



Spring has arrived at Triple Creek! Some of the willows planted there have become mature enough to bear catkins, commonly called, "pussywillows." These soft fur coats keep the flowering parts of the plants warm.

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This male Spotted Towhee was seen along the Whistler Canyon Trail just south of Oroville. Towhees are ground foragers that prefer shrub habitat, and the mnemonic to remember their song is drink-your-tea!

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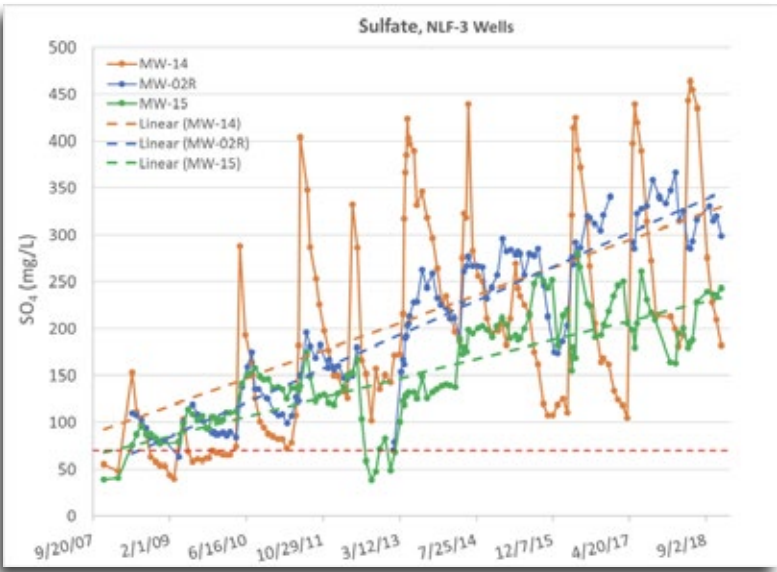
Okanogan Highlands Alliance  
PO Box 163, Tonasket, WA 98855  
www.okanoganhighlands.org  
Change Service Requested

## One Mine; Two Stories

The story seems pretty clear on this graph...

The Water Year 2018 Annual Coordination Meeting provided a forum for two very different stories about the water quality monitoring data for ground and surface water at the Buckhorn Mine. Both at the meeting as well as in the reports that that steer the meeting, Kinross highlighted trends that show improvement in water quality while downplaying or leaving out problem areas. OHA, on the other hand, analyzed the data, highlighted problem areas, and provided suggestions about other data that could be collected to better understand the fate and transport of contaminants at the mine and beyond.

Continued on page 4

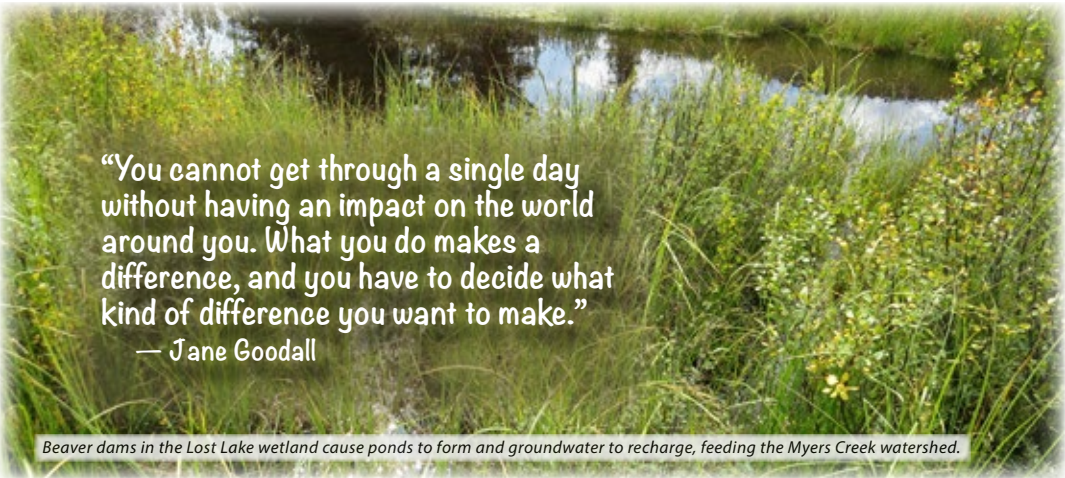


### Visit OHA's New Website!

okanoganhighlands.org

In organizational news, OHA developed and launched a new website! With a bold, modern interface designed by Martina Graves, the new website will improve how we share our work and latest updates. You can still access years of OHA history, from our

past Highland Wonders events to three decades of persistence in protecting water quality on Buckhorn Mountain. If you have any issues with navigating the new site or suggestions for improvements, feel free to contact us!





# State of the Mountain

The Buckhorn Mine portals have been sealed and the surface recontoured, but like a festering wound, it has been closed up with an infection inside. Contaminated water exceeding permit standards continues to ooze out of the mine facilities into the headwater streams and forests below. In the first quarter of each year, the mine reports the results of its monitoring data to the regulatory agencies. Once again, as in past years, the opportunity was lost to have an honest discussion of the mine's water quality problems and openly discuss solutions. Although it is difficult to endure Ecology's lack of permit enforcement, OHA will continue to review the data and provide the best assessment we can, given the limited data and lack of transparency of the process. Hopefully soon, Ecology will assert its responsibility to take the necessary enforcement action to both increase understanding of the pathways of pollutants escaping the mine as well as bring this mine into compliance.

Ecology has once again defended in court the discharge permit that requires the mine site to be cleaned up to almost what it was before mining. The Court of Appeals will hopefully affirm the lower court's rulings in upholding the mine's discharge permit, and Ecology will at long last begin to enforce it. Ecology has the responsibility to hold the mining company accountable, by not only demanding remedial action for the degradation of the water, but also for the company's failure to provide management plans that can verify clean up of its pollution.

Please join me in welcoming Madeline (Maddie) Price to the position of Conservation Associate, helping OHA to accomplish a variety of objectives (see below). We are happy that she has joined our team!

OHA has been working hard to develop a new website, creating better access to our programs, information, and project updates. Check it out at okanoganhighlands.org.

The OHA team is excited about spring and another field season at the Triple Creek Restoration site. Early planting has proven successful in the past. We will once again enlist the help of volunteers as we work to improve the diversity of wetland vegetation and reduce the aggressive reed canarygrass, with the help of a thick mat of mulch.

I want to express our heartfelt thanks to everyone who has contributed to OHA's annual fundraising appeal. We also appreciate seeing those envelopes later in the year when people hold onto them until their time is right. Your support helps us grow and thrive.

*[Signature]*

## Meeting to Amend OHA's Bylaws

May 30, 2019:

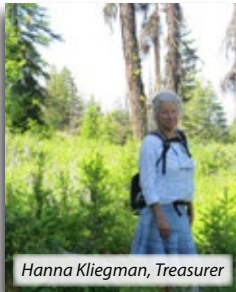
The OHA Board of Directors will amend OHA's bylaws at the May 30, 2019 Board Meeting, which starts at 4pm at the Community Cultural Center in Tonasket. The purpose of the amendments is to improve OHA's organizational structure. Highlights include posting membership meetings on OHA's website, the role of an Executive Director, a process for appointing candidates for the board and for nominating new board members, establishing a timeline for the election of OHA Board officers, defining the roles of the Executive Committee, and posting meetings to amend bylaws on OHA's website. Contact info@okanoganhighlands.org for more information. OHA's Board of Directors, pictured below, invites you to join us for this meeting!



George Thornton, President



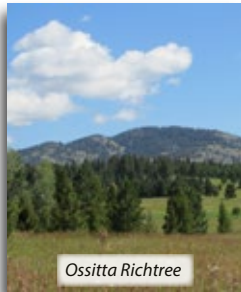
Lisa Eversgerd, Vice President



Hanna Kliegman, Treasurer



Jen Weddle, Secretary



Ossitta Richtree



Tyler Graves



Jerushah Ramos

## Your annual membership dues support our conservation efforts. Thank you!

For more information or to donate online, please visit [www.okanoganhighlands.org](http://www.okanoganhighlands.org)

This edition of OHA's newsletter written and edited by:  
David Kliegman, Julie Vanderwal, Maddie Price, & Hanna Kliegman

☞ All photos by OHA staff except where noted  
☞ Printed on recycled paper

We invite you to use OHA's convenient donation webpage: [okanoganhighlands.org/support](http://okanoganhighlands.org/support)  
Click on "Donate"



- ☐ Individual: \$25.00
- ☐ Family: \$50.00
- ☐ Supporter: \$100.00
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- ☐ Patron: \$500.00
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- ☐ Other Amount

You can choose the amount that works for you, as well as whether to make a one time, monthly, quarterly, or annually recurring donation. Thank you!

\_\_\_\_\_ I want to be a member of OHA at: \_\_\_\_\_\$25 \_\_\_\_\_\$50 \_\_\_\_\_\$100 \_\_\_\_\_other  
(Prices include tax and shipping) Send me:  
\_\_\_\_\_ Highland Voices CD, for \$17  
\_\_\_\_\_ Fair Trade regular cut T-shirt for \$23, Pure Water 25 Year; Size: \_\_S \_\_M \_\_L \_\_XL  
\_\_\_\_\_ Fair Trade "Women's Cut" T for \$23, Pure Water 25 Year; Size: \_\_M \_\_L \_\_XL  
\_\_\_\_\_ Blue "ChicoBag" for \$18, with cattail design, 100% post-consumer recycled materials  
\_\_\_\_\_ Black cotton tote bag with turtle/wetland design for \$18

(Orders subject to available inventory)

Please charge my ☐ Visa ☐ Master Card ☐ American Express  
☐ Discover ☐ My check is enclosed

Please be sure to fill out all of the info below so that your card can be charged.

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OHA will not share your contact information with other organizations. Security code \_\_\_\_\_

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City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Email \_\_\_\_\_

## Stay Informed ~ Be Involved

Send this form to: OHA, PO Box 163, Tonasket, WA 98855  
[julie@okanoganhighlands.org](mailto:julie@okanoganhighlands.org)



Available as a CD or in digital format:  
[fedbaby](https://www.fedbaby.com) [amazon](https://www.amazon.com)  
[iTunes](https://www.apple.com/itunes/) [Spotify](https://open.spotify.com/)  
CDs at the Tonasket Co-op  
CD cover graphic by :DigitalDeb:Design

OHA's new reusable "ChicoBags" are made from 100% post-consumer recycled content. The bag comes with its own carry case.



\$18

### I would like to:

Receive my newsletter via:

\_\_\_\_\_ email \_\_\_\_\_ snail mail

\_\_\_\_\_ Volunteer, either in person or via distance



# Highland Wonders

OHA's 2019 Highland Wonders indoor series featured multiple returning speakers sharing new knowledge with our community!

3

Left to right, below:

In January, botanist Erica Heinlen expanded our understanding of mosses, from their life cycles to their role in ecosystem functioning.

In February, we dove deep into soil science with Luke Cerise, learning how soil can tell us stories about a landscape's past climatic events and about different soil types in our area.

Art and science intertwined in March with a fascinating lecture from writer

Jack Nisbet, who illuminated the beauty of the Okanogan Highlands' geologic history through the art and research of amateur paleobotanist Wesley Wehr. OHA thanks Humanities Washington and the North Central Regional Library for helping to sponsor this event!

In April, Caitlin LaBar wowed us with her many colorful photos and identification tips for some of the 124 butterfly species found within Okanogan County. This event was sponsored in memory of Walaya Feather, known locally as the "Butterfly Woman."

And one new speaker!



## Coming up:



### Saturday, June 22, 2019 Bumble Bee Field Trip with Rich Hatfield

OHA's bumble bee field trip with the Xerces Society will provide community members with an opportunity to learn about the bumble bee species in our area, their importance to our ecosystem, as well as ways we can help conserve them. In an effort to learn more about bumble bees to improve evidence-based bumble bee conservation guidance, the Xerces Society for Invertebrate Conservation, in partnership with the Washington Department of Fish and Wildlife, Idaho Department of Fish and Game, and the Oregon Bee Project, has launched the Pacific Northwest Bumble Bee Atlas. On a hike in the Okanogan Highlands, Rich Hatfield, Xerces Society conservation biologist, will share information about the Atlas Project, how to participate, and the value that the project will have to our area, both locally and regionally. The goal of this field trip is to connect the community with the contributions of our native bumble bees and other native pollinators and provide inspiration and a user-friendly method of engagement in citizen science for making positive strides toward effective conservation.

Rich Hatfield is a Senior Conservation Biologist with the Xerces Society for Invertebrate Conservation. The Xerces Society, founded in 1971, is a non-profit environmental organization that focuses on the conservation of wildlife, through the protection of invertebrates and their habitat. Rich is a leader in bumble bee conservation, with a demonstrated history of effectively using science, advocacy, and citizen science to protect wildlife and their habitat. Rich has a Master's degree in Conservation Biology from San Francisco State University. He has special knowledge of our region's species and issues due to his ongoing involvement in the Sinlahekin Wildlife Area in Okanogan County.

Due to the nature of the outdoor event, participation is limited, and priority registration will be offered for OHA members. A waiting list will be generated on a first-come, first-serve basis. To begin or renew OHA membership and be first in line to register for the summertime events, community members can donate online, or contact OHA for more information. Further details will be provided to those who register for the field trip. To sign up for this event, please email [julie@okanoganhighlands.org](mailto:julie@okanoganhighlands.org) or call 509-476-2432.

Photo by Julie Vanderwal: Bumblebee crawls inside Columbia Monkshood flower near Burge Mountain

## 2nd Annual Lost Lake Trail Race

**Sunday, June 30, 2019**

For info and registration:  
[okanoganhighlands.org/events/trail-race](http://okanoganhighlands.org/events/trail-race)

The Okanogan Highlands Alliance is hosting the 2nd Annual *Get Lost Trail Race* at Lost Lake in the Okanogan Highlands! The half-marathon (14 miles), 7-mile, 3-mile, and 1k kids run will occur on **Sunday, June 30th**. Stay tuned for more information!



# One Mine; Two Stories

Cont'd from page 1

The Annual Coordination Meeting is an opportunity for the regulatory agencies, along with OHA, to gather at the Eagle Cliff Grange, in the shadow of the Buckhorn mine. The 10th annual meeting was billed by Kinross as an informational meeting where the mine presents the monitoring data. However, the purpose of the meeting is established in various mine plans and is intended to include a discussion of the adequacy of the plans and mitigation, and any modifications that might be needed. Kinross refused OHA's request to put these elements on the agenda and tried to end the meeting early before a discussion of these issues took place. OHA was able to initiate some discussion about needed additions to monitoring with the agencies that were left at the end of the meeting, but they were not willing to make any commitments to modifying the plans.

To highlight a few examples, for most areas of the mine that Kinross reported on, they began by presenting graphs of chloride, which for the most part is improving since the source was mostly eliminated in 2010 when the old treatment facility was upgraded. The mine's reporting continues to present that the pollution (specifically high sulfate) is not coming from the underground mine. However, this assertion is not supported by the data. OHA was

able to explain what was wrong with their analysis and presented graphs that show how the high sulfate outside the capture zone may be coming from the underground mine. The capture zone is supposed to contain all pollution within a defined area centered on the underground mine workings.

This year as in past years, Kinross continued to present the unreasonable conclusion that groundwater levels show that the capture zone is working and that no action on their part is required -- even though the water quality monitoring shows a very different story. OHA encouraged the agencies to require realistic evaluation of the water quality problems and mitigation to address the problems.

Two of the plans that the reporting is based on were supposed to be updated and revised in 2014, but the submittals were not adequate for Ecology to approve. Approvable plans are still required. OHA also pointed out the

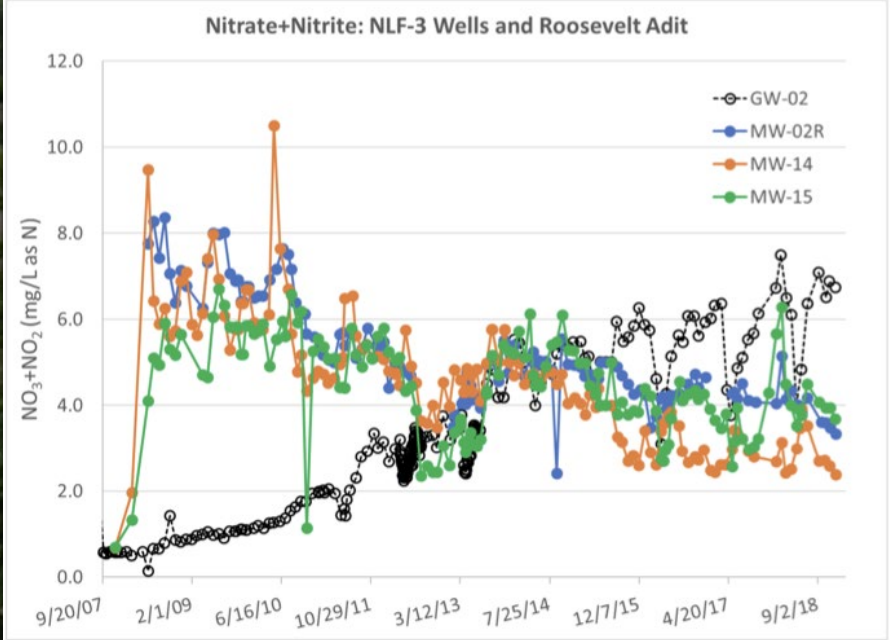
inadequacy of the Mine's Closure Plan, such as a lack of monitoring criteria for critical transition between closure phases. OHA also discussed the need for other mitigation, like additional monitoring to better understand the transport of pollution and additional dewatering to help control mine contamination.



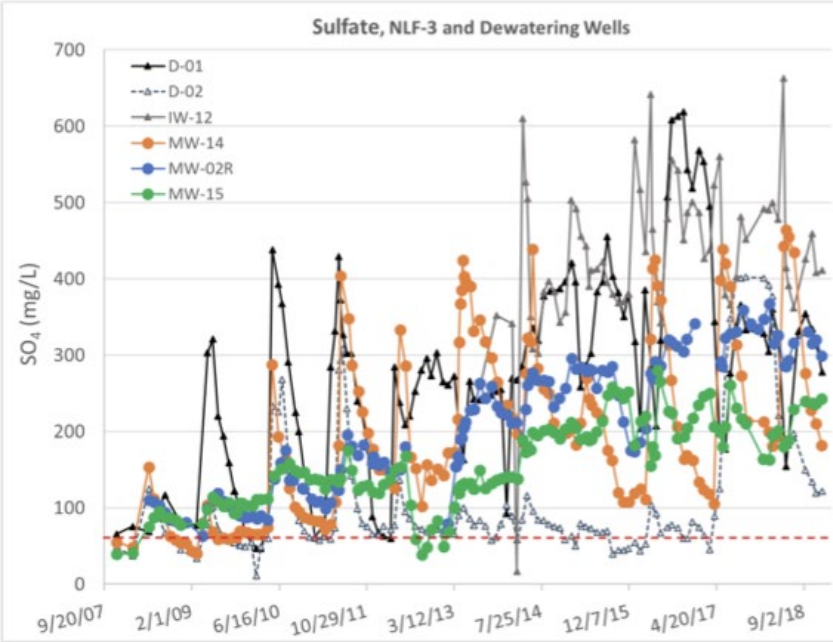
Dr. Ann Maest provided the technical portion of OHA's presentation. Dr Maest is an aquatic geochemist with Buka Environmental, who has been working on mining issues for over 35 years and the Buckhorn Mine for more than 25 of those years.

## Primary Points of OHA's Presentation

- Water quality is not improving in key areas, despite ongoing mitigation measures.
- Contaminant capture and pathways have not been adequately evaluated.
- Closure issues – monitoring, plans, effectiveness evaluation



This graph shows that nitrate in the Roosevelt mine adit is not coming from the NLF-3 fault. It is likely coming from the southwest portion of the underground mine.



Kinross's reports claim that contamination in the NLF-3 fault outside the capture zone is not be coming from the underground mine because the levels of contamination in the mine sumps are not consistent with the levels in the fault. This explanation is disingenuous because the water in the mine sumps has been diluted over the years with treated water. In 2010, Crown paid a \$22,000 penalty for misconduct when it ran clean water through the treatment facility which made monitoring samples cleaner than the actual poor water quality. While this dilution situation is different from the 2010 incident, it is still somewhat misleading if the reader does not realize that treated water has been pumped into the underground mine during some years of mine operations. OHA pointed out that when a comparison is made with contaminant levels in some dewatering and monitoring wells within the capture zone one can see that the pollution could indeed be coming from the mine workings.





## Appeals Court Comes to Okanogan

On March 14, 2019 the Washington Court of Appeals Division III brought oral arguments in Crown vs Ecology to the Okanogan County Commissioners Hearing Room. The case, in which OHA is an intervener, began with Crown appealing the 2014 renewal of the discharge permit for the mine. After a seven-day trial-like hearing in January 2015, the Pollution Control Hearings Board, decided in favor of Ecology and OHA, affirming that the water surrounding the Buckhorn Mine must be left almost as clean as it was before mining. Crown appealed that decision to the Ferry County Superior Court where Crown also lost. Crown appealed to the Court of Appeal. Crown has asserted that the permit should be stayed (on hold) until the appeal process is exhausted.



*The Court of Appeals took place in the Commissioners Hearing Room in the Virginia Grainger Building (not the courthouse) in Okanogan, the County Seat.*

This assertion has been rejected in each stage of the appeal. While Ecology has issued Notices of Violation, the agency has not yet taken further enforcement action regarding the hundreds of violations.

The oral arguments from the Court of Appeals are available at [okanoganhighlands.org/mine-monitoring/discharge-permit-post/appeals-court-okanogan](http://okanoganhighlands.org/mine-monitoring/discharge-permit-post/appeals-court-okanogan).

What's not fair about making the water as clean as it was before?



*Where water runs off roads built for the mine, sediment -- loose silt, clay, sand, and other soil particles -- can get washed into waterways. Here, silt fences have been installed to help address the concentrated sediment release at a culvert.*

## OHA Recommendations

- Create Closure Adaptive Management Plan: evaluation of mitigation effectiveness
- Revise the closure Hydrologic Monitoring Plan: monitoring locations, frequency
- Update the Closure Plan: define transitions between phases, including during dewatering
- Create 3-Dimensional depiction of the underground mine: show recirculation wells and map potentially acid generating rock that will be above water levels during dewatering.
- Conduct studies: Roosevelt Adit, MW-7, MW-9; NLF-3 fault zone; consider the possibility of the underground mine as a source; additional monitoring; water quality trend report
- Develop action plan to capture and treat mine-influenced waters and curtail future water quality violations including additional monitoring and dewatering wells

## Notices of Violation

The Washington State Department of Ecology has put regulatory enforcement on hold while waiting for the court review of the 2014 discharge permit. Meanwhile, the discharge of pollutants continues unabated. OHA continues to urge Ecology to address the repeated and continual water quality violations at Buckhorn Mine. While Ecology's issuance of Notices of Violation for permit violations has been a step in the right direction, they have not required the mining company to take actions -- even though actions could and should be taken that would greatly improve the understanding of contaminant transport and lead to controlling the pollution and remediating the site.

For each of the four Notices of Violation that were issued in 2018, the responses from Crown have almost been verbatim. The mitigation measures taken are all at least four years old and do not respond to the specific notices issued by Ecology. The effectiveness of the actions has not been evaluated by Crown or its consultants. Ecology should require more than the minimum, which is simply that they report the steps that have been and are being taken to control the pollution. At the very least, Crown should report and implement steps to curtail the pollution. Actions need to be implemented that would help understand the sources and pathways of pollution and curtail future violations. The actions that have been and are being taken are not enough. No serious evaluation of the effectiveness of the actions taken has been conducted.

Past administrative orders have required steps that would be more likely to help stop the ongoing spread of pollution. For example, Administrative Order 6674 (2009) required, among other actions:

- Installation of additional mine dewatering wells and piezometers to create, maintain, and demonstrate the extent of the capture zone
- More frequent sampling and reporting
- Preparation of a Trend Report that explains the increasing trends in water quality monitoring results.

OHA recommends that Ecology require Crown to take specific actions. Those recommended actions, along with more information, can be found at [okanoganhighlands.org/buckhornlibrary-oha-letters2019-2-4](http://okanoganhighlands.org/buckhornlibrary-oha-letters2019-2-4).



*The slope has been reclaimed around this monitoring well (MW-2R).*



More: [okanoganhighlands.org/restoration/triple-creek](http://okanoganhighlands.org/restoration/triple-creek)



## Volunteer Spotlight

As a small organization, OHA values the time and effort our volunteers provide to our projects around the Okanogan Highlands. Our Triple Creek restoration project illustrates the difference that volunteers can make. Since the project's beginning in 2015, volunteers of all ages have contributed over 1400 hours of service to the project. By connecting community members to local wetland restoration, OHA is working to increase understanding and appreciation of these valuable ecosystems.

We had a conversation with one of our Triple Creek volunteers, Bobbi Hackett, about her experiences being involved with the Triple Creek restoration project and the benefits of volunteering outdoors. Residing in Chesaw near the project site, Bobbi has been attuned to changes in the local ecosystem, both as the Triple Creek wetlands became degraded and after OHA started restoration. She explained, "The area was a swampland when I first came here, and it has dried up in the last... 20 years. So it's good to see... native plants coming back and the water table rising--just health returning to it."

With her own educational and work background in natural resources, Bobbi was especially drawn to the "intellectual aesthetic" of the unique restoration plan. The project was her first experience with beaver dam analogues as an ecosystem restoration tool, mimicking beaver dams to recreate wetlands. She explained, "The thing that impressed me the most

about the project is the amount of change that [occurred] in a short period of time... Working there's been a pretty amazing transformation really fast, so it's really encouraging to see that happen.

In addition to the ecological goals of the project, Bobbi feels that the project has been valuable in nurturing the nature-centric culture that she enjoys about living in the area.

"When I first moved to Chesaw, the thing that I loved about it so much was... how much [people] enjoyed living up [here] and the beauty of it, the healing of it, the things that they saw animals doing, and people hiking together... that's the culture. We live with nature daily... and are around it doing our chores."

For her, one of the most rewarding aspects of participating in the project has been "working with people that are engaged in life-giving activities and the socialness of it." She further explained, "I think that it is just a really good project for people to [be] able to see the changes

that happen... It gets people talking together."

Bobbi also expressed her support for the holistic health benefits of volunteering outdoors for people of all ages:

"Being out in nature is a healthy thing to do. It just improves your whole spiritual health and physical health, and intellectual health too... It's learning how to think and how to compare what's happening now and what happens over time..."

Bobbi is eager to return to the project site this year. Thank you, Bobbi, for the hard work and enthusiasm you've given to Triple Creek!



Volunteer Bobbi Hackett helps weave a new BDA (Sept. 2018).

In addition to involving adult community members, the Triple Creek project has provided experiences in both outdoor education and community service for students from the Tonasket School District Outreach program. Some of these students have been on field trips to the site every year since 2016, through which they've learned about wetland ecology first-hand and helped in planting, mulching, and monitoring on the project site. We recently spoke with Outreach students in grades K-8 to hear about what they've gained from these experiences.

Students demonstrated their understanding of OHA's restoration approach with beaver dam analogues. As one student explained, "Beavers dam up the rivers, and the rivers kind of overflow and make the wetland."

When asked what has been their favorite aspect of participating in the Triple Creek project, the students' most common answer was the changes that they have seen at the project site. As one student described, "It used to be so barren when [OHA] first started when everything was gone, and then as it slowly comes back, you can see the life come back to it." Another summarized, "We turned the big ditch into a big creek!"



Students experiment with how vegetation helps water quality.



We asked what were some of the most interesting things they have learned from their involvement with the Triple Creek project. Responses included how to plant trees and how beavers build dams, as well as a deeper understanding of the connections between different species in the ecosystem:

"If one species goes away, then most of the other species will go away too."

"The eagles depend on the fish, the fish depend on the little bugs, and the beavers depend on the trees."

When describing how all levels of life are connected, one student said, "It's kind of like a tree with all its branches."

A number of in-class activities to supplement their learning about wetland

ecology have proved memorable as well. Students recalled a demonstration from a year ago in which they compared water filtration between a jar of plain soil and a jar with both soil and plants: "The water was cleaner... The plants kind of acted like a strainer." (Buffer zone experiment photos at left.)

This year, the Outreach students are merging music and science with OHA's Conservation Coordinator, Julie Vanderwal, as they compose a song to tell the story of change at Triple Creek. "It was all happy, and then it slowly got to the end of Verse 1," as one student described the song. "It got sad because... the animals and stuff went away. And then we're like, how do we get them back?"

Later this spring, Outreach is taking another field trip to the project site to observe its improvement and to help plant more willow and cottonwood saplings in the riparian buffer zone around the streams. The students exclaimed that they look forward to seeing the progress in the wetland and potential wildlife sightings--some specifically anticipating beavers, Great Blue Herons, and frogs now that "it's wetter on the land." OHA appreciates all the work the Outreach teachers have done to coordinate these valuable experiences for the students, and the many volunteers who make the field trips possible.

The field season is here! If you are interested in joining OHA's restoration efforts at Triple Creek, contact [madeline@okanoganhighlands.org](mailto:madeline@okanoganhighlands.org).



Students work with Lisa Eversgerd of Lost Creek to install locally harvested Black Cottonwood poles deep in the ground.



## Snowshoe Hares: Transforming Before our Eyes

Another familiar harbinger of spring is the snowshoe hare's spring molt from the white of snow to the brown of rocks and soil. With coyotes, raptors, foxes, and lynx among their extensive list of predators, the hares' ability to blend into their habitat throughout the year is a crucial survival tool.

But what induces this transformation? The snowshoe hare's molt is an example of photoperiodism--when a species has a physiological reaction to the length of day or night. However, this is completely independent of whether or not there is actually snow on the ground. So, if the snow arrives late, as it did in our area this past winter, then the hares experience a camouflage mismatch. Oddly enough, hares don't seem to notice the difference! Research has shown that most hares don't modify their behavior if they're improperly dressed for their surroundings, making them more vulnerable to predation. Therefore, if changing weather patterns continue to leave the hares mismatched, "survival of the fittest" will favor hares that show different molt patterns or behave more vigilantly--an example of natural selection.

However, not all snowshoes hares change color for the winter. Hares residing on Washington's coast are an exception. Perhaps because winters there receive minimal snow, the pressures of predation would have selected in favor of the advantage to remain brown all year. Even without this transformation, snowshoe hares can always be distinguished from other rabbits by their black ear tips and big hind feet.

Regardless of their color, the hares seem to be a popular attraction in the Okanogan highlands. If you can't get enough snowshoes, you can have a chance to win "3 Snowshoes" as an artistic addition to your home! Local artist Dan Brown donated his unique piece for OHA as a fundraiser. Tickets will be sold (\$5 each) throughout the summer and fall, with the drawing at the November 1st Highland Wonders event.

- [fws.gov/refuge/willapa/wildlife\\_and\\_habitat/snowshoe\\_hare.html](https://www.fws.gov/refuge/willapa/wildlife_and_habitat/snowshoe_hare.html)
- [npr.org/2013/09/08/220188619/climate-change-leaves-hares-wearing-the-wrong-colors](https://www.npr.org/2013/09/08/220188619/climate-change-leaves-hares-wearing-the-wrong-colors)
- [nwf.org/Educational-Resources/Wildlife-Guide/Mammals/Snowshoe-Hare](https://www.nwf.org/Educational-Resources/Wildlife-Guide/Mammals/Snowshoe-Hare)
- [royalsocietypublishing.org/doi/full/10.1098/rspb.2014.0029](https://royalsocietypublishing.org/doi/full/10.1098/rspb.2014.0029)



*The snowshoe hare transformation is completely independent of whether there is snow on the ground.*



Snowshoe Hare photos by Lee Johnson, Upper Wauconda



## It's your turn!

*What you can do to benefit wildlife*

The return of spring means the familiar reemergence of diverse wildlife from a reclusive dormancy to bypass the winter cold. What may be less familiar are winter survival strategies of frogs.

First of all, you might wonder, how do small cold-blooded creatures like frogs survive frigid winters? Frogs don't build up "winter reserves" of fat to support their long sleep like mammals do. Many frogs find a hibernation spot--or "hibernaculum"-- under water, only partially buried in mud in order to continue accessing oxygen from the water. Unlike frogs, toads spend more time on land and are adept diggers, allowing them to burrow underground, below the frost line. Some frogs without this skill will find crevices in rocks or logs or just hide deep in leaf litter. Yet, frogs and their hibernacula may still become frozen--so how can they survive extreme temperatures? While highly concentrated glucose in frogs' vital organs prevents freezing, ice crystals will form under their skin or in the body cavity. The heart will even stop beating! Yet, once their hibernaculum warms above freezing, the frog will thaw and its body resumes regular activity.

Once active, frogs resume their normal forays of eating insects that also reemerge in the springtime. To support frogs and the pest management services they provide, there are several measures you can take to create a frog-friendly property.

Avoid using pesticides and herbicides. Lawn chemicals, and even roof treatment chemicals, may end up in waterways. Frogs' skin easily absorbs harmful chemicals, and even through food like slugs and snails.

Maintain debris such as logs, root wads, and rock piles that can provide cool, moist shelter for frogs.

Protect buffer areas surrounding streams and ponds. Diverse vegetation supports healthy water quality, abundant food supply, and sheltered breeding habitat for frogs.

You can even create shelters for frogs in a garden by partially burying a flower pot. Make sure it's far away from where dogs and cats may traipse!

Through wetland restoration projects, OHA has also worked to support frog populations around the Okanogan Highlands. For example, our Lost Lake Preserve hosts large numbers of the Columbia Spotted Frog (*Rana luteiventris*, top left), which is a candidate species for listing as endangered in Washington. The adults, about 3" long, can be identified by their upturned yellow eyes, dark spots on their backs and legs, and red or orange underneath their legs. Their main threat is wetland habitat loss, due to factors including drought and beaver decline--which OHA works to combat with beaver dam analogues that help reestablish wetlands, riparian vegetation, and ultimately beaver populations.

Do you have a photo of a frog you've seen in the Okanogan Highlands? OHA is interested!



Columbia Spotted Frog in the Lost Lake wetland



Pacific Chorus Frog at Triple Creek

- Columbia spotted frog (*Rana luteiventris*) (2018). Environmental Conservation Online System. US Fish & Wildlife Service. Retrieved from <https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=D027>.
- Emmer, R. (1997, November 24). How do frogs survive winter? Why don't they freeze to death? Scientific American.
- Note: Living with Wildlife: Frogs. Adapted from Living with Wildlife in the Pacific Northwest by R. Link, 2004, Seattle: University of Washington Press and Washington Department of Fish & Wildlife.
- Schneider, A. (2017) How to build frog habitats. Rootsy Network. Retrieved from <https://rootsy.org/making-frog-habitats>.



## Methow Headwaters: Protected!

As one of more than 40 local organizations supporting the Methow Headwaters Campaign to protect the upper Methow Valley from industrial-scale copper mining, OHA is thrilled that this area will be protected. An additional 150+ businesses, as well as the Board of Okanogan County Commissioners and local mayors supported the S.47 John D. Dingell, Jr. Conservation, Management, and Recreation Act, which passed in March. This act permanently protects 340,079 acres of land in the Methow Valley from both mineral exploration and mine development as part of a package of over 100 other public land and natural resource bills protecting over 2 million acres around the country. The bill to protect the Methow headwaters was originally introduced by Senator Pat Murray (D-WA) and co-sponsored by Sen. Maria Cantwell (D-WA) in 2016, after Vancouver-based mining company Blue River Resources Ltd submitted an application to begin exploratory drilling for copper deposits on Forest Service land near Flagg Mountain.

The timing of this bill was critically important, as the Bureau of Land Management (BLM) had previously issued a 2-year mineral withdrawal in the Methow headwaters back in December 2016. While the Secretary of the Interior or Congressional legislation can enact administrative withdrawal of federal lands from mining activity for up to 20 years under the 1872 Mining Act, withdrawal through federal legislation would be permanent. The Campaign initially pursued the shorter window of protection, and the US Forest Service recommended a 20-year mineral withdrawal of the Methow headwaters in September 2017. Ultimately, continued building of bipartisan support carried the proposal for permanent withdrawal to

Congress. In February, S.47 was approved in the Senate 92-8, and in the House, 363-622.

This bill succeeded due to the dedicated advocacy work by the committed community-led campaign. Numerous letters, petition signatures, and public meetings reflected diverse interests, including farming, recreation, wildlife conservation, hunting, and tribal nations. Voices from the local to the national level expressed concern to local elected leaders, federal agency officials, and Congressional representatives about the impacts of mining on the Methow's environmental and economic integrity. One of the primary concerns was water quality of the Methow headwaters, which supply clean mountain water for agriculture and municipal water in the Valley. Additionally, between greater heavy truck traffic and the thousands of acres needed for the mine, waste rock, and various operation facilities, industrial-scale mining would disrupt tourism—which brings

over \$150 million annually<sup>1</sup> to Okanogan County—and recreation in the Valley. The proposed mining area, located in the Okanogan-Wenatchee National Forest, also contained important habitat for salmon recovery and Washington's largest mule deer herd.

You can read more about the Act at <https://www.congress.gov/bill/116th-congress/senate-bill/472>. You can also learn more about the work of the Methow Headwaters Campaign, based in Winthrop, at [methowheadwaters.org](http://methowheadwaters.org).

**To celebrate this victory, the Campaign is hosting a free event for the public with food and entertainment on Saturday, April 20th at the Winthrop Barn, from 5-9 pm.**



Photo from [wildsteelheadcoalition.org/2018/11/methow-headwaters-mining-update](http://wildsteelheadcoalition.org/2018/11/methow-headwaters-mining-update)

1. [methowheadwaters.org](http://methowheadwaters.org)

## Welcome Maddie!

OHA welcomes our new Conservation Associate Madeline (Maddie) Price to the OHA team! As a New Jersey native and a hiking and nature photography enthusiast, Maddie is excited to experience the beautiful landscapes across the Okanogan Highlands. This past fall, she completed a M.S. in Conservation and Rural Development at the University of Kent in England, then volunteered at organic farms around Spain. Maddie previously served in AmeriCorps as a volunteer coordinator at an organic farm and eco-learning center in Maryland. She also has experience in bird-banding and environmental education and has solo backpacked in Central America and across Europe. Maddie began working for OHA in February 2019 and has been getting to know our organization by helping to update OHA's website—including creating new pages for 10 years of Highland Wonders events and restoration activity. As Conservation Associate, Maddie will provide support to OHA's restoration and education programs, including serving as OHA's Volunteer Coordinator. Welcome aboard, Maddie!



## Myers Creek Songbird Survey

Enjoy the green of spring and the birds that utilize the Myers Creek mitigation site near Chesaw! On **Friday, May 31st**, OHA will conduct our annual songbird survey at this restoration site. If you bird by ear and/or sight and would like to share your skills in this survey, please contact [madeline@okanoganhighlands.org](mailto:madeline@okanoganhighlands.org).



Rick Welton assists with the 2018 bird survey, using a spotting scope shared by Todd Thorn.