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 most Kalapuya people are 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.

Mt. St. Helens, 1980 (left) and 1981 (right). *David Bruer*

Observation Point: Birding at the Mount St. Helens National Volcanic Monument

(Cosponsored with the Lane County Audubon Society)

ZOOM ONLY

Gina Roberti

Youth Education & Rental Programs Manager,
Mount St. Helens Institute, Amboy, WA

Friday, 8 December 2023, 7:00 pm

This month's meeting will be ZOOM only at our new time, 7:00. The Zoom lecture link is https://zoom.us/j/97499095971?pwd=eE9sdG9hSHMvOHhIUEJuU21wT20rdz09 or see our website at https://eugenenaturalhistorysociety.org/

This Month's Speaker: Gina Roberti

I remember when Mount St. Helens exploded. It was 18 May 1980, and I had just started graduate school at UC Berkeley and so was not directly affected. However, the rest of my family lived in northeastern Portland, so I heard plenty about what they were dealing with! Mostly thanks to my adventurous mother, my family had long loved tent camping and had recently gotten into backpacking. One of their favorite places to backpack was around the base of Mount St. Helens. All this came to an end when the eruption gutted the mountain, causing one of the largest landslides in recorded history, burying over 370 km^2 (>230 mi^2) of old-growth forest with many meters of volcanic debris. This eruption had devastating consequences for living organisms, especially those living closest to the crater of the volcano, and many local populations of several species were wiped out. As any Oregonian around at that time knows, the resulting debris from the explosion, consisting mainly of ash, was distributed over a wide area and clogged lakes, rivers, and streams.

Despite the tragic devastation, for biologists and other scientists the eruption of Mount St. Helens also provided an amazing opportunity to study the aftermath of a such a major environmental event, and 1982 saw the establishment of the Mount St. Helens National Volcanic Monument to protect the area near the volcano for research, education, and tourism. Biologists were quick to realize that for birds in particular the dramatic alteration of the landscape created a diverse array of new habitats, and today >80 species of nesting birds can be found in the Mount St. Helens National Volcanic Monument.

Gina Roberti is a geologist, naturalist, and outdoor educator with specialties in conservation and ecology, teaching field classes, event planning, and data analysis for nonprofit organizations. She grew up in Rhode Island, where she enjoyed searching for clams and exploring the shorelines of Narragansett Bay, New England's largest estuary. Even as a child she was fascinated by geology and biology and learned about ancient metamorphic rocks from the Appalachian Mountains. She attended Brown University as an undergraduate and graduated with a B.S. degree in geology/biology. In 2019, she earned a master's degree in education from Western Washington University in a joint program with the North Cascades Institute, with a focus on environmental education, natural history, and nonprofit management. Near the end of graduate school, she began working as a naturalist at the Environmental Learning Center at Clackamas Community College and in 2019 joined the education team of the Mount St. Helens Institute.

Gina has several years of experience as a geoscience educator in various parts of the western United States and has taught thousands of students of all ages about earth science. As a dedicated and experienced teacher, she strongly believes in the power of education to inspire awareness, appreciation, and stewardship of the natural world.

The following statements about Gina's background are excerpts from the website of the Mount St. Helens Institute:

> Gina's passion for field-based education led her across the country, where she worked as a naturalist and educator in the Colorado Plateau, Snake River Plain, Klamath-Siskiyou Mountains, and North Cascades. Presently Gina works as the Youth Education and Rental Programs Manager at the Mount St. Helens Institute (https://www.mshinstitute.org/).
>
> Gina's deep immersion in the natural world began through in-person collaboration and shared time in the field. These experiences inspired her to lead natural history classes to share her perspective and broaden and deepen collective interactions with the natural world. You can most often find Gina

enjoying the company of birds, foraging for native foods, and riding her bicycle.

Gina says this about herself:

> My experience working as a field-based educator with various nonprofits in the western United States has allowed me the opportunity to teach a diverse set of people from various economic backgrounds. This work informs my commitment to acknowledging my position in the field of geology and my desire to improve equity in this field, recognizing that the study of geology is one of the least diverse disciplines with respect to racial and economic diversity. As a female geoscientist and educator, it is heartening to see the field of geology increasingly open to women. In my work as an educator, I seek to encourage greater diversity and believe this can be accomplished in part through acknowledgment of the history of our discipline and by actively employing strategies to make field-based experiences more equitable.

Please join us join us on 8 December at **7:00 pm via Zoom**, when Gina will take us on a tour through the diverse mosaic of habitats created by the 1980 eruption of Mount St. Helens and the effects of this event on some of the area's signature birds. This presentation will prepare you to visit the Mount St. Helens National Volcanic Monument. Bring your questions and curiosity! —Stan Sessions

This Zoom lecture can be accessed at https://zoom.us/j/97499095971?pwd=eE9sdG9hSHMvOHhIUEJuU21wT20rdz09

Keys to Bees by David Wagner

The waning days of summer had me paying attention to the insects in our flower garden. A butterfly rarely seen earlier, the woodland skipper, appeared almost every day in September; it loves marigolds and zinnias. The bees have been working diligently, gathering pollen and nectar for the hive or nest. The past president of the ENHS, August Jackson, has alerted us to some new documents that open up a vast world of insect knowledge to all of us, thanks to modern computer technology.

August has been studying bees for a long time, a personal passion that grew over years of study. In 2019 he released a digital document: *The Bees of the Willamette Valley—A Comprehensive Guide to Genera* (https://drive.google.com/file/d/1sifHss1kn5HySuvdYTQuDFV5VlQbjjoT/view). This work revealed a fascinating way to focus carefully and closely on the finest details of color and form, making it possible to identify specimens to species with confidence.

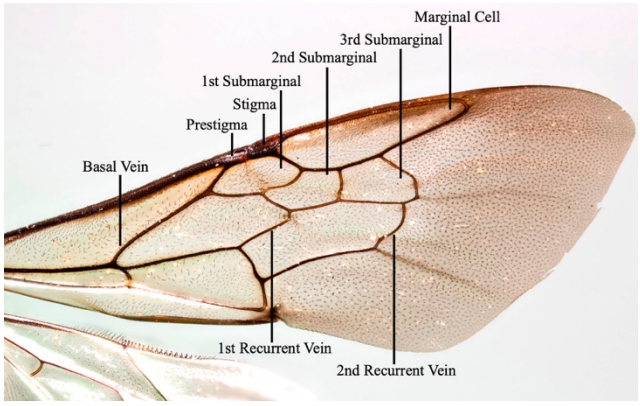
A major series of bee publications from the Oregon Bee Atlas group, sponsored by the Oregon Department of Agriculture, also is underway and expands on August's work, beginning with *Bees of the Pacific Northwest: Key to Genera* by L.R. Best, J.B. Dunlap, and A. Jackson (October 2023) (https://ir.library.oregonstate.edu/concern/technical_reports/xg94hz59f). Two technical reports released at the same time are *Key to Bumble Bee Species for Males* (https://ir.library.oregonstate.edu/concern/technical_reports/6q182v23p) and *Key to Bumble Bee Species for Females* (https://ir.library.oregonstate.edu/concern/technical_reports/6q182v23p).

August's Willamette Valley guide keys out 29 genera, and the PNW key covers 80 genera. August estimates that 150 species of bees can be found in the Willamette Valley and well over 500 species may be found in the state of Oregon.

Those of you with big computer screens will marvel at the abundance of beautiful images. The details progress from close-up macro shots of entire specimens down through patterns of the wing veins to the minutiae of male genitalia.

Bumble bee on a larkspur, showing how it sticks its head into the inside of the flower to draw nectar out of the flower's nectar spur. *August Jackson*

The camera work to depict fine detail is all done through a microscope with an attached digital camera. The magnification of critical parts allows the observer to detect subtle differences among multiple examples. At the highest level, the structure of the genitals of male bumble bees reminds one of abstract sculptures. The depth of field in these photos is remarkable.



Bee wing. *Bees of the Willamette Valley*. *August Jackson*

August's guide is the best place to start because he provides a good introduction to the terminology used in bee identification. As far as I can tell, his photographs dominate all of the technical reports.

The bumble bee keys separate 27 species known or expected to be found in the Pacific Northwest. At least one native bumble bee is reported to be extinct. The males and females are treated in separate reports for obvious reasons. The photographs at this scale are invaluable for distinguishing closely related species and demonstrate the wonderful detail that can be captured with digital photomicrography.

Male bumble bee genitalia from below and above. Arrows showing critical features. *Key to Bumble Bee Species for Males. August Jackson*

These documents are distributed as digital documents only. Anybody can download a copy to read and use on their personal computer without charge. Hardcopy printouts are also an option. I am happy to answer questions to help with computer issues. My email: fernzenmosses@me.com.

Discoveries and Repairs; Now Is the Time

by Reida Kimmel

Everywhere we see or hear of ecosystems in collapse, species disappearing, and land and sea becoming too warm to sustain life as humankind has always known it. Can catastrophes still be averted, death spirals slowed or stopped? Yes. Small miracles still happen. Around the globe, populations of endangered seabird species have been successfully provided with enhanced and safer breeding sites, and their numbers have stabilized or are growing. As recorded in the Seabird Restoration Database and reported in *Audubon*, summer 2023, more than 500 of the improved sites, encompassing one-third of seabird species, were visited by birds, and 76% of these visitors did breed.

A long story of hopeful persistence, invention, innovation, and sheer stubbornness on the part of a group of ecologists, interns, and students begins in 1973 in Maine, where Atlantic puffins, once numerous, had disappeared from all but one small island, Matinicus Rock. Student Steve Kress dreamed of establishing a breeding population on East Egg (EE) Rock. Just getting permission to transplant puffin chicks from a large colony in Newfoundland to Maine was nearly impossible. Was it even moral? Permission to move six chicks to EE Rock was given, but Kress had to figure how to transfer these chicks. He devised "nest boxes" of open-ended juice cans in a carrier walled with burlap for ventilation. On EE Rock, safe from predators, wholesome burrows of soil and sod housed the chicks until they fledged. Herring, sliced into baby-sized morsels and laced with vitamins had kept the pufflings fat and healthy. The fledglings eventually jumped into the sea, identifiable only by their leg bands. Years passed. The team obtained more chicks, raising about 100 each season. But how could the young adults be enticed to return to EE Rock instead of Matinicus? To make EE Rock more appealing, the inventive researchers played recordings of a raucous puffin colony and placed realistic puffin decoys on the cliff sites or tethered them in the

water like lobster pot buoys. However, any chicks produced on EE Rock would be in danger from the resident gulls. To drive off the gulls, EE Rock needed fierce terns, both Arctic and common. Playing tern colony "music" and deploying tern decoys attracted terns immediately. Now EE Rock had a tern colony to protect the chicks should there ever be any.

In 1981, real proof of breeding was obtained! Puffins began flying on shore with beaks full of fish, entering burrows, emerging empty beaked, and then flying off to fish some more. Chicks at last!

Always wonderfully ambitious, Kress then set up a new colony on Seal Island, which had once been Maine's largest puffin colony. Now in 2023, Seal Island has about 600 puffin pairs, five islands off Maine's coast have a total of 1,300 breeding pairs. What researchers learned and invented in their 50-year labor of love were many techniques for establishing and protecting colonies of breeding seabirds all over the world.

Seabirds can even be very at home away from the sea. Since the 1980s, common terns have established a breeding colony in an urban park on Lake Ontario near Toronto, Canada. Decoys and floating platforms with nesting boxes attracted the terns. Habitat loss is a huge problem in eastern North America, and other floating raft projects along the east coast have provided attractive safe spaces for breeding common terns.

In 1988, Project Puffin's methods were used to restore a species across the world, where several colonies of Galapagos petrels were enticed to establish themselves and raise chicks in fenced-off areas where rats had been permanently removed. On Northern Scotland's Shiant Isles, where rodents had been destroying various species' nesting areas for a century, complete removal of rats, a huge task, was finally accomplished by 2018. Using playback calls of a noisy colony of European storm petrels, workers enticed the birds into returning and successfully raising chicks. Chinese crested terns, once presumed extinct, were reestablished in their northern range by Chinese biologists, who used the full array of Project Puffin's restoration techniques, including killing predators, improving habitat, playing recorded crested tern colony calls, and displaying the always attractive decoys. A trio of New Zealand seabird species, the common diving petrel, fairy prion, and fluttering shearwater, required many of Project Puffin's approaches for colony restoration. However, playing colony calls and providing attractive burrows to entice mature birds to the new safe breeding area was not effective. Scientists then imported and raised hundreds of chicks on New Zealand's Mara Island. These chicks then fledged knowing Mara Island as their home. Now breeding colonies are flourishing on Mara Island, protected from non-native predators. On Oahu, black-footed albatrosses, Tristram's storm-petrels, and Bonin petrels are now safely established in high-elevation predator-proof fenced enclosures, where two species are already breeding. At the mouth of our Columbia River, Caspian terns were gorging on juvenile salmon, partially because of the lack of their preferred prey, lamprey. Some researchers advocated for extermination of the terns. However, the entire colony was persuaded to move from the upper estuary to East Sand Island on the lower estuary, where there was an abundance of small fish, including northern anchovy. Decoys, playing recorded colony calls, and habitat improvement did the trick.

A Caspian tern and chick on East Sand Island. *Dan Roby.*

Of course, huge threats to seabird populations all over the world remain. Rates of decline mirror the 30% loss per year for all birds over the last 30 years. Chief among the many threats to seabirds are warming oceans, sea level rise, invasive predators, starvation due the disappearance of fish needed for feeding chicks, and hunting. Everywhere there is plastic, to which all seabirds are exposed but that has

devastating effects on the tubenose species (e.g., petrels, shearwaters, fulmars, and albatrosses) who are scent hunters and attracted to the dimethyl sulfide smell of plastic, so like the smell of plankton. After mistakenly eating plastic, they die of starvation with full bellies.

We can take hope from these small steps to stabilize seabird populations, keeping in mind Project Puffin's example. Patience, innovation, and persistence can work. On a personal level, we can struggle to keep plastic and all other fossil fuel–derived products out of our lives, knowing that it all ends up in the oceans, even the dust from our clothes dryers. We can participate in beach, river, and trail cleanups and participate where we can in habitat restoration projects on our rivers and at the coast. Persistence, effort, and hope can bring about small miracles, and we need a lot of them.

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
  Saturday, 9 Dec., 8am–4pm. Living River Exploration Days at Green Island. Connect with nature in this special habitat for beavers, river otters, and >150 species of birds.
- **Native Plant Society of Oregon, Emerald Chapter** https://emerald.npsoregon.org/.
  Monday, 18 Dec., **7–9pm. Annual Christmas Plant Highlights Party.** In person at Amazon Community Center Main Hall, 2700 Hilyard St, Eugene. Bring 15–20 of your favorite photos from this year on a thumb drive to show to the group. We'll celebrate the season with hot cider and Christmas goodies!
  Note: You can watch our recent program on how to use the iNaturalist app here. You can also view other previously recorded NPSO programs here, including Dr. Christine Buhl's (Feb. 2023) presentation on the Emerald Ash Bore (a PDF of her presentation is available here).
- **Mt. Pisgah Arboretum** https://mountpisgaharboretum.com/festivals-events or 541-747-3817.
  Monday, 10 Dec., **9–11:30am. Monthly Bird Tour.** With Mieko Aoki and Julia Siporin. All levels of experience welcome. Please bring binoculars. Meet at the MPA Education Building. Don't forget your parking pass. $5, free for MPA members. Limited enrollment. Register https://www.signupgenius.com/go/60B044EACAF2AA6F49-44418867-fall#/
- **Lane County Audubon Society** www.laneaudubon.org or 541-485-BIRD; maeveanddick@q.com or 541-343-8664
  Sunday, 31 Dec., dawn to dusk. 2023 Eugene Christmas Bird Count. This is the 82nd ECBC. There will be 27 teams out looking for birds in their designated areas within our 15-mile diameter circle on Count Day. Home counters are welcome. For more info contact Dick Lamster (maeveanddick@q.com) and see the website.
- **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.
- **Museum of Natural and Cultural History, University of Oregon** https://mnch.uoregon.edu/museum-home
  Ongoing exhibits: Oregon—Where Past Is Present; Explore Oregon; Underwater Forests—Oregon's Kelp Ecosystems.
  Thursday, 7 Dec., 5:30–7:30pm. Seasons Signings. Join local authors Bill Sullivan, Marli Miller, and Todd Braje for book signings.
  Thursday, 14 Dec., 5:30–7:30pm. The Art of Science. Local artists Erika Beyer, Ian Peterson, and Sarah Finney turn science into artwork, and exhibit designer Liz White shares her work.
- **Friends of Buford Park and Mt. Pisgah** https://www.bufordpark.org/ or 541-344-8450. See the website for programs and information.
- **WREN (Willamette Resources and Educational Network)** https://wewetlands.org See the website for programs and information.

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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**
See our website for more details.
http://eugenenaturalhistorysociety.org/

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2023–2024 Speakers and Topics

8 Dec.	**Gina Roberti**	**Observation Point: Birding at the Mount St. Helens National Volcanic Monument** (cosponsored with the Lane County Audubon Society)
19 Jan.	**John Postlethwait**	**Antarctic Fishes: Icefishes Are Nice Fishes**
16 Feb.	**Ryan Tucker-Jones**	**Soviet Whaling and Science**
15 Mar.	**Ron Larson**	**Natural History of Belize**
19 Apr.	**Lincoln Best**	**Plants and Pollinators** (cosponsored with the Emerald Chapter of the Native Plant Society of Oregon)
17 May	**Marli Miller**	**Amazing Geologic Sites in Oregon**