

Nature Trails

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OUR APRIL MEETING IS CANCELED

Our reason for this cancelation is evident to all who read this: Nationwide and statewide directives expressly forbid meetings such as ours until such gatherings no longer pose a threat to prolonging the pandemic. ENHS board members extend to the entire Society our sincere hope that each of you can remain safe and sane during this extraordinary time.

Should our situation change we will place announcements on our website, which is undergoing change:

The Eugene Natural History Society website has moved to a new host at: <http://eugenenaturalhistorysociety.org/>
This is a new site under old management. Changes and improvements to the site will be ongoing. If you have any questions or concerns please let Tim Godsil know at tgodsil@gmail.com

Here are three announcements that members need to be aware of.

First, our field trip to the John Day Fossil Beds National Monument has been canceled. The State of Oregon has closed the areas we would have visited, and so we must cancel. Those who have paid will be reimbursed, or if they mailed checks those checks will be destroyed.

Second, our annual business meeting, at which those Society members who are present vote on whether to accept the slate of officers and at-large Board members, is normally in May. We will postpone the vote until our September meeting.

Third, we will try to Zoom David Wagner's presentation in May. The May issue of *Nature Trails* will provide instructions for gaining access to the remote presentation.

Here are essays from two of our most faithful and beloved contributors.

Salt and Pepper

by Tom Titus with Emily Poole

Artist Emily Poole and I are deep in the Coast Range in early March. Clearcuts on the highest ridges shine with a trace of newly fallen snow. Morning overcast crumbles into the new day like unkempt stucco, breached by shards of blue and low-angle sunlight. From Burnt Woods on Highway 20, we point my muddy red pickup toward Newport. We caffeinate and buy takeout sandwiches at Panini Bakery then turn north on Highway 101. I hardly notice the heavy surf still crashing on Yaquina Head from yesterday's storm. We are on a mission.

A Columbia torrent salamander has never graced my hand. This is a personal shortcoming. Some would say it's a trivial gap in a lifetime of accumulated deficiencies. But I have two advanced degrees in salamanders, consider torrent salamanders especially adorable, and owe my career in part to the person for whom the species is named. This is serious stuff. I don't need a therapist—just a field trip to northern coastal Oregon and some diligent searching in seeps and springs. Sharing the experience with an accomplished animal artist is a recipe for spectacular.

At Hebo we turn east into the southernmost range of the Columbia torrent salamander. But our first trip inland yields mainly clearcuts. Torrent salamanders are denizens of cold water trickling through mossy cobbles and gravel. Clearcuts remove shade, and summer-warmed springs are uninhabitable for the salamanders. They either leave or die.

Returning to Highway 101, we travel north to East Beaver Creek Road. After two potholed miles, the asphalt becomes gravel bending hard right and uphill into shady second-growth conifers. A particularly abrupt pothole sends my dashboard museum of mummified bats, bones, and desiccated amphibians bouncing into Emily's lap. She scoops them back onto the dash. In about a half-mile, the trickle of water we're looking for appears amid a thicket of russet salmonberry canes. We search the small stream to its spring-fed source. Not a single salamander. Back in the truck, the road angles upward and gradually disintegrates, but I'm emotionally incapable of turning around. Emily finds a ham-and-cheese sandwich to give her teeth something to clench besides their own enamel. After two more fruitless stops, a fallen alder forces us to backtrack. Emily is relieved. I'm frustrated. But she fills the cab with quiet intensity and optimism, and we continue north to Tillamook.

Ronald Reagan infamously quipped "... you know, a tree is a tree, how many more do you need to look at?" If Reagan had been talking about torrent salamanders, he would have had a near brush with reality. Even herpetologists are challenged to sort these animals by species without reference to geographic location. Back in 1979, when I was an undergraduate dutifully learning the amphibian species of Oregon, only the Olympic salamander (*Rhyacotriton olympicus*) was recognized, inhabiting coastal forests from the Olympic Peninsula and Cascades south to northwestern California. Throughout the range, adults are finger size and the color of two mustards: Dijon brown on the dorsal surfaces, Heinz yellow on the flanks and belly. Body and legs are spattered with black and white pinpricks. My bearded pipe-smoking professor, Dr. Kenneth "Doc" Walker, referred to the tiny spots as "salt and pepper," a feature that persists even in faded alcohol-preserved specimens and now clings to my fading memory.

The hidden complexity of Olympic salamanders emerged in 1987 when Good and colleagues found dramatic protein differences throughout the range. In 1992, Good and Wake expanded the study and formalized four geographically separate species and collectively dubbed them the "torrent salamanders." The Latin moniker *Rhyacotriton kezeri* was coined for what became known as the Columbia torrent salamander in southwestern Washington and northwestern Oregon. They named this species after my early salamander mentor, Dr. James "Jim" Kezer in honor of his research on salamander chromosomes and general enthusiasm for amphibians. Jim was an early member and decades-long supporter of the Eugene Natural History Society, standout University of Oregon biology professor, and classically trained violinist. He was also proficient in human kindness, and in 1983 he took me to Costa Rica on a formative salamander expedition that became the impetus for my graduate work. Today's trip is compelled by this interwoven history and my love (for there is no other word) of torrent salamanders.

The Wilson River Highway runs east from Tillamook, bisecting a wide valley heavy with grass and Jersey cows. A pungency of dairy manure permeates the cab. The road follows the aquamarine river into an alder canyon, hugging the shady south side that rises steeply on our right. My torrent salamander radar is powered up, and Emily has learned exactly what to look for. *Right there.* A dribble of mossy water finds daylight fifteen feet

above the road. I'm braking and ducking the pickup into a pullout thirty yards up. Cars whizz toward Portland at highway speed.

Age has left me risk averse. *I'm not sure about walking along this highway.*

Emily is reassuring. *There's a bicycle lane.* The "bicycle lane" is three feet of pavement inside the fog line of a busy highway, but her words provide the necessary activation energy. Climbing the bank toward the springhead, I step over a rusted-out pipe stretching incongruously across the seep. Moments later I tip up a fist-size sandstone cobble and spot that glistening squirm. The salamander slides into a Ziploc bag of icy water. A pair of stubby pink gills protrude behind the flattened head. Salt and pepper spots clinch it—a three-inch Columbia torrent salamander larva.

Emily joins me and immediately speaks to it: *We've come a long way to see you!*

Lifting another stone, a second salamander wriggles inside a concavity lined with beige and ochre pebbles submerged in glimmering water. Gently I nudge the animal into my palm. The adult salamander climbs onto my thumb. The eyes of torrent salamanders captivate me. They are dark, round, forward on the head, and seem engaged with the world. There are more



Torrent salamander on thumb. Artwork by Emily Poole.

salamanders inhabiting the seep, but we turn away. After a few minutes of admiration and photographs, our captives are returned to the dark dribble beneath their rocks. Perhaps they will tell abduction stories.

The pressure is off. We drive on to Kansas Creek Road, a gravel track angling uphill into red alder and big leaf maple. The entire hillside is an aquifer weeping with mossy trickles and small streams. A broad seep oozes into black muck adorned with yellow druid hoods of skunk cabbage. Immediately I find more torrent salamanders. We make several more stops, at squishy places next to the ditch and the drippy feet of small waterfalls. Most contain salamanders.

Emily is searching below the road when an elderly man-bear in a camo jacket wanders up. We chat about steelhead and salamanders. Eventually he tells me his mother has recently died. Grief wells up in his eyes. He apologizes, turns away. I want to hug him but can't.

Afternoon grows long with shadows, and Emily suspects I'm conjuring salamanders from my sleeves. Clearly she needs a solo catch. After several unsuccessful searches, her fingers are freezing. We find one more spot, a trickle tumbling from above the road. As I climb upward from the ditch, Emily's exclamation rises from below. A radiant smile spreads above her outstretched palm, graced with a three-inch salamander larva. Dijon. Salt and pepper. Well done.

Surprisingly Uncommon Juncos

by Reida Kimmel

Most of us regard juncos as ordinary little birds, very common, and except for the cute way they hop, rather dull. Read on. You may be in for big surprises. As for common, though they are a species of low concern, the total population of Dark-eyed Juncos declined about 1.4% a year between 1966 and 2015, amounting to an overall decline in numbers of 50%.

Juncos belong to the family Emberizidae, which includes New World sparrows and Old World buntings. Like sparrows, juncos have sweet songs and their fledglings have sparrow-like plumage. Juncos prefer to inhabit dense woods, coniferous or

deciduous, during the breeding season, when they switch from their diet of mostly seeds to a diet of protein and fat-rich invertebrates such as insects and caterpillars. In winter they seek out more open places, fields, hedgerows, and brush, where a bounty of summer's seeds awaits.

As soon as you begin to discuss juncos you come to the stories they have to tell about evolution. There are six distinctly different plumage colorations and patterns in the overall Dark-eyed Junco population. Once, the differently plumaged birds were considered separate species, but now they are lumped into a single species. Mitochondrial DNA provides proof, but birders have long known that the different color variants interbreed where their ranges overlap, producing fertile healthy offspring. At the

continent's greatest extreme are the White-breasted, Sooty-backed, and Slate-colored Juncos of the Northeast, resident in the Northwoods for much of the year but wintering in the "South," true snow birds, seeking out the open fields and hedgerows of balmy Michigan, Wisconsin, and New England. A Midwesterner, the White-winged Junco is much like the Slate-colored in appearance. In our extreme Southwest, Red-backed Juncos and Gray-headed Juncos are similar to each other, both subspecies sporting plumage in tones of dove gray with bright chestnut mantles. And here on the West Coast, we have our own Oregon Junco, with its black, sooty, or gray hood, depending on sex and age. In extreme Southern California and Mexico there are Pink-sided Juncos, with plumage patterns similar to those of Oregon Juncos but with pale grey hoods. And finally, the rarest Dark-eyed Junco of all, the Guadalupe Island Junco, found only on a tiny island off the west coast of Mexico, dull brownish and long billed. This junco may actually be a separate species due to its close genetic relationship to the parent line of all Dark-eyed Juncos.

And here modern genetic analysis tells us a wonderful story. The original juncos were yellow eyed. They evolved more than half a million years ago and diversified into species in different locations in Mexico and Central America. Yellow-eyed Junco species evolved so long ago that they are not even closely related to one another. Five species remain today. Some Yellow-eyed Juncos migrated north with the receding glaciers, beginning as early as eighteen thousand years ago. Mutations occurred, and the juncos inhabiting what would be the United States and Canada evolved to be exclusively dark eyed. This is such a recent evolution that all the modern Dark-eyed Junco types are genetically very similar and inter-fertile in spite of different plumage and life styles.

Perhaps not jokingly, some of the researchers working on junco evolution refer to the little bird as the "Darwin's finch of America." That's quite believable considering the work going on in Southern California and at Indiana University. As Erik Vance reports in *Living Bird*, Winter 2020, Volume 39, beginning in the early 1980s, birders observed that the Oregon Juncos wintering on the campus of UC San Diego were giving up migration and staying on campus to breed instead of going to the Laguna Mountains 50 miles away. Over time, this behavior extended to other university campuses such as UC Los Angeles and UC Santa Barbara. Ecologists Trevor Price and Pamela Yeh banded 80% of UCSD's summer breeding population and studied the long-lived birds and their descendants over the years.

It's hard for birds to make a living in a city, even on a park-like campus. Dangers are everywhere: cats, vehicles, unknown foods. But the summer breeders persisted. The population changed markedly over the years. The normally aggressive males were less hostile to each other, less territorial. The juncos became calmer in the presence of people. Instead of nesting on the ground or in brushy hollows, female birds began to nest above ground, in trees and on buildings. Male plumage changed, the black hoods were duller and the outer coverts on tails showed less white, an interesting development because the bright white show on males' tails was previously an attractant to females. The males sang a slightly higher song and spent more time tending the nest and behaving monogamously. The campus juncos raised more chicks, sometimes four clutches a year. What a lot of evolution has gone on in less than one human life span! Sadly however, the challenges of urban living are great, and the campus populations are not growing any faster than migratory populations elsewhere, in spite of the increased number of broods and diligent parental care.

One cause of the behavior changes in UCSD's males may be their lower testosterone levels and lower levels of stress hormones. Ellen Ketterson's lab at the University of Indiana uses testosterone treatment to engineer behavior changes. Her testosterone-treated super-charged junco males sing more frequently, hold larger territories, and indulge in more extra-pair copulations, producing broods that they do not help tend. Thus, they might sire more chicks, but that is no guarantee that their offspring will survive. The high-testosterone males themselves have shorter than normal lives. Ketterson's experimental males are the opposite of the campus low-testosterone males. What caused the changes in campus males is still a question. Studies point to the possibility that the lower testosterone levels of campus males may come from genetic differences unique in the genome of Southern California's Oregon Juncos. However, Ketterson's group has a study population of natural wild juncos in neighboring Ohio that seem to be abandoning their spring breeding migration to Canada and staying where they wintered to breed. Hormone levels of these birds have not been studied yet. Could they also have a unique set of genes that can modify testosterone levels across a population?

However you look at it, Dark-eyed Juncos show a resilience that can mean survival for the species in these times of extreme population growth, habitat loss, and climate change. Ketterson also sees these changes happening in totally unrelated bird species and has hope for the future of challenged

species that do have the genetic plasticity to radically change behaviors and adapt to the diminished world we have given them. Long live the juncos! And may

they be harbingers of hopeful things to come in species that have the genetic and behavioral resilience to survive the challenging times to come.

Events of Interest in the Community

IF YOU ARE INTERESTED IN ANY POTENTIAL EVENTS THAT ORGANIZATIONS IN THIS LIST MIGHT HOLD YOU SHOULD CONTACT THE ORGANIZATION OF INTEREST TO DETERMINE WHETHER THEIR EVENT(S) HAVE BEEN CANCELED.

McKenzie River Trust

Lane County Audubon Society

Mt. Pisgah Arboretum

Friends of Buford Park and Mt. Pisgah

The University of Oregon’s Museum of Natural and Cultural History

Native Plant Society of Oregon, Emerald Chapter

Nearby Nature

WREN (Willamette Resources and Educational Network)

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://biology.uoregon.edu/enhs>

MEMBERSHIP FORM

Name _____

Address _____

City _____ State & Zip _____ Phone _____

E-mail (if you want to receive announcements) _____

I (we) prefer electronic copies of *NT* rather than paper copies. ___ Yes ___ No

If yes, email address (if different from the one above): _____

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

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

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



Pacific City beach. Photo by Kris Kirkeby



Photo by Dean Walton

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2019–2020 Speakers and Topics

17 Apr.

Canceled

15 May

David Wagner

Mosses, Liverworts, and Hornworts