

Free Flows

A Quarterly Publication

Winter 2016

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Early Bird Special
on Drift Boat Raffle
Tickets

May 7 - Kid's Day on
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June TBD - Birding
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July 16 - Big Hole
River Day



BIG HOLE RIVER
FOUNDATION

The Big Hole River Foundation's mission is to conserve, enhance and protect the free-flowing character of the Big Hole River, its unique culture, fish and wildlife.



Our Trout in the Classroom Program has been met with some fascination at two Big Hole River valley schools this year. Kindergartner's and first grader's at the Melrose School love having the aquarium in their classroom. K through 12th grade are enjoying their young rainbow trout in the Twin Bridges School as well.

Read more about this successful program on page 6.

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Big Hole River Foundation

President's Message

As the New Year starts the Foundation is set to begin the annual budget and planning process. I'm glad to say that the prospects for a successful effort are much brighter this year. In the past twelve months the Board has invested many hours and much effort in planning for the coming years and for what the Foundation will evolve into over the next decade or so.

The first step has been to develop a clear, concise description of the Foundation's priorities. We intend to use that description of priorities as a guide for our planning efforts and as the centerpiece of a long-term fundraising program. The Board recently attended a day-long seminar on fundraising, paid for by Gary Bechtel and the Foothills Foundation. A sustaining program will allow us to look and plan beyond the current one or two-year horizon, which is critical given the nature of our work.

This process will not alter the Foundation's basic Mission to "conserve, enhance and protect the free-flowing character of the Big Hole River, its unique culture, fish and wildlife." It is intended to bring a more personal touch to the expression of the Mission. If we can explain, in personal terms, why the River is important to each of us on the Board, we feel it will bolster our efforts to recruit support of all kinds for the Mission itself.

The financial stability of the Foundation has improved dramatically over the last several years, due primarily to your support and to the excellent work of Mike Bias in recruiting large donors and of Corky Logan in growing and managing our annual fundraiser Big Hole River Day. That increase in financial stability means that we will have the fiscal capacity to expand the Foundation's workload, and likely also means that the Foundation will have to grow as an organization to handle the additional workload.

As part of our effort, we'd like to know why each of you is motivated to 'conserve, enhance and protect' the Big Hole River. Please take a few moments to tell us what the Big Hole River means to you and why you support our Mission. You can contact us by mail at bhrf@bhrf.org.

As always, thank you for your support, and don't hesitate to contact us with your concerns, questions, and suggestions.

Tom

Executive Director's Message

Dear Members and Supporters,

The Holidays have come and gone. I hope you all got what you wanted from Santa and you have a happy and prosperous 2016.

I think the river is getting what it wanted from Santa, the average of 10 snow depth monitoring sites that are used to determine snow water equivalent for the Big Hole Basin is 137% of the median; for most of those same sites we are at about 110% of average snow water equivalent. Coupled with this, as of mid-January flow forecast for the Big Hole River at both Wisdom and Melrose is 117% of average. So, bottom line as of mid-January is that we are sitting above average for snowpack and forecasted river flow this summer. Let's hope this trend continues through the year.

Right before the Holidays the board members, staff and members celebrated with a dinner at Park 217 in Butte. Dinner and company was great as we discussed the river, the watershed, and predicted what the coming year was going to bring.

Research-wise, we're busy counting and identifying bugs from our 2015 sampling season and are about to begin analyzing those data. We greatly expanded our work on this project and will continue this year to look at how conservation management projects are contributing to river health.

We wrapped up last year's projects including Moose Creek Meadow Stewardship Fence and we helped fund the recently-completed Upper Big Hole Stock Water Well Project on the Mitchell Ranch. This project removed a diversion from the river and provided necessary water for livestock from two newly-constructed wells. We helped fund this project through the Arctic Grayling Recovery Program under the leadership of Montana Fish, Wildlife & Parks and the US Fish and Wildlife Service. Two additional fencing projects to manage grazing along the river are in planning stages for this coming year.

Our Education Initiative work accomplished much this year with our Trout in the Classroom Program being established in the Melrose and Twin Bridges Schools. Rainbow trout eggs at each school hatched during December and are now in the fry stage. We are poised to begin another Technical Guidance document this year, Ecology of Grayling in the Big Hole River. This coming year we will also continue with our Kid's Day on the Big Hole and Big Hole River Day.

We have been working to raise funds to meet Gary Bechtel and the Foothill Foundation's challenge. As of mid-January 2016, we are \$3,000 short of Mr. Bechtel's challenge to raise \$25,000 of new money each year for three years. Raised funds will be leveraged one to one when we meet each annual challenge. We'll continue to apply raised funds this month to last year's challenge. We need all the help you can give. Such support validates our work and allows us to deliver the best research, conservation, and education projects possible to "conserve, enhance, and protect" the Last, Best River.

Thank you for your time and support!

Respectfully,

Mike



Thank You

We are grateful to the following members and donors who have renewed or made recent contributions and gifts in support of our mission as of January 16, 2016.

Every effort has been made to maintain accuracy in our donor lists. If we have made any errors, please call 406-560-7089 or email bhrf@bhrf.org.

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Free Flows

Tom Daniel ~ Thomas Draper ~ Carla Hansel

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Species Spotlight ~ *Skwala Americana*

A stone-flipper can be certain a river is healthy if, from under a stone they find a namesake, stonefly nymph. Stone-flippers, any person standing in or near a river who decides to turn a riparian rock over, are common on Montana's Big Hole River. Often, they find one of many species in the Perlodidae family – one of the most popular is the skwala, represented by two common species: (*Skwala americana* or *S. curvata*). This group of stoneflies is notable for appearing early in the season, even as early as January. They are significant, in their large size (around 20mm, not including their antennae and tails) compared to other winter-dwelling insects, giving fish a full belly.

These insects are predators themselves, and often feed on other macro invertebrates, living within the interstitial spaces in gravel and cobble. A healthy environment is needed to provide kilocalories for these hunters to be able to feed on other insects. The lush Big Hole valley provides habitat for prey invertebrates and predator invertebrates alike. These habitats can only remain by conserving and restoring habitat in critical, riparian area.

Stoneflies need lots of oxygen as a rule, and energy used by skwalas to hunt and capture prey only adds to their need for O₂. Keeping riffles filled with gravel and cobble helps oxygenate the water. To do this, erosion must be reduced, and banks need to be stable. Keeping sedges, willows and other riparian species along the banks helps reduce fine sediments from filling stonefly habitat. The skwala nymphs migrate to the banks to emerge as adults, like all stoneflies. To do this, they use nearby boulders, logs, and vegetation. The more texture a bank has, the better off they are.

Be sure to become a stone-flipper, if you are not already, and look for the skwala. You may even be lucky enough to find some crawling bank-side early in the year. If this happens, you might want to tie on an appropriate fly, and see if the fish enjoy your imitation as much as the real thing.

By Zac Sexton



Photo courtesy of troutnut.com

2016 MONTANA SKIFF RAFFLE



Thanks to Hyde Drift Boats, we have another Montana Skiff for our 2016 raffle. Tickets are regularly \$20 each or 6 for \$100 but order yours now using the form below and get 7 for \$100 if received in our office by March 1, 2016.

Big Hole River Foundation Drift Boat Raffle Ticket Order Form

Name _____

Address _____

City, State Zip _____

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**EARLY BIRD RAFFLE
TICKET ORDER FORM**
Must order no later than March 1, 2016 to get
7 tickets for \$100

Trout in the Classroom

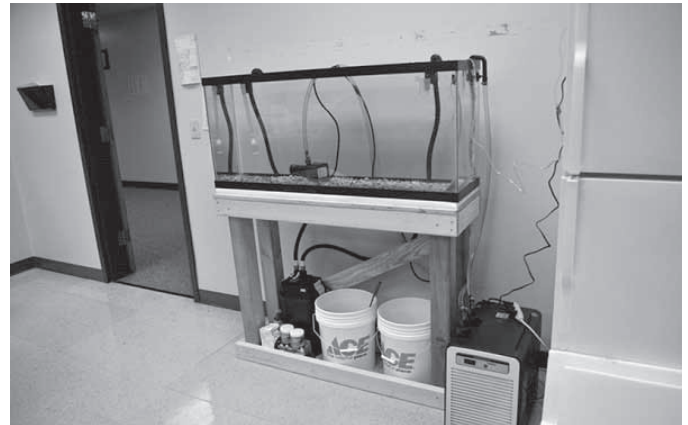
by Mike Bias, Ph.D

The extremely popular Trout in the Classroom Program is up and running in the Melrose and Twin Bridges Schools. Trout in the Classroom (TIC) is a conservation-oriented environmental education program developed by Trout Unlimited (TU) for elementary, middle, and high school students. Through the school year, students raise trout from eggs to fry and then release them into approved cold water streams and lakes. The process of raising, monitoring, and caring for young trout fosters a conservation ethic within participating students and promotes an understanding of their shared water resources.

Our TIC Program began by receiving a \$1,500 grant from the Norcross Wildlife Foundation in New York City and another \$1,500 grant from the Soil and Water Conservation Districts of Montana. These grants allowed us to purchase the necessary aquaria, filters, pumps, and chillers that we set up in the schools. One hundred rainbow trout eggs from the Ennis National Fish Hatchery were placed into the aquaria at each school in November. By the first week in December the eggs were hatching into baby trout.

Students in each school are responsible for measuring and maintaining water quality in the aquaria and feeding and caring for the young trout. The kindergarteners and first-graders at the Melrose School are keeping journals of their work. The TIC project at the Twin Bridges School has been incorporated into the High School science classes.

The program will end the year by releasing the trout into the Bozeman Pond in Bozeman, Montana and we are hoping to raise grayling in the aquaria this spring.



Aquarium at the Twin Bridges School ready for fish.



Students at the Melrose School were fascinated by the trout eggs.



By the first week of December all the eggs hatched into young trout.

Our annual Kid's Day on the Big H
Sponsors, donors, instructors, volunteer
Call Corky at (406)560-7089

BMI at the Twin Bridges School

This past fall our own Dr. Mike taught a benthic macroinvertebrate class to the entire 7th and 8th grades at the Twin Bridges School. Thirty-one students learned all about the aquatic invertebrates found in the Big Hole River during this one hour class and one hour lab held at the school and on the Big Hole River at Hamilton Ranch.



ole River is Saturday May 7, 2016.
s and merchandise are urgently needed.
to learn how you can help.

The River Has Lost a Good Friend - Mary Elizabeth Merino, 32

by Mike Bias



The final Stewardship Fence Project at Moose Creek Ranch - Moose Creek Meadow – was completed during the last week of October 2015. This was the second of two fence projects on Moose Creek Ranch that manage grazing along two miles of Moose Creek, an important tributary to the Big Hole River. Sadly however, it was during that week as well that Mary

Merino, owner and manager of Moose Creek Ranch - and our friend - was tragically taken from us in a hit-and-run accident. She was so excited for the completion of the project. She was an awesome partner to the Foundation and friend to the river.

I met Mary while doing an interview for an article in the Montana Sporting Journal on riparian conservation through

fencing. We had just completed the Carpenter Ranch Stewardship Fence Project and Mary had just completed half of her fencing project at Moose Creek Ranch. Soon after I asked if she would like the Foundation to help her complete her fence project on Moose Creek. She was all for it and we partnered on the first Moose Creek Stewardship Fence Project completed in 2013.

Mary was born on April 21, 1983, in Boston, Massachusetts. Throughout her short and wondrous life, she lived all over the continent, touching lives everywhere she went. A free spirit and beautiful woman, she cared for others more than she cared for herself, and gave of herself every single day.

A true cowgirl and a dedicated rancher, she never tired of working the land and improving everything around her through hard work and faith in others. She loved her dogs, her cows, and her horses, and she loved the ranching life more than any other. Everyone who knew her was awed by her beauty and her strength, and all the lives she touched will forever be changed by her influence. We will miss her.

Foundation Welcomes New Board Member



Ron Fick joined the Board of Directors in November. Ron has fished the Big Hole since he was a teenager in the 1950's and thinks it is one of the most beautiful rivers he has ever fished let alone the varied landscapes. He says, "I have long believed all should be done to preserve it as a premier fishery and recognize this takes work and dollars. As a landowner

myself I recognize the need to work together with those who fish to preserve its inherent uniqueness for all and whatever I can do to help is why I want to participate."

Welcome Ron, we look forward to working with you.

Trick or Treat Fence - by Mike Bias

During the last week of October 2015, Calvin Johnson Custom Fencing in Whitehall, Montana put the finishing touches on the Moose Creek Meadow Stewardship Fence Project. Moose Creek Meadow was the second of two Stewardship Fence Projects completed on the Moose Creek Ranch. With the completion of this project, grazing will be managed and riparian areas will be protected along two miles of Moose Creek, an important tributary to the Big Hole River. Our Stewardship Fence Program works with landowners to construct and maintain wildlife-friendly fencing to effectively manage grazing in riparian areas along critical sections of the Big Hole River and important tributaries.

The Moose Creek Meadow Stewardship Fence Project is located along one-mile of Moose Creek on the Moose Creek Ranch, about five miles north of Melrose. This project fenced the wet-meadow portion of Moose Creek immediately upstream of Interstate 15 with a 4-strand, wildlife-friendly fence (smooth bottom wire with 16.5-foot post intervals and follows all Future Fisheries fencing guidelines).

Johnson Custom Fencing did an outstanding job on one of the coolest fence projects yet. This project was important for not only protecting Moose Creek for the Big Hole River fishery, but incorporated some important wildlife conservation as well. The \$18,000 project incorporated wildlife crossings into the fence that allow elk and moose to easily cross the fence without damaging it. This project also manages grazing within a 32-acre permanent wetland protecting both the wetland and Moose Creek from unnecessary sediment damage or degradation.

Like all Stewardship Fence Projects, this project incorporates a grazing plan agreement between the Foundation and the landowner. Through this agreement the Foundation and the landowner enter into a 20-year management agreement to maintain the project for the protection of the creek, wetlands, and riparian areas. The project also incorporates a robust monitoring program that measures the health of the riparian area through time.

The Moose Creek Stewardship Fence Project brought together some powerful conservation partners for the successful completion of this important project. Federal and state funds totaling \$7,000, helped to complete the Moose Creek Meadow Project. The US Fish and Wildlife Service's Partners for Wildlife Program contributed nearly \$4,000 and Fish, Wildlife & Parks' Future Fisheries Improvement Program contributed \$3,000 to the project. Government dollars were matched from several non-government sources. The George Grant Chapter of Trout Unlimited along with Montana Trout Unlimited contributed \$5,000 towards this important project. Remaining funds for construction, project management, and monitoring came from members and supporters of the Big Hole River Foundation.

Of course, the most important conservation partners in all of these types of projects are the private landowners and managers of ranches like Moose Creek Ranch; for without them, projects like this would not be possible.



Newly installed fence ties into existing permanent fences.

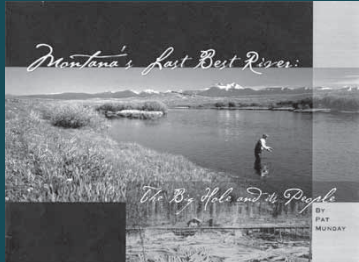


Wildlife crossings allow elk and moose to easily cross the fence without damaging it.

BHRF Merchandise

The Big Hole River Foundation has books, logo fishing shirts, vests and hats for sale.
To order, please visit our website at www.bhrf.org.

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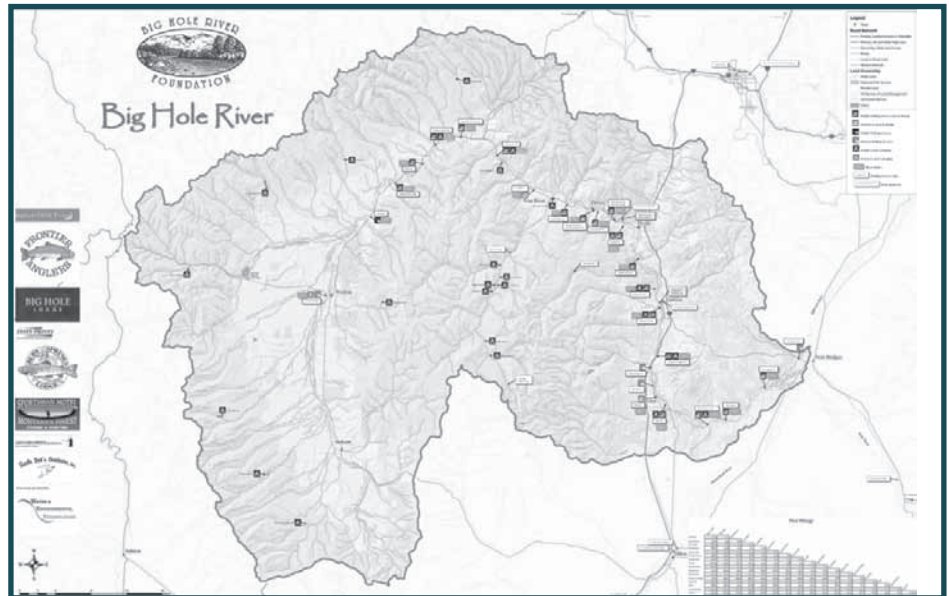


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What Does that Mean? ~ Interstitial Spaces

What is one of the most vital things a riverbed needs to support the growth and health of developing fish eggs? What is required of a water aquifer (natural and man made) to filter water properly? What helps promote the health and longevity of aquatic insects?

Clearly, there is a plethora of answers to the three questions stated above. The one answer that will be focused on in this article is: interstitial spaces.

The word interstitial is of Latin origin. The root word interstices is defined as: an intervening space; a small or narrow space or interval between things or parts, especially when one of a series of alternating uniform spaces and parts.

And, of course, the word space is defined as: the unlimited or incalculably great three-dimensional realm or expanse in which all material objects are located and all events occur; the portion or extent of this in a given instance; extent or room in three dimensions.

With the word pairing now defined, it is quite clear why “interstitial spaces” is the proper answer to the previously mentioned questions.

The tiny nooks and crannies of riverbeds provide a safe place for fertilized fish eggs to hunker down and develop.

The tiny compartments of space between (and within) the pieces of sand, rock, and gravel underground create a terrific method of filtering water as it passes through those materials, making it more drinkable.

Aquatic insects, such as mayflies and stoneflies, rely on aquatic gestation to reach their nymphal stage. The interstitial spaces of the riverbed is where this growth occurs. When these insect eggs become nymphs, they are adrift in the river, until they find a rock with a surface that has interstitial spaces on its surface. This uneven surface provides the nymphs with a great area to attach and feed.

By Sarah Sexton, BHRF Board Member

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