones). Homologous organs also develop from homologous embryonic tissues. Finding differences that you can't explain by evolutionary scenarios weakens or obliterates the case for homology. Functional changes in an organ are less important for supporting or rejecting homology because functional adaptations are of course what evolution is usually about. Famously, tetrapod forelimbs are homologous as forelimbs whether they are used for walking, flying, or playing the piano.

SpO/PTO homology is supported by the fact that they have similar microanatomies, including possession of sensory hair cells like those of our inner ears. Connectivity works marvelously as well. The fish SpO associates with the hyomandibula bone, and the diapsid PTO associates with the stapes bone of the middle ear. As understood from work beginning nearly 200 years ago by German anatomist Karl Riechert, the tetrapod stapes is strongly supported as having evolved from the fish hyomandibula,

making the two bones homologs. Unfortunately, I don't read German, but GoogleAI informs me that the hyomandibula/stapes homology was first established by the finding that the two bones share similar embryonic origins. Developmental evidence was lacking for SpO/PTO homology until a publication appeared last year authored by Andrew Gillis and colleagues at the Marine Biological Laboratory on Cape Cod, which motivated this article. The principal finding of their study involved microinjecting a fluorescent dye into the spiracle of living skate embryos and mapping the fates of the stained cells as they developed. The site of the PTO primordium in the chicken was already known, and Gillis's group found that the SpO primordium is at the corresponding location in the embryonic skate pharynx. Considering all the available evidence, my use of the word "nailed" at the beginning of this article seems well justified.

The lost and found again story is important to me because it shows me that evolution, in spite of being based genetically on random mutation, somehow is damned smart. I would have thought that genetic information silenced for a very long time would be degraded by genetic drift, again random mutation because there is no expressed phenotype to be acted upon by selection. Possibly part of the answer is genetic pleiotropy. Pleiotropic genes function in two or more tissues or organs in the body, and when a pleiotropic gene is silenced in one organ, it may still be expressed in others and hence be a target of "purifying" selection. In any case, the silencing seems akin to what recently has been termed "cryptic genetic variation" by Greg Gibson at North Carolina State University. This silenced potential for new phenotypes seems prevalent in the genome and can be activated by simple triggers, such as environmental stress. In a review in the journal *Current Biology,* Gibson asked why we should study this silenced variation and then answered his own question:

> "Because it is one of the keys to unlocking the secrets of human disease, animal and plant breeding, and biological evolution."

Upcoming ENHS Business Meeting

The May ENHS presentation by Samantha Hopkins will include our short annual Business Meeting. Members will be asked to vote on whether to accept the slate of board members and officers for 2026–2027, which will be published in the May issue of *Nature Trails.*

Volunteers needed for ENHS booth at the Mt. Pisgah Arboretum Wildflower Festival Sunday, 17 May, 10am–5pm

See announcement below under Mt. Pisgah. No experience necessary; you will be paired with a trained volunteer. Booth sitting is a great way to learn interesting things and meet interesting people! We usually work in 2-hour shifts, but other time slots are possible. Contact Kim Wollter to sign up: kwollter@comcast.net

Upcoming Events

(for complete listings and details, see individual websites)

- **McKenzie River Trust** https://mckenzieriver.org/events/#event-listings or 541-345-2799
  Wednesdays, 9–11:30am. Watershed Wednesdays at Green Island. Projects include invasive species removal, habitat care, planting, and tree establishment. Sign up
  First Fridays, 9:30am. Explore the Willamette Confluence. See the MRT website for more information.
  Second Saturdays, 8am–4pm. Living River Exploration Day. Green Island, bilingual.
  Saturday, 18 Apr., 8–10am. Green Island Photography Walk. Register online.
  Saturday, 25 Apr., 9–11am. Lost Worlds of Green Island. Gentle 2-mile walk. Register online.
  Tuesday and Thursday, 5 and 7 May, 6:30–8:30pm. Beaver Exploration Night. Willamette Confluence. Register online.

- **Native Plant Society of Oregon, Emerald Chapter** https://emerald.npsoregon.org/
  Anytime. Self-guided Tour of Laurelwood Bog. Go south on Agate St in Eugene to the dead end at 29th. The entrance to the Bog is clearly signed, and the trails are covered with bark.
  Friday, 17 Apr., 7–9pm. For the Love of Oaks. Presenter: Heron Brae, co-sponsored with the ENHS. 221 Allen Hall, University of Oregon campus.
  Saturday, 18 Apr., 9am-4pm. Blachly Mountain Forest Field Trip. Leader: Ed Alverson. Meet at South Eugene High School. Sign up online.
- **Mt. Pisgah Arboretum** https://mountpisgaharboretum.com or 541-747-3817.
  Saturday, 25 Apr., noon-5pm. TransWild Forest Frolic. All ages, FREE. RSVP.
  Sunday, 26 Apr., 10am–1pm. Birds, Bees, Butterflies, and Blooms. Leader: Bruce Newhouse. Preregistration required; limited to 15 attendees. Members FREE, Nonmembers $5 per person.
  Saturday, 2 May, **10am–noon. Paper Wildflower Craft Work Party.** Help us make large tissue paper and paper mache flowers to decorate the Wildflower Festival! Sign up online.
  Sunday, 17 May, 10am–5pm. Wildflower Festival. Tickets go on sale 17 April. Free to members.
- **Coast to Cascades Bird Alliance** www.laneaudubon.org or 541-485-BIRD
  Saturday, 18 Apr., 8–11am. Third Saturday Bird Walk. For more info, contact Lalla at tolalla@gmail.com.
  Tuesday, 21 Apr., 7–8:30pm. The Best Birds in the World. Presenter: Ram Papish. Birds of New Guinea. Zoom only.
  Tuesday, 28 Apr., 7–8:30pm. Cristalino Lodge: 20 Yrs in Amazonian Paradise. Presenter: Rich Hoyer. Zoom and in person at the Campbell Center, 155 High St., Eugene.
  Saturday, 2 May, 8–11am. First Saturday Bird Walk. For more info, contact Sarah: 1satbirdwalks@ccbirdalliance.org.
- **Museum of Natural and Cultural History, University of Oregon** https://mnch.uoregon.edu/museum-home
  Ongoing exhibits: Oregon—Where Past Is Present; Explore Oregon; Roots and Resilience: Chinese American Heritage in Oregon; ReEnvisioned: Contemporary Portraits of Our Black Ancestors
  Thursday, 17 Apr., 6–7pm. America at 250. Opening of new exhibit. Explore how museum collections help preserve the diverse histories of our country. Includes rarely seen items.
  Tuesday, 28 Apr., 1pm. Jeremiah Public Symposium on Foodways in Early East Asia. Research on food procurement, preparation and consumption in Neolithic China and Japan. Food culture resilience in Oregon. Free. Snacks provided.
- **Nearby Nature** https://www.nearbynature.org/ or 541-687-9699, 622 Day Island Rd., Eugene (Alton Baker Park)
  Monday, Wednesday, Friday mornings. Wonder Keepers. Preschool program outdoors in our Learnscape. Spring session begins 31 March.
  Tuesday and/or Friday afternoons. Natural Neighbors. After-school program outdoors in our Learnscape. Spring session begins 31 March.
- **Lane Country Butterfly Club** https://www.lanebutterflies.org (new website)
  We foster enjoyment, knowledge, and conservation of butterflies through education and presentations, field trips, monitoring and habitat conservation.

ENHS MEMBERSHIP FORM

Name _____

Address _____

City _____ State & Zip _____

Phone _____

Please choose how to receive *NT*: by e-mail ___ **or** by USPS ___
Remember: Electronic copies come to you in color with live links and save paper and postage!

E-mail address for electronic *NT* _____

ANNUAL DUES:

Individual	$25.00
Family	35.00
Life Membership	300.00
Other Contribution	_____

Make checks payable to ENHS or pay electronically on our website →

Mail checks to: ENHS
P.O. Box 5494
Eugene, OR 97405

Fill out the form or go to our website (see QR code below) to join; pay by check or electronically. Membership payments allow us to give modest honoraria to our speakers and pay for the printing and mailing of *Nature Trails*. Find us at:
http://eugenenaturalhistorysociety.org/
and
https://www.youtube.com/channel/UCEryzVh9lw9y-nLS_t94BVw

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

Monthly meetings:
When: September–May: third Friday; December: second Friday
Where: 221 Allen Hall (UO campus) and/or on Zoom at https://zoom.us/j/97499095971?pwd=eE9sdG9hSHMvOHhIUEJuU21wT20rdz09
Time: 7:00 pm
Parking for UO events is available at the UO Physical Plant lot: From Franklin, turn north onto Onyx, go 1 block to the lot. After 6pm, it's open to the public.
See our website for more details.
http://eugenenaturalhistorysociety.org/

ENHS Officers and Board Members 2025–2026

President: Tom Titus titus@uoregon.edu
Vice President: Alicia McGraw
Immediate Past President: Stan Sessions
Secretary: Monica Farris
Treasurer: Judi Horstmann horstmann529@comcast.net
Website: Tim Godsil tgodsil@uoregon.edu
Digital Media Consultant: Krystal Abrams
Nature Trails editor: Kim Wollter kwollter@comcast.net
Board members: John Carter, Kaye Downey, Tim Downey, August Jackson, Chuck Kimmel, Reida Kimmel, Kris Kirkeby, Dean Walton

2025–2026 Speakers and Topics

19 Sept.	**Joe Moll**	**The Audacity of Perpetuity: Land and Water Conservation in Uncertain Times**
17 Oct.	**Jamie Cornelius**	**Amazing Adaptations: How Birds Survive Stormy Weather**
21 Nov.	**Matt Betts**	**Can We Have Our Cake and Eat It Too? Conserving Forest Biodiversity in the Age of Humans**
12 Dec.	**Paul Bannick**	**A Year in the Life of North American Woodpeckers** (cosponsored with the Coast to Cascades Bird Alliance)
16 Jan.	**Marie Tosa**	**The Curious World of a Stinky Neglected Carnivore**
20 Feb.	**David Wagner**	**Sex Life of Plants**
20 Mar.	**Anne Thompson**	**The Invisible Forest: Life and Death of the Ocean's Superabundant Microorganisms**
17 Apr.	**Heron Brae**	**For the Love of Oaks: Ecology, Community, Stewardship** (cosponsored with the Emerald Chapter of the Native Plant Society of Oregon)
15 May	**Samantha Hopkins**	**The Relationships among Paleontology, Climate Change, and Extinction**