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.



Kayla and Barley. Photo by Mallory Vistnes

Remote Scentsing: Using Detection Dogs and Satellite Imagery to Understand Alaska's Island Wolves

Kayla Fratt

Quantitative Ecology and Genetics, Oregon State University

Friday, 20 November 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 pm** in **221 Allen Hall, University of Oregon campus.** The Zoom lecture link is https://zoom.us/j/97499095971?pwd=eE9sdG9hSHMvOHhIUEJuU21wT20rdz09 or see our website at https://eugenenaturalhistorysociety.org/



Photo by Jack Darrell, NPR

Two years ago, Kayla Fratt was hiking a mile uphill in the frigid rain on Prince of Wales Island, searching unsuccessfully for Alexander Archipelago wolf scat with her conservation dog Barley, when she slipped and cut her finger open and sliced her chin on a rock. “I was bleeding a whole bunch, and it was pouring rain, and freezing cold, and my field tech asked if we should stop,” she recalls.

But Barley had found something at last, and so Fratt—who’s currently earning her PhD at Oregon State University—rewarded her border collie and began data collection. “My field tech snapped a picture of me as I sat there bleeding all over my boots in the rain,” she says. “It was miserable.”

Now, during lectures, she uses the photo to illustrate the hardships that can befall wildlife biologists and scat-detecting conservation dogs working in remote areas such as southeast Alaska’s Tongass National Forest. “I love my job so much, and it's so worth it,” she says, “but I think it's helpful to remind people that it's still field biology—you're still covered in bug bites, and there's spiders in the bathroom. It’s not for everybody.”

Fratt grew up in northern Wisconsin, collecting and cataloging bugs and training homing pigeons. While still in high school, she went to Panama to study agriculture. As an undergraduate earning a B.S. in Ecology at Colorado College, she focused on primate behavior, parrot cognition, comparative neuroethology, and mammalogy. Then, a friend sent her an article about a conservation detection dog skilled in scenting orca scat on the Salish Sea.

“Something clicked and I knew this is how I wanted to spend my life: training dogs to detect data for ecologists,” she explains on her website (kaylafratt.com). In 2020, she co-founded the nonprofit K9 Conservationists with two other scientists, to connect well-trained detection dog teams with scientists working in conservation research. They specialize in projects across the Great Plains, Rocky Mountains, and Latin America. Fratt and her dog Barley initially worked on studies involving endangered black-footed ferrets, invasive zebra mussels, and bats killed by the spinning turbines on midwestern wind farms. *The Atlantic* profiled her and the latter project in “Are Wind Turbines a Danger to Wildlife? Ask the Dogs” (07/21/21).

Fratt went on to train cheetah-scat detection dogs in Kenya. She competed with Barley on an episode of National Geographic’s *Called to the Wild*, which followed three human-dog teams as they attempted to survive outdoors in northern Maine’s wilderness. Then, she won a National Science Foundation Graduate Research Fellowship and a Fulbright.

Alaska Department of Fish and Game funded the first two years of Fratt’s doctorate and her field work, which studies the Alexander Archipelago wolf. She spent last summer navigating two to four hours a day of choppy water on tough little boats, doing conservation detection with her dogs on approximately 30 different islands.

“We’re looking at whether wolf populations are different on smaller islands surrounding the archipelago,” she says. “Are there fewer because these islands are too small and not sustaining wolves? Or are the wolves persisting at a higher density on these other islands, and able to eat more whales and sea otters and sea lions?”



Photo by Toni Proescholdt

Her findings, which include genotyping for individual wolves, may have implications for Alaska-based environmental organizations hoping to include the Alexander Archipelago wolf on the Endangered Species List.

For the eco-odorology episode of the popular science podcast *Ologies*, Fratt describes the process of boating with Barley from island to island around the archipelago; some “islands” are a landmass a couple of acres, and wolves swim between them. She’s also capturing data on her dog, looking at his proximity to the scat when he first scents it, and whether he lies down next to it or stands uncertainly beside it. She admits on the podcast to a certain amount of trepidation about Barley’s age. He turned 11 this year; she’s been training her younger dog, Niffler, to eventually take over the work of conservation detection.

Fratt describes fieldwork with her dogs as relatively easy despite the occasional bloody debacle. “We're out there exercising all day, and then at home they need to be fed, they need their massage, they need their physical therapy. I check them over every day for ticks and paw-pad injuries,” she says.

Life gets more complicated when she’s back in Corvallis for the winter. Assistants take the dogs to the park to work on new skills, and Fratt walks them and plays brain games with them on her lunch break. “They get a lot of enrichment in the form of long-lasting chews or frozen stuffed Kongs,” she explains. “They’re really intelligent dogs who need a lot of stimulation, and that’s a bit more compatible with long, rainy dark days where I need to be in the office a lot.”

She hopes to secure funding for her next project, which will take her and her dogs to El Salvador to study the reappearance of pumas. “I'm obsessed with these Salvadoran pumas,” she says. “They were extirpated from the country at some point in the early 1900s,” she says. “During El Salvador's civil wars, one in five Salvadorans fled the country. Huge swaths of farmland have been emptied of human inhabitants for long enough that they’ve started to rewild. Pumas are showing up in these areas.”

Kayla gave us this as a delightful teaser on what she will talk to us about:

> A ball-crazed border collie and a budding ecologist walk into an animal shelter … and walk out as research partners. Years later, after working on dozens of projects finding hard-to-find samples across the Americas, the duo took on a PhD project studying wolves across 25 islands in Alaska’s Tongass National Forest. Barley the dog’s story highlights what it takes to be a conservation detection dog, what it takes to partner with these amazing dogs, and what dogs can teach us about wildlife and wild places. Kayla will also highlight how detection dogs partner with next-generation genetic sequencing and remote sensing to gain a fuller picture of Alaska’s island wolves.

To learn more about Kayla Fratt’s work, visit KaylaFratt.com. To make a tax-deductible donation to her 501c3 nonprofit K-9 Conservationists, visit k9conservationists.org.

A Wolf by Any Other Name

Biologists sometimes get asked questions like, “What is the best kind of dog to get if you have small children?” On the face of it, this is an astonishing question since all dogs are carnivorous predators with teeth that are adapted for tearing and chewing flesh, and most could easily devour a small human child for lunch. A prudent answer to this question is, “One with small jaws and teeth.” Nevertheless, most of us, at one time or another, have shared our homes with at least one dog, large and/or small, whether we had kids or not. How did we get to this point where we invite carnivorous predators to live with us in our homes?

Evidence from archeology and genomics shows that the relationship between dogs and humans goes way back, to at least the last Ice Age. Dogs belong to the family Canidae, and have always been considered closely related to wolves, *Canis lupus*, but were initially considered different enough to be assigned to their own species, *C. familiaris*. The dog genome project—centered in Elaine Ostrander’s lab at the National Human Genome Research Institute at the NIH—revealed something unexpected. Not only are dogs closely related to wolves, they *are* wolves! Dogs now are placed in the subspecies, *C. lupus familiaris*.

Why are dog genomes being studied at a human genome research center? Dogs have about twice as many chromosomes as humans, and about a third less DNA in their genomes. Nevertheless, dog and human genomes share plenty of stuff, some of which is connected to inherited diseases in humans, including cancer, so this research is relevant to the health of both dogs and humans. (For more information about this, visit https://research.nhgri.nih.gov/dog_genome/.)

The oldest known domesticated dog dates to about 10,800 years ago, but the process of domestication probably started as far back as 30,000 years. Like so many things in evolutionary history, we know what had to have happened, but can only speculate on how or why. The most widely accepted idea is that the human-dog relationship began as a kind of symbiosis called commensalism, in which wolf-like dog ancestors benefitted by hanging around human campsites, scavenging leftovers. Over time, these wolf-like ancestors kind of self-domesticated. Dogs and humans became increasingly accustomed to each other until, before we knew what happened, every kid wanted a puppy.

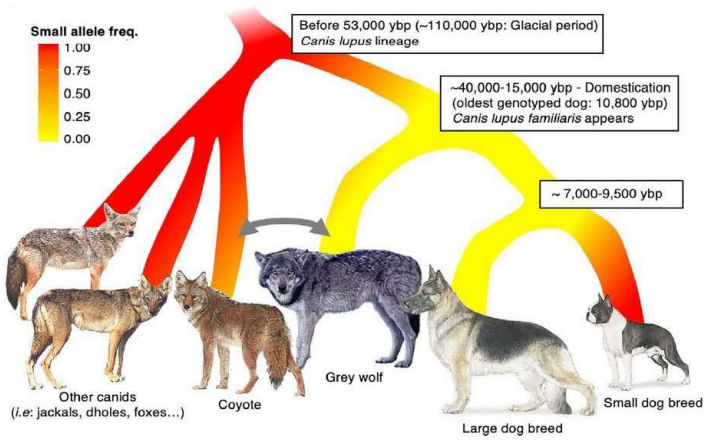
Fast forward to today, and dogs have become one of the most remarkable examples of evolutionary change in body size and shape and behavior known. Probably the most outstanding thing about dogs is the unbelievable range in adult body size, thanks to artificial selection by humans over the last two or three centuries, with body sizes ranging from about 2 lbs (e.g. Chihuahua) to over 200 lbs (e.g. Great Dane), the largest range of body size of any land-dwelling mammal species on earth. This enormous range begs the question: how could dogs that differ by two orders of magnitude possibly mate with each other? We'll let you wrestle with the visuals on that one! (Fig. 1; photo by Tim Flach)



Anyone interested in how evolution works should be hotly interested in dogs. How could the genome of one species, *C. lupus*, contain enough genetic variation to give rise to the plethora of strange looking dogs of all imaginable sizes? What complex genetic and developmental mechanisms underly this extraordinary morphological variation?

Recent genetic and developmental evidence suggests that wolves evolved from a much smaller ancestor that resembled a coyote (Fig. 2; from Plassais et al., 2022). While most evolution is thought to occur via Darwinian gradualism, in which many genes change incrementally over long periods of time, wolves apparently evolved rapidly via a single mutation that regulates the expression of a gene called IGF-1 (insulin-like growth factor 1). IGF-1 is a peptide hormone that stimulates the growth and development of bones, cartilage, and organs. In wolves, the mutation enhances the proliferation rate of cells in the cartilaginous growth plates of long bones, hence the bones grow faster, and you get larger body sizes.

The mutated gene is called IGF1-AS because it codes for "anti-sense" RNA that binds to IGF-1 messenger RNA. The ancestral allele (i.e. non-mutated version of IGF1-AS) could be called the "small allele", because it slows down growth, and the mutated allele can be called the "large allele" because it has the opposite effect. As shown in Figure 2, the ancestors of wolves had the small allele (red in the Figure) and thus smaller body sizes (the gene was sequenced from the bones of Pleistocene wolves). But then, about 50,000 years ago, a mutation created the large allele producing large wolves (yellow).



This mutation would have spread quickly in an isolated ancestral wolf population that was under conditions, such as climate change (Ice Age), in which natural selection favored large body size.

But what explains the extreme diversity in body size that we see in domesticated dogs? It turns out that the ancestral small allele was not completely eradicated in ancestral wolves. Humans quickly discovered through selective breeding that they could bring this ancestral "small body gene" to the fore and generate dogs of almost any desired body size (see Figure). The differences we see among modern breeds of dogs, such as fur, skull morphology, body shape, behavior, etc., reflect the actions of hundreds of genes, of course, but the impacts of the ancestral IGF1-AS gene can still be detected. As small dogs grow, the growth plates of their long bones disappear rapidly, so they reach their small, adult body size at a very young age compared to larger breeds. They even become sexually mature at an earlier age. One less understood difference—with which many of us dog owners, past and present, are familiar—is that larger breeds tend to suffer more from bone and joint disorders and, tragically, have much shorter lifespans than smaller breeds. And this may be yet another important thing to consider when selecting a family dog.

Stanley K. Sessions and Charles B. Kimmel

Menhaden, An Unknown National Treasure

There were no ospreys or eagles in my childhood memories. DDT, used to poison mosquitoes and just about everything else, was to blame. The chemical made ospreys' egg shells thin and fragile. Few chicks even hatched. (DDT sprayed into the environment washes into waterways where it is absorbed by aquatic organisms, eaten by larger and larger fish and ultimately by the large primary predator birds who carry a heavy body burden of such chemicals. These do not significantly impair function, but do seriously negatively affect reproduction. Because DDT and its primary breakdown product DDE interfere with normal calcium metabolism during egg formation, these chemicals are responsible for the thin, weak eggshells that cause failure of eggs to hatch, and bird populations to decline.)

With the ban on DDT—never complete, but enough—osprey populations grew at a steady rate all over the nation. It was my unforgettable joy, as a mature adult, to swim on my back in the warm, gentle waters of southern Cape Cod, watching an osprey slowly circling above me.



Source unknown

Now the ospreys of the mid-Atlantic, from Virginia to Maine, face an even greater challenge. Populations have crashed in the past decade and the failure of ospreys to raise their chicks is even worse than it was during the DDT decades. The birds' ecosystem is collapsing, and we are responsible.

The osprey is a top predator in Chesapeake Bay, Narragansett Bay, coastal Connecticut and well into Maine, but the iconic bird, like so much of the marine life in these Eastern Atlantic waters, is dependent on the keystone species at the base of the food chain. Menhaden.

Menhaden is a most wondrous fish! It is a filter feeder, smooching down phytoplankton and algae, detoxifying toxic blooms and turning this unglamorous food into fatty, protein-rich flesh, more nutritious than any other fish in Chesapeake Bay. Loons especially, but other bird species too—gannets, eagles, puffins, herons and ospreys—are supported by menhaden, as are game fish like striped bass and bluefish.

Menhaden live in saline water. The Chesapeake Bay and other smaller warm bays to the north and northeast, are ideal for them. They used to move about in huge schools, thick ribbons of fish miles long. At present, in spite of there being plenty for them to eat, their population in these waters is plunging. This precipitous decline in menhaden numbers is a major problem for the larger predators in this region. Falling osprey numbers are but one example. Studies show that inland, in states where menhaden are failing, ospreys that nest away from the saline waters, in tidal freshwater tributaries, can find enough forage fish to feed their chicks.

Why are menhaden disappearing? Where are they going and why? Factors such as pollution, global warming, and increased frequency of violent storms are contributing to their declining numbers, but there is a bigger culprit. Look no further than "reduction fishery", the term for industrial harvest of menhaden, permitted virtually without restraint in Chesapeake Bay and conducted now by only one plant, Omega Protein, subsidiary of Canadian Cooke, Inc. The fish are easy to detect and net. Omega uses spotter planes to locate menhaden schools. The location is relayed to two ships, equipped with 1,600-foot purse seines. The ships use these nets to encircle the fish, which are then pumped aboard into the vessels' holds. In recent years Omega was allowed to harvest about 350 million pounds of menhaden annually. The 110 million pounds of fish from the Chesapeake Bay was roughly 70% of the entire annual Atlantic coast menhaden harvest, clearly the reason for the decline of these fish in the Chesapeake Bay.

What becomes of the catch? Omega grinds them up and they are used in such things as pet food, cosmetics supplements and animal feed. Think twice as you eat a fillet from a farmed Atlantic salmon. You are eating fish raised on processed menhaden.

What about the rest of the East Coast? The previously robust osprey population in New Jersey has also seen a recent crash, in spite of the fact that reduction fishery is illegal in New Jersey's waters. New Jersey's sole marine conservation zone is Sedge Island in Barnegat Bay: 1900 acres of salt marshes, open water and ponds. But, three miles off shore, in unprotected water where fishing is open and legal, Omega and their crews, again using spotter planes and purse seines, suck in all the menhaden they can find. Their spotter planes and ships are also visiting Sandy Hook, New Jersey and even Long Island, New York regularly. Connecticut, Rhode Island and Massachusetts are also crying alarm, and I can see on the maps, osprey nesting failure in Narragansett Bay, and in the Connecticut River estuary.

No doubt there are many reasons for the decline of menhaden. Years-long studies may be required to gain a full understanding, but something must be done right now. New York's astonishing success in protecting Manhattan's harbor shows the way. In New York Harbor, purse seining for menhaden was banned in 2019, and now whales, dolphins and other marine mammals, as well as seabirds, come to feed in Manhattan's waters.

Surely the answer to the problem is to end industrial fishing of menhaden. Omega argues that 270 jobs would be lost if it were shut down, jobs in a low-income struggling part of the Atlantic coast. But if Omega keeps fishing, what about all the other jobs that will be lost? Those of small independent menhaden bait fishers, who catch lobster, crabs, striped bass, and all sorts of fin fish? The families that depend on the resort businesses that welcome tourists and fishermen? Surely more than 270 jobs would die if there were no more menhaden. At present it seems that there are just enough menhaden to feed the all-important striped bass fishery.

Stop seining! Right now! Stop harvesting menhaden in all of Chesapeake Bay and see what happens. Funding for long-term studies is actually available, but this crisis has to be met fast and brutally. Even though ninety-two percent of Virginians support ending the fishery, their legislature has consistently given in to pressure from Omega. The time its act is now, before the entire ecosystem becomes unglued! The menhaden are a national treasure that all of us must defend!

Beware. In our new world of wetter, drier, hotter, tornado- and fire-prone habitats, and seemingly all-powerful commercial interests, the menhaden crisis is a modern-day canary in a coal mine.

Are our waters providing enough healthy, protein-rich food for raising osprey chicks each year?
Reida Kimmel

The Coast to Cascades Bird Alliance's Eugene Christmas Bird Count will be on Sunday, 3 Jan. 2026. All are invited to participate. For more info or to sign up, please contact Vjera Thompson: EugeneChristmasBirdCount@gmail.com If spending the day outside on varied terrain is not what you prefer, there is a backyard bird-count option. FMI, contact Marcia Maffei at birds2count@gmail.com or leave a message at 541-501-1280.

Upcoming Events

(for complete listings and details, see individual websites)

University of Oregon Natural Area, Events!

Food Forest Tree Plantings: Nov. 7th| 10-1 pm

Join us in creating a gradient of edible plants from the new Urban Farm Riverside to a native plant food forest! Tools, snacks, and help will be provided. Meet at the Frohnmayer Footbridge (south side) where we will walk to the planting site on the east side of the Willamette River Natural Area.

Veterans Day Tree Planting: Nov. 11th | 9-12 pm

Team up with the City of Eugene Parks & Open Spaces Staff and the UO Natural Areas on our shared border between the WRNA and the city property. We will be creating one continuous woodland corridor for the community and wildlife to use. Located just east of the Eugene Steam plant parking lot, along the Willamette River.

Tree Canopy Plantings: Nov. 21st | 10-1 pm

We will be extending the native tree canopy west of the UO Riverfront field - replacing over ½ an acre of invasive blackberries with beautiful native trees! Join us in the University's largest planting of native trees along the WRNA to build and restore our river habitats! Tools, snacks, and help will be provided. Meet at the Frohnmayer Footbridge (south side).
Contact person. Emily Hamblen, Natural Areas Steward,541-207-7799

McKenzie River Trust https://mckenzieriver.org/events/#event-listings or 541-345-2799

Wednesdays, 9–11:30 am. Watershed Wednesdays at Green Island. Projects include invasive species removal, habitat care, planting, and tree establishment. November 18 and 25, December 2, 9, and 16. Sign up **Second Saturdays, Mar.–Dec., 8 am–4 pm. Living River Exploration Day at Green Island**. Free, no preregistration. November 14, Living River Exploration Day. November 20, 5:00 pm. Hike the Willamette River Confluence with the city of Eugene. December 12, 8:00 am. Living River Exploration Day.

Native Plant Society of Oregon, Emerald Chapter https://emerald.npsoregon.org/

November 16, Presentation. **Wetland Restoration**. Laurie Holts, City of Eugene

December 12 1:00-4:00 Native Plant Garden Work Party. Hendricks Park, 2200 Summit Ave, Eugene, Beginner and experienced gardeners welcome. kirvine@eugene-or.gov

Anytime. Self-guided Tour of Laurelwood Bog. Go south on Agate St in Eugene to the deadend at 29th. The entrance to the Bog is clearly signed, and the trails are covered with bark.

Lane County Butterfly Club https://www.lanebutterflies.org

Wed Nov 11, 7:15 pm at the Hilyard Community Center, 2580 Hilyard St
Jeff Miller presents The Oregon Butterfly Atlas 2026: Dot-Maps, Patterns and Other Insights

Mt Pisgah Arboretum https://mountpisgaharboretum.com or 541747-3817
There are no upcoming events

Coast to Cascades Bird Alliance https://ccbirdalliance.org/ 541-485-2473
Third Saturday. Bird Walk Nov 21. For all participants. For more information, contact our phone number or the new web address. Leader and location TBA.There will be no third Saturday bird walk in December because of the imminent Christmas Bird Count.
First Saturday supportive and inclusive bird watching, December 5, Walterville Pond
Programs
November 24 Thomas Meinzen: Birding By Bicycle. Campbell Community Center, 155 High Street, Eugene. In person and Zoom
December 11. 7:00 pm. Nolan Clements: Fifty Year Snapshot of Change in Oregon Coast Range Bird Communities. Joint meeting with ENHS**.** 221 Allen Hall, UO campus. Zoom and in person (see cover page of this newsletter for Zoom link)

Museum of Natural and Cultural History, University of Oregon https://mnch.uoregon.edu/museum-home
Ongoing exhibits: New Exhibit: The Buzz About Bees
America at 250. Before, Between and Beyond
Oregon: Where Past Is Present
Explore Oregon
November 12. Restoring Cultural Arts. 6:00 pm. Talk by Indigenous Artist Shirod Younker
November 13 Tour MNCH's Fossil Collection 2:00 pm. Sponsored by Oregon Postdoctoral Association
November 21.10:00 am.Native innovation, Fall family day

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.
Tuesdays and/or Fridays afternoons. Natural Neighbors. After-school program outdoors in our Learnscape. See the website for programs and information. Rick's List Nature Calendar has lots of events and projects for adults.

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and
https://www.youtube.com/channel/UCEryzVh9lw9y-nLS_t94BVw

Eugene Natural History Society
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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/

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2026–2027 Speakers and Topics

18 Sept.	**Brooke Penaluna**	**Willamette River Fishes: Thriving, Striving, or Nose-diving?**
16 Oct.	**Michael Palmer**	**Bug Hunting at the McKenzie Valley Bug Lab**
20 Nov.	**Kayla Fratt**	**Remote Scentsing: Using Detection Dogs and Satellite Imagery to Understand Alaska's Island Wolves**
11 Dec.	**Nolan Clements**	**A 50-Year Snapshot of Change in Oregon Coast Range Bird Communities** (cosponsored with the Coast to Cascades Bird Alliance)
15 Jan.	**Alex Nyers**	**What Obsidian Can Tell Us**
19 Feb.	**Leif Karlstrom**	**Giant Aquifer of the Cascades**
19 Mar.	**Desirée Tullos**	**Klamath River Dam Removal: What's Next**
16 Apr.	**Stephanie Hazen**	**Backyard Butterflies and Conservation** (cosponsored with the Emerald Chapter of the Native Plant Society of Oregon)
21 May	**Erin Pettit**	**Thwaites Glacier, Antarctica**