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.

Photo: Big Fish Lab

Sharks of the Pacific Northwest

Taylor Chapple

Marine Mammal Institute, Oregon State University,
Hatfield Marine Science Center, Newport, OR

Friday, 17 February 2023, 7:30 pm

This month's meeting will be held in the Great Hall at the Campbell Community Center, 155 High St., Eugene. There is parking adjacent to the building. This will be a hybrid meeting. You can find our Zoom link at our website https://eugenenaturalhistorysociety.org/, or click on this link: https://zoom.us/j/97499095971?pwd=eE9sdG9hSHMvOHhIUEJuU21wT20rdz09

I'm almost embarrassed to admit that one of my biggest primal fears in life is being attacked by a shark. This is true even though I know that I am about 75,000 times more likely to die riding my bicycle and about 2.5 million times more likely to die driving my car on the Beltline than to be killed by a shark. In fact, I am about 3,000 times more likely to be injured by a toilet than by a shark (these are actual available statistics)! Still, the idea of floating around in deep, dark ocean waters where I know some of the world's largest predators are lurking in the depths, gives me nightmares (for an excellent summary of how sharks got their reputation as "symbols of terror" see: https://www.nationalgeographic.com/tv/movies-and-specials/shark-attack-experiment). So, I was very curious to interview someone who has chosen to focus his career on studying sharks.

Our speaker this month is Taylor Chapple, Assistant Professor in the Fisheries, Wildlife and Conservation Sciences Department at Oregon State University. He is also Principal Investigator of the Big Fish Lab (BFL: https://marineresearch.oregonstate.edu/big-fish) at the Coastal Oregon Marine Experimental Station located at the Hatfield Marine Science Center in Newport, Oregon, where his research is motivated by the desire to increase our understanding and appreciation of sharks on local and global scales.

Chapple grew up in Ohio, which does not sound like an auspicious place for someone interested in sharks. But the deep waters of Lake Erie were literally in his backyard, and he became enamored by the underwater world, fueled in part by National Geographic Magazine. He was introduced to diving at an early age by his father, a certified diver. Chapple was scuba diving by age 8 and was a certified diver himself by age 13. Although he saw his first shark while diving in the Florida Keys and handled thousands of sharks at the Florida State Museum of Natural History, his professional interests in sharks was a rational decision that came much later. As an undergraduate at Boston University, he participated in a project studying predator/prey dynamics among the cichlids of Lake Victoria, one of the Great Lakes of Africa, and his undergraduate thesis was focused on Nile perch. After obtaining his BA, Chapple worked in New England, designing experimental fishing nets to limit bycatch, and he also taught marine science aboard a sailboat in the Puget Sound. In 2002 he first began working with sharks off the coasts of Florida and throughout the Gulf of Mexico.

Chapple's professional interest in sharks was the result of searching for a system around which he could organize a long-term research program focused on the natural history of large marine predators for which there are fewer data. As a PhD student at UC Davis, he worked on developing alternative approaches to investigating ecology and population dynamics of sharks, especially the common thresher shark and the white shark, combining computer simulations and modeling with field components involving tagging and monitoring the living animals in their natural environments. After earning his PhD in 2009, he began a post-doctoral research appointment with the Max Planck Institute in Germany, developing a magnetic tag that allowed him to create an artificial magnetic field around the sharks to better understand how they use magnetic fields to navigate and find prey. In 2012 Chapple began a second post-doctoral appointment with Hopkins Marine Station of Stanford University, where he continued his work on the behavior and movements of white sharks. Chapple has been at Oregon State University since 2019 where he continues this work in his current capacity as assistant professor and director and principal investigator of the Big Fish Lab (BFL) at the Hatfield Marine Science Center.

Living sharks are an impressively diverse group; there are more than 400 species of sharks worldwide. At least 15 species of sharks can be found in the waters off the Oregon coast for at least part of each year, ranging in size from the brown catshark (~2.2 ft or 65cm) to the basking shark (>30 ft or 10m) (see: Sharks of Oregon). As Chapple says, "Fifteen species may not seem like many, but they represent enough variety to fascinate shark lovers and phobics alike and are critical to our healthy marine ecosystems. In our waters, we have a shark that's indigo blue and a shark with electric-green eyes. We have apex predators and schoolbus-size sharks that feed on plankton."

Relatively little is known about how these shark species affect our coastal ecosystems, and that's where Chapple and the BFL come in. Since it is usually not possible to observe directly the everyday activity of sharks in their natural environment, Chapple's team electronically tags animals, combining theory and historical data to assess their vulnerability and glean information about their natural history. At OSU, Chapple also works with local communities to better understand and appreciate the sharks of Oregon. But working to change attitudes and reduce the irresponsible exploitation of sharks is an uphill battle. Not

surprisingly, humans are far more dangerous to sharks than sharks are to humans. At least 150 million sharks are killed every year by humans for a variety of reasons, including the infamous shark-fin trade.

Chapple's research efforts are helping to dispel deep-rooted but largely irrational fears that humans have of these majestic animals. As he puts it, he is "…working to increase our understanding and appreciation of sharks on local and global scales … I am focused on shifting the current mantra from fear and apprehension of sharks to one of awe and inspiration—there is more to sharks than just pointy teeth. I have worked all over the planet engaging people, through science, television, magazines and technology, to think differently about the predators in their backyard." Stan Sessions

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The Complexities of a Small Miracle

by Reida Kimmel

The story of the Fender's blue butterfly (*Icaricia icarioides fender*), is familiar, but deserves retelling, especially in light of all that this nickel-sized butterfly has contributed to research concerning soil science and habitat restoration in the thirty-four years since its "discovery" by a twelve-year-old boy netting butterflies in a field near Eugene. A century ago, Fender's blues were known as a species inhabiting the upland prairies along the length and breadth of the Willamette Valley, and nowhere else. Settlers of European origin who moved into the Valley drained, diked and plowed, and built towns, dams and industries. Upland prairies where the land was unsuitable for these profitable activities were used for grazing cattle. Now, only a tenth of one percent of this prairie land remains, mostly not pristine. As their habitat disappeared so did the butterflies. Fender's blues were first collected in 1929 and not seen again until the boy in the field netted a few in 1988. A year later, a qualified lepidopterist officially identified the species, and in 2000, with only approximately 3000 individuals remaining, Fender's was listed as an endangered species.

Photos: C. Schultz

Fender's blues are truly lovely creatures. The males are blue. The females are creamy tan. In both sexes the undersides of the wings display a double line of spots all around the edges. The outer edges of the wings and the head and body appear furry. I feel a connection to these butterflies, because when we first moved to Eugene in 1969, we kept our horses on Willow Creek Road. I took trail rides that winter through what is now the Nature Conservancy's Willow Creek Preserve and remember how brushy the land was, and wet. It was my introduction to Oregon, quite disappointing. Years later, I learned about the treasures these wetlands hold, that they are the Southern Willamette Valley's best remaining prairie wetlands and include an upland prairie remnant that is a prime location for Fender's butterfly.

How did this species of butterfly grow from a population so endangered as to be nearly extinct, to number at least 136 thousand individuals in 2022 when its status was changed from endangered to threatened? The first response to the Endangered listing was restoring and enlarging areas of suitable habitat. National Wildlife Refuges like Basket Slough outside of Salem, and William Finley Refuge north of Corvallis have been prime places for research and habitat enhancement, as has the Willow Creek Preserve and the BLM's Fir Butte outside of Eugene.

As a graduate student studying the rare butterfly's ecology, Cheryl Schultz, now a professor at the University of Washington, became concerned with drawing the larger public, especially landowners, into supporting, enlarging and restoring acreages that did, or could, support populations of Fender's blue butterflies. Suitable habitat, whether on public land or private land, had to be cleared of brush and encroaching forest. Butterflies thrive in meadows where the grass is kept short and flowers are abundant. Carefully monitored light grazing is feasible. Native Americans maintained the prairie ecosystem by regularly burning the meadows, keeping land open to support deer, camas, oaks and other food sources. Now we must do the same. Without consistent management, the Fender's blues, and who knows how many other species, are doomed.

Schultz's research focused on learning exactly how Fender's blues live their lives. Like many butterfly species, Fenders are almost completely dependent on a single plant, in this case, Kincaid's lupine (*Lupinus sulphureous var. kincadii*). Most of a butterfly's life is spent as a caterpillar, but in May and June, they are active adults, spending their brief ten-day lifespan gathering nectar from various plants, including other lupines. Fender's blues are not effective pollinators, and are homebodies, traveling

no more than three tenths of a mile in search of nectar. But to reproduce, they can travel over a mile between lupine patches. Then they lay their eggs on Kincaid's lupine plants and die. The eggs hatch and the caterpillars feed on the lupine leaves for a few weeks before going dormant in the soil beneath the plants. In the spring they emerge, still caterpillars, and feed on young lupine leaves before forming a chrysalis, from which they emerge as adults in early May.

Founded in 1999, The Institute for Applied Ecology, in Corvallis, is dedicated to studying habitat structure, gathering knowledge to guide in healing threatened ecosystems. Researching the ecology of the butterflies' habitat—the soil where Kincaid's lupine grows—they have learned about associated mycorrhizal fungi, and have found specialized rhizobium bacteria nodules at the lupine's roots, providing nitrogen to the plant, which delivers nutrients in return. If these fungal and bacterial symbionts are inoculated into the soil where Kincaid's lupines will be planted, the seedlings grow lush and abundantly. But you have to have seeds. Kincaid's lupines rarely produce more than two seeds per plant. In nature, many plants do not mature any seed due to weevil predation. The Institute created a partnership with the Sustainability in Prisons Project, establishing a seed farm inside the Oregon State Correctional Institution. There, thousands of plants grow and set viable seed that forms the supply for reestablishing Kincaid's lupine populations in suitable locations all over Oregon.

It is not uncommon for ant species to associate with and tend species of blue butterflies. This is certainly true of Fender's blues, whose caterpillars call on their ants for help, using sound and scent signals. Ants will swarm to the caterpillar and protect it, often by standing on it or by carrying it to their underground nest. Aphid-like, the caterpillars produce a sugary substance that the ants relish, a fitting reward for the rescuers. Very interesting is a discovery reported in the Journal of Insect Conservation by Warchola et al., 2015, that fire increases ant-tending activity in Fender's blue butterflies, showing how ancient and strong the bond is between prairie species and fire.

At a time when all news is grim, it is so heartening to hear a story of a success in which humans played a positive role. We can be a force for good, but we must continue to be active partners in the process. If we want butterflies, we must keep the prairies open, keep acquiring land with potential for rewilding, and even while knowing that change is inevitable, act to maintain the ancient places as well.

The Rise and Fall of a Heron Rookery
by David H. Wagner

I have been taking regular walks for over thirty years along a foot path by ponds off the west end of Cal Young Road in north Eugene. A large series of ponds left over from mining gravel for the highway are found on both sides of Delta Highway. The biggest are along the banks of the Willamette River, called the Delta Ponds. These have become significant wildlife areas thanks to years of habitat restoration. The abandoned ponds on our side of the highway I have called the East Delta Ponds. The walks have given me the opportunity to learn to recognize the many species of ducks, geese and other waterfowl. Walking throughout the year has taught me to observe population changes at different times of the year. I have also paid attention to changes taking place over many years. I began writing a column called *It's About Time* for the Eugene Weekly in December of 2009. Most of my columns were focused observations of what we see on the weekly walks. The most dramatic year-to-year changes have been observed in nesting patterns of the great blue heron. The following are excerpts of a series of these columns.

April 2015

Do birds return to the same nest year after year? All winter, when the deciduous trees are bare, I look at clusters of debris high in their branches and try to pick out which are just clumps of leaves and which are nests. The obstacle to solving this puzzle is that the old nests are obscured by leaves by the time birds might come back. The trees leaf out before most birds begin nesting. It's hard to tell if the nests are used again.
Only occasional nesting observations have presented themselves over the past years of bird watching.

Chickadees nested in one of our nest boxes two years in a row. A spotted towhee has nested in the hedge across the street for five or more years. And the herons down by the ponds start their nesting season long before the black cottonwoods leaf out. The East Delta Ponds rookery broke up fifteen years ago, when a pair of bald eagles started marauding their young. The number of active nests plummeted, probably fledging no young heron in some years. There has been a resurgence this spring: six nests are being tended. Four are old ones, two are new or dramatically refurbished. It will be interesting to see how they fare through the season.

February 2016

Heron nests in the east Delta Pond cottonwood rookery were vacant and forlorn all winter. There were seven last year by the time full occupancy was reached. At the end of the winter the tree has five nests in it. Two must have been flimsy as only five nests survived. Now the herons are back; I saw five tending the five nests at the end of January. Because this tree is one of the late ones to leaf out, we will be able to watch the nesting progress through most of the early breeding season.

May 2016

The leaves of the cottonwood trees are now all expanded. The crown is full and gradually changing shades from a bright spring green to a tough, dark summer green. The heron nests I have been following seem to be doing well. They are now hard to see in the foliage; careful binocular study was necessary to be absolutely sure at least four nests are still in place. The leaf cover doesn't allow me to see much activity in the nest. I just have to imagine nestlings having their fish dinners delivered on a proper schedule.

January 2017

Heron nests have been lost in the East Delta Pond cottonwood stand close to the Willamette River. Only two are left in a tree that hosted a rookery of seven or eight nests in the past ten years or so. The recent ice storm brought down three of the big branches that supported nests. There are still good nest sites in this stand of cottonwoods. It will be interesting to watch how the rookery responds to the damage.

April 2017

Herons are having a hard time in the rookery beside the ponds on the east side of Delta Highway, the East Delta Ponds. One of the two nests that survived the December ice storm was lost in March. A solitary heron stayed on the remaining nest for a little over two weeks but now that nest appears to have been abandoned. It looks like no baby heron will be fledged from the last nest this year.

April 2018

The last heron nest of our East Delta Ponds rookery is gone. The solitary nest that survived the winter finally fell apart. Herons must build new nests in nearby trees.

February 2023

This year it is clear that there will never be another rookery in this stand of trees by the East Delta Ponds that once hosted close to ten heron nests. The shattered trees stand as a testament of the changes that occur in our lifetime. We take heart, however, in seeing a large rookery that has developed along the edge of the Delta Ponds across Delta Highway. Last year we counted thirteen nests in four cottonwoods.

Photos: D. Wagner

Events of Interest in the Community

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

Every Wednesday, Jan. to 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. Winter: invasive species removal, planting. Sign Up

- **Nearby Nature** https://www.nearbynature.org/ or 541-687-9699, 622 Day Island Rd., Eugene (Alton Baker Park)

Preschool and after school programs. Youth and family programs. School and adult programs
Learn more about our Wonder Keepers Preschool and our Natural Neighbors After School programs! Wonder Keepers meet Monday/Wednesday/Friday mornings and Natural Neighbors enjoy programs on Tuesdays and/or Fridays. All programs are outdoors at our Learnscape and in Alton Baker Park. Fun!
Tuesday, 14 Feb., 10-11:30 am. Green Start Play Day: Love Notes Nearby Nature 622 Day Island Rd. Enjoy outdoor nature play in our Learnscape plus toddler and pre-school activities and stories—this month all about birds and their spring love songs, plus other neat noises in nature! Rain or shine! Kids 5 and under only, with an adult. Members free, non-members $8/family. Pre-register online.
Monday, 20 Feb., 8:30 am to 4:30 pm. No School Day Adventure: Incredible Journeys Nearby Nature 622 Day Island Rd. Adventure there and back again as we soar across countries and swim between hemispheres. Play migration games, hear incredible stories of strength and skill, design a kite that really flies, do a feeder watch, and observe awesome ospreys! $60 members/$70 non-members. Scholarships available. Ages 5-11 (K-5th grade), groups of 12 kids.

- **Native Plant Society of Oregon, Emerald Chapter** https://emerald.npsoregon.org/. Zoom links to all presentations will be published on the Emerald Chapter website and distributed to members via email.

Monday, 20 Feb., 7–9 pm Zoom presentation. Emerald Ash Borer: A Threat to Oregon's Ash Trees. Christine Buhl, Oregon Department of Forestry. Status update on Oregon's first detection of the exotic invasive emerald ash borer (*Buprestis planipennis*). Learn how to diagnose potential infestation, identify the emerald ash borer, and manage for it. Also learn about interagency efforts to monitor, slow the spread, and treat for this pest.

- **Mt. Pisgah Arboretum** https://mountpisgaharboretum.com/festivals-events or 541-747-3817

Sunday, 12 Feb., 9-11:30 am. February Bird Walk. Join Mieko Aoki and Julia Siporin for another monthly bird walk intended for people with all levels of birding experience. We'll use vocalizations, habitat, and behavior clues for identification of our year-round and winter residents. Come discover the Arboretum's avian diversity. Please bring binoculars. Rain or shine. Meet at the Education Building. Don't forget your parking pass. Walk fee $5, FREE for Arboretum members. Limited to 18 attendees. Pre-registration required. Click here to register.
The Arboretum is looking for volunteer nature guides to lead groups of children on nature walks this spring and summer. If this seems like something you might want to do or ask questions about, email education@ mountpisgaharboretum.org or call 541-741-4110. Orientation Night is March 20th.

- **Lane County Audubon Society** www.laneaudubon.org or 541-485-BIRD; maeveanddick@q.com or 541-343-8664

Saturday, 18 Feb. Third Saturday Bird Walk Park Manager John Mullen will lead a walk at Elijah Bristow State Park, located on Wheeler Road, off Highway 58. We'll wander through forest-edge grassland, down to old quarry ponds, and the Middle Fork of the Willamette River, then circle back. Walking distance is approximately 2.5 miles, covering old fields, oak woodland, cottonwood floodplain, and mixed woodland habitats. Start time is 8:30 am. Meet at the Oak Grove parking area, first parking area after entering the park. FMI, check the LCAS website or Facebook page or email audubon@laneaudubon.org.
Tuesday, 27 Feb., 7 pm. Monthly program. Campbell Center, 155 High Street, Eugene **A Confluence of Interests: Nature and People in the 21st Century** This LCAS Program will be available in person as well as via Zoom. The Zoom link will be available one week before the event on the LCAS website and Facebook page. Joe Moll will present a program and discussion about the new McKenzie River Trust lands near Mount Pisgah. The Willamette Confluence Preserve was established in 2010 when The Nature Conservancy acquired it from the Wildish Family. The Nature Conservancy is now transferring ownership of the property to the McKenzie River Trust, which will lead a collaborative effort to ensure long-term stewardship of the site. As Springfield and Eugene continue to develop and expand, this area's location will become increasingly vital. In this discussion with McKenzie River Trust Executive Director Joe Moll, we will consider the opportunities and challenges of caring for nature in the places we love that are close to home. He has been intrigued by one of the basic conundrums of those working in conservation: ***How best do we live in and love a place without loving it to death?***

- **Southern Willamette Ornithological Club (SWOC)**

Wednesday, 15 Feb., 7 pm. "**Argentina: From the Chaco to Tierra del Fuego**" is the title of February's Eugene Birders' Night presentation by Dan and Anne Heyerly. In mid-October 2022, these life-long birders joined a three-week birding tour to Argentina. The trip covered parts of Central Argentina, as well as the Patagonian steppe that extends south all the way to the beech forests of Tierra del Fuego in the far southern tip of the continent. Join the Heyerlys as they share the stunning land forms and bird-rich delights of their journey. The meeting is at the Alluvium, in the Whiteaker area of Eugene. It's at 810 W 3rd Ave, the corner of Monroe and W 3rd Ave, in a spacious room suitable for COVID-safe protocols. All are welcome to this free event, but we encourage donations to help pay the rent.

- **Museum of Natural and Cultural History, University of Oregon** https://mnch.uoregon.edu/museum-home

The Museum is open Wednesday through Sunday, 10 am to 5 pm, and until 8 pm on Thursdays. Admission is free to members, toddlers, UO students, faculty, staff, and members of the military. Regular exhibits such as "Oregon: Where Past Is Present" and "Explore Oregon" are joined this winter by special exhibits: "Magic in Medieval Europe" in winter 2023 and "Outliers and

Outlaws, Stories from the Eugene Lesbian History Program," which opens **Jan. 28.** Visit https://mnch.uoregon.edu/programs or call 541-346-3024 for more information.

- **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.

- **WREN (Willamette Resources and Educational Network)** https://wewetlands.org

See the 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*. Find us at:
http://eugenenaturalhistorysociety.org/ https://www.youtube.com/channel/UCEryzVh9lw9y-nLS_t94BVw

MEMBERSHIP FORM

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I (we) prefer electronic copies of *NT* rather than paper copies. ___Yes ___No

E-mail for electronic copies of *NT*_____

ANNUAL DUES:	Family	$25.00
	Individual	15.00
	Life Membership	300.00
	Contribution	_____

Memberships run from September to September. Annual dues for renewing members are payable in September. Generosity is encouraged and appreciated.

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

Photo: Big Fish Lab

The Eugene Natural History Society meets on the third Friday, September through May, except in December when the meeting is on the second Friday. **This month's meeting will be held in the Great Hall at the Campbell Community Center, 155 High St., Eugene. There is parking adjacent to the building. This will be a hybrid meeting.** You can find our Zoom link at our website https://eugenenaturalhistorysociety.org/, or click on this link: https://zoom.us/j/97499095971?pwd=eE9sdG9hSHMvOHhIUEJuU21wT20rdz09

Chapple tagging a shark. Photo: BFL

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2023 Speakers and Topics

17 Feb.	**Taylor Chapple**	**Sharks of the Pacific Northwest**
17 Mar.	**Pat O'Grady**	**Archaeology of Oregon**
21 Apr.	**David G. Haskell**	**Sounds Wild and Broken: What Listening Can Teach Us about Ecology, Evolution, and Ethics (cosponsored with the Emerald Chapter of the Native Plant Society of Oregon)**
19 May	**Jamie Bowles**	**Sierra Nevada Red Foxes**