Nature Trails

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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.

Left: Mountain beaver, *Aplodontia rufa. U.S. Forest Service*

Right: *Alphagaulus tedfordi,* extinct rodent relative of the mountain beaver. American Museum of Natural History, New York. *Samantha Hopkins*

Evolutionary Origins of the Mountain Beaver: Fossil History of an Enigmatic Rodent

Samantha Hopkins

Department of Earth Sciences
University of Oregon, Eugene

Friday, 15 May 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: Samantha Hopkins

Samantha Hopkins is a professor in the Department of Earth Sciences at the University of Oregon and the curator of the paleontology collections at the Museum of Natural and Cultural History. She first spoke to the Eugene Natural History Society in 2008, shortly after joining the University of Oregon faculty. At the time, she was a new assistant professor with a 2-year-old daughter, and she preferred housing on "modest hills" so her family could prioritize biking over driving.

She returned to speak to us in 2019, and with this introduction she makes her third appearance for the ENHS. Her daughter is now a University of Oregon student, and her son is beginning college this fall. Samantha still favors two wheels over four. Some things never change.

Samantha's professional work has been grounded in the fossil-rich landscapes of Oregon and the broader Pacific Northwest, in particular the John Day region and surrounding eastern Oregon basins that preserve long records of mammalian evolution. Over time, her research has expanded from focused taxonomic work into broader questions about how entire ecosystems—and the unique communities within them—assemble, change, or disappear over millions of years. "My objective before I'm done is to be able to tell you the story behind any fossil site between the Cascades and the Oregon border." She still has work to do.

When asked how she came to study paleontology, her story does not begin with fossils. Instead, she describes growing up with an older sister in eastern Tennessee, where her "hippie" parents worked various jobs to keep the family going. On weekends, her father would take the girls "outside" to the Smoky Mountains, just an hour's drive away, where the admission is always free. There, they would hike through renowned landscapes or simply find a river pullout and spend the day wading to hold off the summer heat.

The outings were not elaborate, but those early years of exploration in nature, with her dad actively arguing for the need to protect and preserve "these lands" for future generations, strongly reinforced Samantha's own conservation inclinations.

In high school in Oak Ridge, TN—a town shaped by uranium enrichment during the Manhattan Project and the presence of the Oak Ridge National Laboratory—she was exposed to unusually rigorous science teaching and the research culture. A biology teacher who regularly took students into the field reinforced her interest in natural systems, and she initially pursued conservation biology at the University of Tennessee, working in a plant genetics lab and conducting field-based research.

It was not until her fourth year of study that Samantha took a geology course and encountered paleontology. The shift was immediate. The appeal was in scale: moving from cells and parts of organisms to whole organisms and communities preserved in deep time. She added geology as a second major and began to move toward vertebrate paleontology. Through her graduate work at the University of California, Berkeley her professional identity began to take shape.

For many graduate students in paleontology, a common exercise is to be given fossil material and asked to determine what it is and then to write a descriptive paper. In Samantha's case, her first set of mystery fossils turned out to be from an extinct species of *Aplodontia,* the genus of the mountain beaver, not previously recognized in the North American record.

What began as a standard identification exercise expanded quickly. The material included a new species and additional fossils that had been inconsistently classified or never fully resolved. While working through them, she found herself reconstructing relationships across an entire lineage.

She describes the process as working through "this stupid little pile of teeth," trying to

determine what belonged to what and how the pieces fit together. That work became foundational. Without initially intending to, she became one of the primary experts on this group.

That expertise led directly to a defining early milestone: she became the first person to formally describe a species of fossil mountain beaver relative. From that point forward, she was recognized as a leading specialist on *Aplodontia* and its extinct relatives, a role that has remained central to her work.

At the same time, she was pursuing a broader dissertation in conservation paleobiology, focused on ecological communities through time. But that project required a level of completeness in the fossil record that did not yet exist. The data were too fragmentary, and the stratigraphic frameworks were still incomplete. The mountain beaver lineage, in contrast, was manageable. It could be worked through carefully, from morphology to phylogeny to ecological interpretation.

After several years balancing both directions, she made a decision that shaped the rest of her career. She shifted her dissertation focus entirely to the mountain beaver system—an approach that allowed her to complete a full evolutionary reconstruction of the lineage, including its contraction from a once-diverse group into a single surviving species today.

From that work has come a long-standing focus on mountain beavers and their many strange and varied extinct relatives—animals that, as Samantha is quick to point out, are neither especially primitive nor particularly beaver-like. Instead, they are part of a lineage that was once widespread and diverse, now reduced to a single species living quietly in moist forests along the Pacific coast.

Her talk, "Evolutionary Origins of the Mountain Beaver: Fossil History of an Enigmatic Rodent," returns to this group with a broader lens. Drawing on the fossil record, she explores what these animals were, how they changed over time, and what their history can tell us about the present. This story is, in many ways, built the way paleontology often is—starting with a small set of puzzling remains and working outward, piece by piece, to reconstruct something much larger. A good mystery, patiently worked through.

Please join us on Friday, 15 May 2026 at 7 p.m. in 221 Allen Hall on the UO campus. As always, the cookies will be there waiting for you.

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/

—Alicia McGraw

Mountain beaver. *Wikipedia Commons/Joe Mabel*

Salmon Whispering by Stan Sessions

The chilly morning gradually lightened from black to dark blue with just the promise of sunrise over the nearby foothills of the Oregon Coast Range. The Kilchis River valley was still laced with wisps of fog. As usual, the air was heavy with the smell of cow manure ("dairy air" as we liked to call it), as farmers and their cattle began to stir. My younger brother Chris drove his '67 Chevy wagon ("Silver Bullet") down the little dirt road to a place just upstream from Grandfather Christensen's favorite fishing hole.

There was still no sun as he got out his gear and attached a lure to his line. From the bank, Chris could easily imagine large steelheads lurking in the deep holes of the otherwise shallow river. At this time of year, the river looked deceptively harmless. But it may have been near this spot that Chief Kilchis, one of the last chiefs of the Tillamook Tribe, drowned,

probably during late winter or early spring when the river would have been muddy and violent.

From his vantage point on the bank, Chris peered into a deep hole next to some fallen logs where he could see a large steelhead lazily undulating its body, just enough to counter the current. Chris knew that the fish had already seen and heard him. Still, he worked his way closer and cast his lure just upstream. As the lure entered the deep hole, he jerked his rod just a bit and began to retrieve the lure.

The fish, naturally, ignored the lure. After a few more casts Chris realized that this was an experienced fish who was not going to be so easily fooled by such a silly human contraption as an artificial lure. The next cast went into the shallows on the other side of the river, and he pulled his lure through the hole right past the fish's snout.

This time, for some reason, the fish decided to investigate, toying with the lure by sucking it into its mouth and then spitting it out before retiring to its original resting spot. Chris persisted, and finally, probably more out of anger than hunger, the fish made the critical mistake of grabbing the lure with its mouth, and with one jerk of the rod, he was on!

Chris watched helplessly as the fish took off downstream, the line screaming off the spool. Realizing that his line was not heavy enough to pull the fish back by brute force and watching his spool rapidly empty, there was only one thing to do: jump in after the fish! Into the river he plunged, flailing through the shallows and swimming through the deeper parts, trying frantically to keep up with the disappearing fishing line.

The fish showed no sign of weakening, and just as the sun came up over the hills, human and fish arrived at a bend beyond which Chris knew the river became dangerously muddy and deep as it approached Tillamook Bay. The steelhead made one final lunge and snapped the line. This was a defining moment for Chris; he was hooked, too! He made the silent decision that he was going to dedicate his life to fishing for steelhead and salmon.

Chris now lives in Vancouver, WA just 5 minutes down the road from where I now live. He spends most of his summers as a professional salmon fishing guide in Kodiak, AL where he mostly fishes for the gigantic Chinook, called king salmon up there. I'm not much of a fisherman, but I occasionally join him on his boat to fish for spring run Chinook in the Columbia River and its tributaries. I have learned which lures and bait work best and how to find likely spots on the river.

He recently invited me to join him to fish for the last of the spring run Chinooks on the Columbia River. We arrived at the boat put-in late, around 8:30 am, and found the parking lot crammed with cars and boats. His favorite fishing spot on the river was wall-to-wall boats of all sizes and shapes, with dozens of rods and lines already in the water. Everyone these days has sophisticated electronic gear, including sonar used mostly to measure the depth of the water. Chris roared his boat upstream away from the crowds, and using instinct as well as sonar we found a spot and anchored with two sea anchors to keep the boat straight. Chris set us up with bait and lures, and we were soon getting bites and strikes, much to the chagrin of the occupants of other boats.

I was the first to get a fish on, and boy was it hard work! We netted it only to find it was wild (not hatchery raised), indicated by the intact adipose fin (which is snipped off of the hatchery fish when they are released). So, this was catch-and-release time. Likewise with the second fish. But we soon each caught a "keeper."

After that glorious day on the river, catching those fish had a kind of spiritual impact on me. They were such tough little creatures! True we were fishing with barbless hooks, and you had to keep a steady tension on the line, but these fish were like muscular torpedoes, deep reddish orange muscle sheathed in sparkly skin stretched tight. And the look in their eyes still brings tears to mine. I can only imagine the deep connection that salmon have had to the people who have lived here for thousands of years. I caught the last one of the day, the biggest one, and the fish and I fought so hard my reel popped off the rod. Once the fish was in the net but still in the water, Chris checked to make sure there was no adipose fin. Yep, a keeper! On board, a quick bop on the head with an aluminum bat. "Dink." End of discussion.

But this fish still had that determined look, with that unblinking eye and open mouth. An old

healed scar on one side was shaped like a sea lion's mouth. And you do have to watch out ... the sea lions stick their heads out of the water to watch the behavior of people on the boats, and they can tell when a fish is on! We saw one watching us not far away as I fought my fish, and my brother kept saying, "stay calm professor, no fast moves!" The next evening, we invited all of our siblings over with their spouses, 10 people total, and feasted on perfectly grilled salmon that melted in our mouths and made me cry again.

Grunion Run by Tom Titus

Courtesy of jet engines and some spiffy aeronautical engineering, we had taken flight from our native habitat in the green creases of western Oregon and touched down in the Mediterranean climate of San Diego for a family reunion on Kim's side. My sister-in-law knew that the grunion would run during our visit. *The what?* The grunion is a toothless fish about 5 inches long that schools up on spring high tides and willingly hurls itself onto the beach with thousands of its compatriots in a frenzy of spawning. The run was supposed to begin at 10:30pm, usually way too late at my tender age. But seeing this spectacle had the makings of a quest. I was all in.

An uncharacteristic day-long rainstorm stilled to an easy onshore breeze that gentled over roaring breakers. A black curtain of sky covered with star grit stretched across the ocean horizon. Five of us found our way to the beach, where pulses of saltwater flattened and sent us pattering like shorebirds toward the seawall erected to protect the human-built world stretching inland. Given the predictability of grunion runs, I expected seekers by the hundreds, even thousands, to descend onto the sand from the nearby city, awaiting the carnal spectacle of small fish striving for sex on the dark beach. There was no one.

A single grunion skittered across a thin film of water in front of my daughter and me. Like a life-listing birder checking off a new species, I could have quit right there. This would have been a mistake. Further ahead another wave withdrew, and hundreds of grunion allowed the water to leave them behind to thrash on the glisten of exposed sand. Small silvery knives of fish squirmed everywhere. Most of them seemed well aware of the limitations of life as a fish and flipped frantically back toward the receding water. I was frantic, too—for a picture of a fish that would hold still. Finally, there it was. Sterling flanks bordered above by a thin yellow stripe followed with another band of turquoise giving way to a back as steely gray as the ocean from which it had come.

Salmon-centric people like myself might call the exquisite grunion a baitfish, a demeaning name that suggests they have no function worthier than catching real fish like a tuna or a salmon capable of becoming steaks sizzling on a grill. In this case, my ignorance is partly excused by biogeography. Grunion hatch, grow, and spawn in the coastal waters of southern California and Baja, far from my home in Oregon. Evolution has fine-tuned their spawning runs to coincide with nighttime spring tides, a pattern so predictable that their appearance can be known years in advance. They are one of only a few fish species that leave the water to spawn. We found females tail down, half buried in the sand, while expectant males hovered around waiting to fertilize her buried treasure of eggs with a shot of milt.

The fertile orbs would be stranded at the high tide line where they are dependent on moist sand to keep them hydrated. Over 1000 eggs per female would hatch in 12 days, timed to the next high tide. The vibration of incoming water stimulates the embryos to emerge and flushes them unceremoniously out sea. Tonight there were hundreds of other grunion not actively mating. Instead, they flipped and shivered themselves resolutely back toward the water, knowing instinctively that their blood-filled gills must soon be bathed by another wave of seawater. When the wave came and retreated, the sand was swept clean of fish. I was inundated by an alphabet soup of adjectives. Astonished. Bedazzled. Captivated. Dumbfounded. Entranced. Fascinated. Gobsmacked.

Domestication might have been on the word list. Why were there not scores of people on this big city beach intent on taking in this ferocious ode to fecundity? Indigenous middens thousands of years old contain tiny otoliths, the ear bones, of grunion, a testament to the life-sustaining value of these lanceolate bundles of protein and fat. Millions of omnivorous years connect me to my ancestors. The old adage *you are what you eat* is true on all levels—literal, metaphorical, physical, and spiritual. A part of me wanted to find a bucket, feel the squirm of grunion in my hands, and retreat to the sizzle of a skillet. Nevertheless, tonight the fish were safe from me. A lone grunion was stranded far up on the beach. The evolutionary biologist in me knows that it likely ended up there because of a poor personal decision and should be expunged from the gene pool. Even so, I slid my hand beneath the small fish. Felt the throb of flanks silvering my palm. The granular polish of wet sand. With a quick flick I sent that flashing candle back into the foamy retreat of seawater.

[Find a version of this article with photos on Tom's blog "Words on the Nature of Life" https://tomtitus.substack.com/p/grunion-run]

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 is on the back page of this issue of *Nature Trails.*

ENHS Summer Potluck Party

14 June, 2 pm, the Kimmel Farm, 30306 Fox Hollow Rd.

All members and nonmembers are welcome. Bring a dish and beverage to share. If you need directions, contact Reida at rkimmel@uoregon.edu or call 541-345-4919. Check the ENHS website for last-minute changes of venue!

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.
  Tuesday, 19 May, 9:30am. Bus Tour of Green Island. Register with the City of Eugene.
  Saturday, 23 May, 1–3pm. Restoration in Action, Walking Tour of Cerra Gordo. Register online.
  Sunday, 24 May, 10am–1pm. Birds, Bees, and Blooms. Willamette Confluence, with Peg Boulay and Bruce Newhouse. Register online.
  Monday, 8 June, 6:30–8:30pm. Beaver Exploration Night. Willamette Confluence. Register through the Campbell Center.
  Monday, 15 June, 7–9am. Intertidal Zone Exploration, Cape Perpetua Marine Reserve, Bob Creek Wayside. Registration opens 15 May.

- **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.
  Saturday, 16 May, 9am–1pm. Wildflower collection. Join Ed Alverson to collect flowers for the Wildflower Festival at Mt. Pisgah the next day. Blue Mountain County Park.
  Monday, 25 May, 10am–noon. Wildflowers and Their Pollinators. Oak Ecology Series. Leader: August Jackson. Mt. Pisgah Arboretum. Sign up online.
- **Mt. Pisgah Arboretum** https://mountpisgaharboretum.com or 541-747-3817.
  Sunday, 17 May, 10am–5pm. Wildflower Festival. Tickets go on sale 17 April. Free to members.
  Saturday, 23 May, 10am–noon. Reptile and Amphibian Tour. Leader: Tom Titus. Preregistration required; limited to 18 attendees. Members FREE, nonmembers $5 per person.
  Sunday, 24 May, 10am–noon. Insect Tour. Leader: Karen Richards. Preregistration required; limited to 18 attendees. Members FREE, nonmembers $5 per person.
- **Coast to Cascades Bird Alliance** www.laneaudubon.org or 541-485-BIRD
  Saturday, 16 May and 20 June, 8–11am. Third Saturday Bird Walk. For more info, contact Lalla at tolalla@gmail.com.
  Tuesday, 26 May, 7–8:30pm. Feathered Forest: Aloft with Birds in Ancient Trees. Presenter: Marina Richie. Zoom and in person at the Campbell Center, 155 High St., Eugene.
  Saturday, 6 June, 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, 14 May, 6–7pm. America at 250. Explore how museum collections help preserve the diverse histories of our country. Presenter: Todd Braje.
- **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. Registration for September 2026 open now.
  Tuesday, Wednesday, Friday afternoons. Natural Neighbors. After-school K–5 program outdoors in our Learnscape. Registration for September 2026 open now
- **Lane Country Butterfly Club** https://www.lanebutterflies.org (new website)
  Saturday, some time between 2 and 16 May. Fender's Blue Butterflies in West Eugene. This pop-up field trip is not scheduled for an exact time because of possible weather issues. Sign up to get more info.
  Saturday, 13 June, 1–3pm. West Eugene Wetland Field Trip. Check the website for more info.
  Saturday, 20 June, 1–3pm. Golden Gardens and Living Earth Nature Sanctuary Field Trip. Check the website.
  Saturday, 27 June, all day. Ochoco Butterfly Count (37th year). Meet near Prineville. Preregistration required.
  Saturday, 4 July, 10am–3pm. Eugene Butterfly Count (36th year). Preregistration required.

ENHS MEMBERSHIP FORM

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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/

The May meeting is our annual Business Meeting. Members will be asked to vote on whether to accept the changes in the Board and officers for 2026–2027:
Vice President: John Carter
Board members leaving: Kaye Downey, Tim Downey, Kris Kirkeby, Alicia McGraw, Stan Sessions, Dean Walton
New Board members: Krystal Abrams, Mark Currey, Melissa Hart
(All other officers and Board members continue as per 2025–2026, listed below)

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**	**Evolutionary Origins of the Mountain Beaver: Fossil History of an Enigmatic Rodent**