# Nature Trails

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The Eugene Natural History Society is based out of the traditional homelands of the Kalapuya peoples who stewarded this land for millennia. Today the Kalapuya people are largely citizens of the Confederated Tribes of Grand Ronde and the Confederated Tribes of Siletz Indians and continue to play an active role in local communities and in the stewardship of this land.


## Sea Otters and Traditional Ecological Knowledge

### Peter Hatch

**Confederated Tribes of Siletz Indians**

### Friday, 21 October 2022, 7:30 pm

The Eugene Natural History Society invites you to their October Zoom meeting. The Zoom session will open at 7 pm Pacific Time (US and Canada). This allows everyone time to get connected and join in friendly conversation. The meeting will begin at 7:30.
Zoom meeting link: https://zoom.us/j/97499095971?pwd=eE9sdG9hSHMvOHhIUEJuU21wT20rdz09
The 2022–2023 speaker season will consist of a mix of in-person, Zoom/in-person hybrid, and Zoom only meetings because not all of our scheduled speakers are able to be present in person.

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Peter Hatch is a member of the Confederated Tribes of Siletz Indians and works in the tribe's Cultural Resources office. Peter's paternal family includes Coos, Lower Umpqua, and Siuslaw people who had property along the north fork of the Siuslaw River. However, after the Coos, Lower Umpqua, and Siuslaw reservation was divided in 1875, the family members joined the Siletz Tribes along with many other families who had lived in the northern part of the reservation. Ultimately, his grandfather moved to Newport.

Peter grew up in Portland. His father was a civil engineer and worked for the Portland Department of Transportation, and his mother was a residential and commercial gardener. Through his family, Peter developed an appreciation for the wonders of the Oregon outdoors. He has been fishing, clamming, and crabbing in Lincoln County his entire life and wants to ensure that his descendants can always do the same.

Peter considers himself fortunate to have grown up within the past 30 years after Oregon's various tribes attained significant autonomy. He knew that he would live in Oregon for the rest of his life and contribute to his tribe's well-being. However, he decided that it was important that he go elsewhere for college. Through the opportunities of the Tribal Education Program, he attended Brown University in Rhode Island and studied archeology and anthropology. Soon after graduating he worked as a collections manager and contractor with the Smithsonian National Museum of the American Indian in New York. In 2013, he was given the opportunity to work for the Siletz Tribe's Cultural Resources office. His work at the Smithsonian showed him the importance of the tribe's reconnection with the past and their cultural revitalization. Peter's personal quest includes learning the language of his grandfather by taking classes offered by the Confederated Tribes of Coos, Lower Umpqua, and Siuslaw.

Back in the late 1990s, his father, Dave Hatch, started the movement to bring sea otters back to Oregon. Dave was looking for a name for a small boat that he and Peter had built together. In a Chinook language dictionary, he happened across the term *elakha* for sea otter. This simple search for a name sparked his interest in sea otters and raised questions about why they were absent, whether it mattered, and what could be done. As Dave started to put the pieces together, he saw that broken relationship and how much Oregonians stood to gain by restoring sea otters to our ocean waters. That led down a path of research, activism, and connection with people, resulting in the Elakha Alliance. Sadly, Dave died in 2016. Peter is working hard to continue the good work that his father started.

Peter will discuss the connections between sea otters and indigenous people and the stories that were handed down through the generations to today. He will show the connections of the people of the Oregon tribes to the sea otters and the waters of coastal Oregon.

Please join us at 7:30 p.m. on Friday, 21 October 2022, to hear Peter Hatch's talk "Sea Otters and Traditional Ecological Knowledge." Monica Farris

**Chorus of Crickets** **by Tom A. Titus**

A soft cloak of September darkness drapes itself across the meadow and surrounding forest. In the heart of the Coast Range, there is a subtle sadness in a late September evening; end of the day, end of the garden, end of sunset birdsong as migrants gather for winter vacations in warmer climates and residents batten down the hatches in preparation for another winter. But not everything is leaving or gone. Fall field crickets (*Gryllus pennsylvanicus*) have reached their peak of chorusing. I stare into the darkness, ears open, focusing on the collective sound of thousands of insect voices rising into dusk. The chorus becomes an undulation of moving water, the steady pulse of waves below rapids, my brain a gently rocking boat moving downstream on this darkening river of sound.

Female *G. pennsylvanicus*, Kevin Judge CC-BY-SA-4.0

In the settling dusk, it's tempting to think this throng of singing crickets is here for my benefit. While I drift on their soundscape and scratch words into my journal, the insects are actually engaged in the evolutionary edict of making more of themselves. Singing is crucial to this endeavor. Male cricket wings have a file, a line of tiny teeth, that rubs against a rough edge on the opposing wing, the scraper. They chirp mainly to attract females, but also to repel competing males and soothe an approaching mate. Females and males hear the chirping through a tympanum, an oblong organ on the foreleg that contains sound-sensing cells. Crickets first began chirping about 300 million years ago. Because the first sound-producing apparatus preceded the evolution of hearing organs, chirping likely evolved to startle a would-be predator in order to avoid becoming dinner. Regardless of the evolutionary agency, cricket song has a history that is roughly one hundred times longer than we humans who have been around to hear them.

Cricket chirps are temperature dependent. Insects are ectothermic, meaning they require an outside source of body heat. The metabolic processes that sustain chirping increase or decrease as the animals warm or cool. Supposedly, one can count the number of chirps in fifteen seconds, add 40, and arrive at the ambient temperature. This evening the convenience of technology is a strong siren song. Instead of counting chirps, I glance behind me at the round Douglas County Electric thermometer hanging on the porch wall and let the waves of cricket music roll across my eardrums uncounted. The dial reads 55 degrees. If the cricket pundits are correct, tonight they must be chirping once per second.

Pulsing waves of cricket music aren't just a product of my hypnotized imagination. The wave-like regularity that my human brain finds so soothing arises from both individual rhythm and group synchronicity. Why crickets call synchronously is a bit of mystery, but it's a messy symphony. There is room for improvisational rebels who break free to pursue their own rhythm, their private auditory path. I've always been partial to this messiness in biology, this dearth of rules. But natural selection places limits on those who pursue their personal hike too blithely. Mavericks who call out of time too frequently may become easier targets for predators. Malcontents and misbehavers beware.

Females choose males with stronger songs, usually older individuals. In the world of annual organisms like crickets, "older" is measured in days and weeks, not years. In some field cricket species, song strength is associated with a stronger male immune system. Fertile female fall field crickets (try saying that three times quickly) use their long ovipositor to probe moist soil and deposit their eggs. The eggs ride out the winter months in a state of suspended development called diapause (a state I sometimes aspire to in midwinter). Eggs hatch in spring, and the new nymphs burrow to the surface to begin feeding.

This evening, most of the cricket din seems to be coming from the withered and unkempt meadow knapweed across the well-mowed parking area. Easing out of my porch chair, I walk cautiously past the pickup and into the darkness, halting near some drooping stems. The crickets shush when I approach, clearly attuned to my interloping. The silence of crickets near me was millions of years in the making. While strong chirping attracts mates, a cost of this reproductive revelry is that chirping also attracts predators. Natural selection has favored silence, at least momentary silence, to avoid becoming a late meal and to live and mate in some other hour or night. Tonight I had a can of chili for dinner, and have no intention of eating crickets. Even so, humans are now consuming crickets commercially. In my experience, cricket meal is a little bland. Maybe a dash of Tabasco sauce would spruce it up? Regardless, the job of a male cricket on this warm September evening is to stay alive and mate rather than figure out my intentions. My job is to recognize

that although compulsive mowing of the meadow may reduce the fire danger and decrease the vigor of invasive meadow knapweed, the crickets have made their peace with this hybrid landscape and do better with increased habitat structure in the unmowed areas.

In recent years, the crickets inhabiting this small slice of the universe here in the Coast Range have started singing in July, a few weeks earlier than they used to sound off. No surprise. As climate change causes increases in daily and seasonal temperatures, the development of the nymphs will speed up, provided there is an adequate supply of food. I'm betting their food will hold up, because crickets eat just about anything: vegetable material both living and decayed, seeds, fruits, and other insects. Nevertheless, for many insects climate-driven changes in the timing of their life cycle, or phenology, can produce complex outcomes far beyond just food availability. Fortunately, I gave up on predictions a long time ago. But I'm betting on the fall field crickets. They seem to have the flexibility necessary for dealing with an uncertain future. I'm planning to ride out my future Septembers perched on the front porch on early fall nights, my ears washed over by waves of cricket song.

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**Shaping the Woodlands, One Tree at a Time**
**by Reida Kimmel**

North America's only porcupine species, *Erethizon dorsatum,* is unique. After evolving in northern South America, porcupines migrated north when the Isthmus of Panama formed three million years ago. Established in the harshest environments, from the scrublands at the edges of the Sonoran Desert north to the tree line in Canada and Alaska, they survived on food of the poorest quality in climates that made it challenging just to stay alive. Perhaps because they are living so close to the edge of starvation, not hibernating and rarely denning, porcupine reproduction differs greatly from the fecund norm for rodents. Porcupines produce only one porcupette a year. Their populations grow slowly if at all.

Porcupines are visually enchanting and have distinct and engaging vocalizations, calling sweetly as they slowly move through the trees. But then, there are the infamous quills of which porcupines have approximately 30,000. These modified hairs are arranged in rows along their bodies, the longest on the back and tail and the shortest on the head. The vulnerable stomach is devoid of quills, but the tail is a mighty weapon. Thrashed back and forth in proximity to an attacker, the tail quickly releases quills that can pierce the enemy's skin, work their way in, and potentially blind or even slowly kill the predator. New quills will replace the lost ones in about 42 days.

The first Americans held porcupines in high regard. Though they used quills for basketry and jewelry, in most circumstances they did not hunt the animals because their flesh was a precious resource in times of starvation. Settlers, the new Americans, universally loathed porcupines for destroying timber, fruit trees, and fruit or just because the salt-seeking rodents destroyed their stuff.

Porcupines are mostly solitary animals. In Alaska, each home range is usually half of a square mile. It is hard to see them threatening forests, but timber companies claim great losses. Commercial tree plantations suffer the greatest porcupine predation in their younger trees, those ten to thirty years old, especially spruce, hemlock, and birch. Porcupines feed on the cambium, the inner layer of bark, creating scars and boles and mutilating the tree, thus reducing its value. But even foresters admit that deforming and killing some farmed trees enhances the overall stand structure, eliminating overcrowding and admitting more light beneath the canopy so the remaining trees can grow faster and bigger.

Shooting or clubbing the slow and even-tempered rodents was accepted practice. In the 1950s through the 1990s, state policies sponsored and financed eradication. Their programs included poisoning and the reintroduction of fishers, a primary porcupine predator. In 1955 in the Bend area, 12,465 porcupines succumbed to various methods of "control." At present, porcupines are an endangered species in northern Mexico and have become very rare in Montana.

Apex herbivore or just a pest? Three recent investigations conducted across seasons and years have revealed much more about the species' life history. The first multiyear study looked at porcupines as animals with a place in nature. Showing how hugely important long-term studies are, this project formed the inspiration and basis for more recent research by others. From 1996 through 2010, Richard Theil, a wildlife educator for Wisconsin's Department of Natural Resources, snowshoed into the Sandhill Wildlife area with local high school students to conduct research on the physical effects of winter on porcupines, how the cold and limited

food supply affected the health of these generalist forest dwellers. The teenagers located dens where porcupines spent the night, often in white oak tree roots, captured and sedated these hefty rodents, weighed and measured them, checked for external parasites, and for females checked for signs of having given birth. The students were wonderfully enthusiastic about the project. Many were inspired to seek careers in science. One, Matt Schuler, now a biologist, coauthored an article with Theil studying the effects of reintroducing fishers after an absence of seventy years. Living in fear of fishers and their predation has resulted in slower growth, shorter life spans, and greater winter weight loss for the porcupines.

University of Alaska–Fairbanks PhD student Jessy Coltrane conducted research for three years in Anchorage area parks. She radio-collared twenty-eight porcupines in the wild. The subjects were easy to capture and recapture. Ten other animals were studied in captivity. The research results showed how different porcupines are from other small mammals. Because they do not hide from the cold nor hibernate, porcupines must go into winter with much greater amounts of body fat, an average of sixty percent. Their winter diet of cambium is very low in nutrients, and conifer cambium is rich in terpenes and other toxins. To detoxify their food, porcupines must expend much of the energy gained from feeding. By spring, body fat was reduced to thirty-seven percent, but Coltrane discovered that even on this starvation diet the porcupines did not lose any lean body mass. Fed spruce needles, the captive porcupines also lost weight, but as soon as they were put on a pelleted food diet, they gained weight. Most mammals living in very cold climates cannot regain weight in winter. Even the mighty moose cannot restart the fat storage cycle until spring.

Oregon and Washington have greatly reduced porcupine populations, mostly inhabiting the mixed forests and shrub steppe east of the Cascades. But Oregon shares a bit of coastal habitat with California: the coastal dune forest where there are scattered porcupine populations. This land of conifers, pasture, willow swales, dunes, scrub, and marsh seems an unlikely place for porcupines, but we must remember that this generalist species inhabited larger and more varied territories in the past. Just south of the mouth of the Smith River in northern California, Cara Appel, then a Cal Poly Humboldt student and now pursuing a PhD degree at Oregon State University, studied porcupines in every season for several years. She deeply believes that research on a species' natural history must include time and space, the differences between seasons, and the availability of foods in different places. Each season offers different challenges and opportunities for optimizing survival. Winter can be harsh because of wet and stormy weather. Sheltering shore pines provide food, as do wax myrtle leaves and nuts. Weight loss among porcupines in these areas was only eight to seventeen percent compared with seventeen to forty percent losses reported for populations in colder areas. Summer is the time for gaining weight, with coastal willow leaves and bark providing thirty-seven percent of the calories, followed by toxic manroot (*Marah macrocarpa*) and other fruits. As always, the resilient rodents make the best of whatever the environment offers.

Cara Appel's Zoom lecture for Oregon Wild, "Porcupines of the Pacific Northwest," is a treat to watch, full of information, photos, and the songs of porcupines. Who knew they sang?

## Events of Interest in the Community

**McKenzie River Trust** https://mckenzieriver.org/events/#event-listings or 541-345-2799
**Second Saturday, March–December, 8 am–4 pm. Living River Exploration Day at Green Island.** Take a walk near the place the Willamette and the McKenzie Rivers meet. Observe 15 years of tree-planting work on Green Island, a habitat for beaver, river otter, and over 150 species of birds.
**19 and 26 October; 2, 11, and 16 November; and every Wednesday until June; 9–11:30 am. Watershed Wednesdays at Green Island.** Join McKenzie River Trust every Wednesday morning at Green Island to help care for this special area where the McKenzie and Willamette Rivers meet! Projects differ based on the season but typically include invasive species removal, habitat care, planting, and tree establishment. Work is easy to moderately difficult. Projects are best for participants 13 years of age and older. Fall: invasive species removal, plant propagation. Winter: invasive species removal, planting.

**Native Plant Society of Oregon, Emerald Chapter** https://emerald.npsoregon.org/
**Saturday, 15 October, 1–2 p.m. Field Trip to Museum of Natural and Cultural History Native Plant Garden,** 1680 East 15th Ave., UO campus. This excellent native plant garden is little known to the community. With over 40 species, the courtyard offers a rich array of plants that have provided nutrition and material for tools and shelter for millennia. This program is part of a monthly series of walks at this location. Limited free parking is available in a lot west of the mammoths on East 15th Ave.; metered parking is available on the street. Sign-up is not needed, and the tour is free to NPSO members.

**Monday, 17 October, 7–9 pm, The Walama Restoration Project presented by Kris Elsbree,** Amazon Community Center, Eugene. The Walama Restoration Project is a community nonprofit organization based in Eugene and founded in 2001. It is dedicated to biological diversity and environmental stewardship through education and habitat restoration. Currently we are working on habitat restoration in the southern Willamette Valley and in the national forests from the Columbia River Gorge National Scenic Area south through the Mt. Hood and Willamette National Forests. The Walama Restoration Project has incorporated educational programs into restoration projects and has developed successful invasive vegetation management regimes without the use of herbicides. This is their first in-person program in 2 years. The presenter requests that attendees follow proper health precautions, including wearing face masks. Please do not attend if you are experiencing cold symptoms.

**Lane County Audubon Society** www.laneaudubon.org or 541-485-BIRD
**Saturday, 15 October. Third Saturday Bird Walk** with Vjera Thompson. The Third Saturday Bird Walk continues to be open to all participants. Reservations are no longer required. Destination and time to be announced; check the Lane Audubon website and/or the Lane Audubon Facebook page close to the walk date. Email for more information: audubon@laneaudubon.org.
**Tuesday, 25 October, 7 pm. LCAS monthly meeting: Back to the Night** with Mary Coolidge. This program will be available via Zoom and in person at the Campbell Senior Center, 155 High St., near Skinner Butte. Join us for an exploration of the night's wondrous mysteries and the impacts of light pollution and to learn about how you can help in the effort to preserve our starry skies while maintaining safety and vibrant nighttime cityscapes. Mary Coolidge comes from the Portland Audubon Society to share ideas about helping night flying migrants as they pass through our local skies. She has been on Portland Audubon's Conservation team since 2008. Today she serves as Audubon's BirdSafe Campaign Coordinator, working to reduce hazards for birds in the built environment. For more information, see the LCAS calendar on the website: https://laneaudubon.org/events/

**Nearby Nature** https://www.nearbynature.org/ or 541-687-9699
**Wednesday, 19 October, 3–5:30 pm. Haunted Hike Pumpkin Carving,** the Learnscape at Nearby Nature, 622 Day Island Rd., Eugene. Help us carve 80+ pumpkins for the Haunted Hike! Bring your own tools or use ours, and plan to get creative. All welcome. Please RSVP to programs@nearbynature.org so we know how many people to expect.
**Friday, 21 October, 5:30–9 pm. Annual Haunted Hike,** at Alton Baker Park. Celebrate night creatures! Enjoy an hour-long pumpkin-lit hike in Alton Baker Park and meet an entertaining costumed bat, frog, spider, owl, and more. Join us for night-themed activities in the shelter before or after your hike. The event happens rain or moonshine, so dress for the weather. Free for members, $5/person for nonmembers. Preregistration required: https://www.nearbynature.org/events/annual-haunted-hike/
**Tuesday, 8 November, 10–11:30 am. Green Start Play Day—Fun with Fungi,** the Learnscape at Nearby Nature. Enjoy outdoor nature play plus toddler and preschool activities and stories. This month we're all about fungi. We're back to meeting as a group, so you are welcome to stay the whole 1.5 hours for a variety of fun activities. Rain or shine. Kids 5 and under only, with an adult. Members free, nonmembers $7/family. Pre-register online.

**Oakshire Brewing, 207 Madison St., Eugene.**
**Saturday, 29 October, 4–6 pm. Books, Beers and Belted Kingfishers!** Marina Richie's pursuit of the belted kingfisher is one of curiosity and kinship with a wild creekside community. The first book to feature North America's beloved bird of the waterways, her *Halcyon Journey* threads natural history, memoir, and myth. Illustrations by Oregon artist Ram Papish illuminate the bird of the hover and headfirst plunge. Marina will be hosted by local writer Tom Titus, who will read selections from *Palindrome*, his collection of essays and poems that celebrate the emerald ripple of the Pacific Northwest and embrace departed family, raspberry sunrises, imminent storms, and the bloodshot stare of a sharp-shinned hawk.
https://oakbrew.com/events/page/3/

**Mt. Pisgah Arboretum** https://mountpisgaharboretum.com/festivals-events or 541-747-3817
**Sunday, 30 October, 10 am–5 pm. Annual Mushroom Festival.** In partnership with the Cascade Mycological Society and Lane Community College, the Arboretum presents the 2022 Mushroom Festival. Attendance limited to 3,600 tickets. Advance tickets only. For more information, including activities and ticket purchases, visit mountpisgaharboretum.org/festivals-events/mushroom-festival/

**Friends of Buford Park and Mt. Pisgah** https://www.bufordpark.org/ or 541-344-8450
Because people and nature need each other, the Park is OPEN during the COVID-19 pandemic. Please go to the Lane County website for instructions about the park and updates.

**University of Oregon's Museum of Natural and Cultural History** https://mnch.uoregon.edu/museum-home
Go to https://mnch.uoregon.edu/programs or call 541-346-3024 to learn about the Museum's many exhibits and programs.

**WREN (Willamette Resources and Educational Network)** https://wewetlands.org
See their website for programs and information.

**ENHS welcomes new members! To join, fill out the form below. Membership payments allow us to give modest honoraria to our speakers and pay for the publication and mailing of *Nature Trails*. Our Web address:** http://eugenenaturalhistorysociety.org/

## MEMBERSHIP FORM

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**ANNUAL DUES**: Family $25.00
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**Annual dues for renewing members are payable in September. Memberships run from September to September. Generosity is encouraged and appreciated.**

*Amanita*. Reida Kimmel

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## 2022–2023 Speakers and Topics

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| **21 Oct.** | **Peter Hatch** | **Sea Otters and Traditional Ecological Knowledge** |
| **18 Nov.** | **Nancy Staub** | **Body Types and Hormone Levels in Salamanders** |
| **9 Dec.** | **Jeff Fleisher** | **Winter Raptor Surveys in the Pacific Northwest (cosponsored with the Lane County Audubon Society)** |
| **20 Jan.** | **Lisa Ballance** | **Marine Mammals** |
| **17 Feb.** | **Taylor Chapple** | **Sharks of the Pacific Northwest** |
| **17 Mar.** | **Pat O'Grady** | **Archaeology** |
| **21 Apr.** | **David G. Haskell** | **The Songs of Trees (cosponsored with Emerald Chapter of the Native Plant Society of Oregon)** |
| **19 May** | **Jamie Bowles** | **Sierra Nevada Red Foxes** |