Vol 3 Issue 2

Fall/Winter 2013

The Montana Steward

Cfwep.Org

Clark Fork Watershed Education Program

Made In Butte, Montana

INSTITUTE FOR EDUCATIONAL OPPORTUNITIES

Free 2013

MontanaTech THE UNIVERSITY OF MONTANA

Education and the Environment

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New!
Asst. Professor of Restoration Ecology
Matt Bahm
Department of Biology
Montana Tech

Cfwep.Org's 2013 Fly Fishing Camp

Teacher Feature;
Tim Ryan
Ethnotech
Cultural Resource Management and Heritage Education

Voices of the Watershed;
Dr. John Ray

Click on Http://www. Cfwep.Org for Watershed News!

Cfwep.Org Hosts the 2014 Montana Enviromental Education Association Conference

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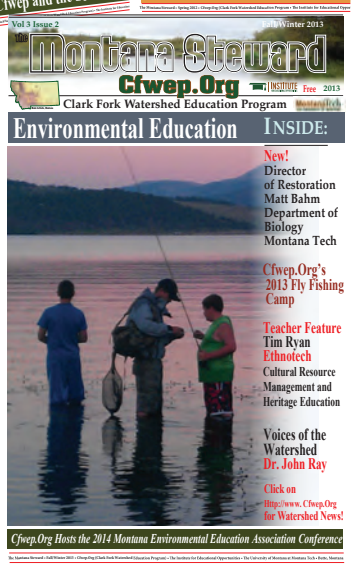
The Montana Steward Cfwep.Org's Enviromental News Publication

Clark Fork Watershed Education Program



The Montana Steward is distributed statewide with a circulation of 5,000 copies per issue. The publication is distributed to all of Cfwep.Org's students and is placed prominently throughout the state of Montana.

Cfwep.Org is part of the University of Montana system and our offices are located in Butte at Montana Tech. We are mandated to provide outreach information concerning the Clark Fork Watershed.

We appreciate your support in providing accurate information about our local watershed. Please let us know if you would like to support us with the advertising we need to keep the 'Montana Steward' program on track.

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Next Issue: Reflecting on the Restoration: The Clark Fork Watershed Past and Present

On Our Cover

"Cfwep.Org Fly Fishing Camp At Georgetown Lake 2013"

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Cfwep.Org

Who We Are!

Clark Fork Watershed Education Program

Cfwep.Org has been a leading provider of environmental and restoration education programs and services in western Montana since 2005. **Cfwep.Org** offers multi-disciplinary science and history programs for schools, teachers, and students in the Upper Clark Fork Basin. We also offer public education and outreach services such as tours, events, and publications that connect the public with the science and history of the amazing landscape of western Montana. **Cfwep.Org** is physically located in the Health Sciences Building on the campus of Montana Tech in Butte, Montana. Our Mailing address is Cfwep.Org Montana Tech, 1300 West Park Street, Butte, Montana 59701. **Cfwep.Org** is our web address. Please direct your comments and suggestions to info@cfwep.org or **Rayelynn Connole at rconnole@mtech.edu.** The Montana Steward is a quarterly publication of the **Clark Fork Watershed Education Program**. The Montana Steward reserves the right to control its own publication schedule.Cfwep.Org is part of the Institute for Educational Opportunities at Montana Tech of the University of Montana, a 501c3 non-profit educational institution.

Spotlight On Partners

INSTITUTE FOR EDUCATIONAL OPPORTUNITIES

The Institute for Educational Opportunities offers a comprehensive array of programs for students and teachers. The Institute's efforts are designed to build on strengths in mathematics, engineering, science, technology and environment restoration while making use of existing resources. Institute staff are committed to student success. As such, students are matched with programs that meet their individual needs. There is no "one-size-fits-all" approach to student support.

Teachers interested in challenging their students by integrating more inquiry and rigor can also turn to the Institute for support. There are a number of professional development resources available to help those teachers who wish to empower their students with the tools they need to succeed in college.

Cfwep.Org

TRIO

STEM STUDENT SUCCESS SERVICES

The Federal TRIO Programs (TRIO) are federal outreach and student services programs designed to identify and provide services for individuals from disadvantaged backgrounds. TRIO includes eight programs targeted to serve and assist low-income individuals, first-generation college students, and individuals with disabilities to progress through the academic pipeline from middle school to post-baccalaureate programs. TRIO also includes a training program for directors and staff of TRIO projects. One of these programs is Talent Search.

Montana Tech's Educational Talent Search (ETS) program provides academic, career, and financial counseling to our high school and middle school participants and encourage them to graduate from high school and continue on to the post-secondary school of their choice. Montana Tech's ETS program currently serves 11 high schools and middle schools in the Butte, Anaconda, Deer Lodge and Helena areas. If you would like more information on the Educational Talent Search program, please call the program's Associate Director, Michelle Christianson at 406-439-2387.

Rayelynn Connole *Cfwep.Org* Director

The Director's Letter

The theme of this issue is Environmental Education. At Cfwep.Org, we use the environment as our classroom. In doing so, our mission is to create stewards who will be capable of making informed decisions and who utilize scientific decision-making skills. Our approach to environmental education is to connect students to their immediate area and engage them in critical questions about their place. By engaging students in questions about their local environment and inviting them to discourse about their immediate landscape, science becomes interesting and important to students. Through our work, we've been privileged to connect with many area scientists and engineers. In a strange way, we also have the advantage of a Superfund site in our backyard, which provides endless opportunities for scientific inquiry.

An informed citizenry in today's age requires a level of understanding about scientific practice that is unprecedented. The nation's call for more students educated in the STEM disciplines of Science, Technology, Engineering, and Math is an indicator of this need to increase students' understanding about how science is conducted. As our nation's political machines are ever unstable with the pendulum constantly shifting between parties and ideology, polices that balance protection of our local environments and also allow for industry will be ever under fire. Citizens who are able to read and understand scientific studies, who are not easily swayed by media, and who know the difference between peer-reviewed studies vs. opinion articles are essential to keeping the pendulum at center. At Cfwep.Org, we believe in a culture of AND, meaning that we believe it is possible to have industry's needs balanced with the needs of the environment. In order to create this culture we need engineers, scientists, policy-makers, and citizens who are able to see through rhetoric and create solutions. Engaging students in study about their local environment is one pathway to this vision.

There are many great organizations and educators who have mastered using the local landscape as a means to engaging students in science. We have highlighted some of the many great organizations in Montana throughout this issue.

Dr. Matt Bahm, Restoration Ecologist for Montana Tech

Dr. Matt Bahm joined Montana Tech this summer as part of the Natural Resource Damage program grant awarded to Montana Tech's biology department. He has been hired as a part-time project manager and will co-direct the native plant diversity project with Kriss Douglass. He has also been hired as a part-time ecology professor and will develop the Restoration Ecology Certificate program for Montana Tech. The Cfwep.Org crew had an opportunity to catch up with Dr. Bahm and learn a bit more about his background, passion for restoration, and hopes for the future.

Dr. Bahm obtained his Bachelor's Degree at Oklahoma State, followed by his Master's Degree in Texas, and a Ph.D. in prairie restoration from South Dakota. His degrees in wildlife management and ecology prepared him for a career in invasive plant studies and ecology, later turning to a focus on restoration. When asked what attracted him to the position at Montana Tech, Dr. Bahm commented, "There are limitless possibilities here in Butte. I want to bring a restoration focus to the Biology Department and work to create collaboration between the various parties who are involved in the remediation and restoration throughout Butte. I am motivated about the potential for restoration in this region."

Some of the goals ahead for Dr. Bahm, besides coordinating the efforts of the various restoration projects throughout Butte, include developing a second greenhouse at Montana Tech, which would double the native plant propagation capacity for the Tech greenhouse. In order to achieve this end, seed collection efforts would also need to double. Dr. Bahm hopes to provide native, acclimatized plant varieties for the various restoration projects. In addition, he would like to see the Montana Tech nursery be viewed as a resource for information and education about native plant propagation.

Research about utilizing native plants for restoration efforts is a high priority for Dr. Bahm over the next few years. His research efforts will focus on how well native plants are self-sowing and volunteering in various landscapes. He will measure what plants disperse well and how far their seeds are dispersing. The end game is to help create a more sustainable prescription for the remediation and restoration projects throughout Butte. To date, many of the seed mix prescriptions have included non-native species that may or may not serve a positive ecological role within the Butte landscape. The intention of using native plants is to determine if the native plants will be able to meet the goals of remediation. In other words, hold wastes in place and provide a better ecological benefit in terms of providing food sources and habitat for animals while also ensuring that the systems are self-sustaining.

A final area of focus for Dr. Bahm is the development of the Restoration Ecology Certificate program for undergraduate students at Montana Tech. The certificate program is designed to give students experience with research and implementation of restoration plans. Dr. Bahm is looking forward to the various research projects that will develop through the program, citing that the challenge of restoring Butte's landscape is exciting. He sees great potential for the restoration projects to change people's perceptions of what Butte is and how it can be used as a model for

Busy Summer and Fall for Cfwep.Org

Tom Malloy and Amanda Curtis discuss restoration efforts

The Cfwep.Org crew completed many outreach efforts this summer and fall. The Folk Festival Family Life and Folk Life areas were definitely a summer highlight. Kori Dyer joined the Cfwep.Org team to help with organizing the event. Kori coordinated all aspects of the Folk Life and Family Life areas and provided excellent service to the presenters and the festival organizers. We owe many thanks to Kori for all her efforts at this year's festival. We'd also like to thank George Everett for his continued support and belief in Cfwep.Org, our mission, and our goals. Thanks for giving us the opportunity to help out with the festival this year! We hope that we can continue in future years.

Students view the Berkeley Pit

Montana Folk Festival

"Hundreds of kids used acrylic paint on two 4-feet by 5-feet canvases mounted on easels in the family area on Saturday and Sunday.

And the best part — the kids painted whatever they wanted." wrote Francis Davis of the Montana Standard. The painting made in Cfwep.Org's family area will be installed at the Butte Community Health Center this fall.

Fall Field Trips

In September, the Restoration Education Program kicked into full gear. We held field trips with Drummond, East Middle School, and Butte High School. In addition, we participated in the Blackfoot Challenge Youth Field Day.

BHS Student sampling Parrot Tailings Well

Tree Planting

The Cfwep.Org crew and a host of student and adult volunteers from Butte High School Honor Society, East Middle School, and Butte Silver Bow Juvenile Justice program assisted Rich Prodgers with planting 46 Cottonwood trees along Silver Bow Creek. Everyone felt a huge sense of accomplishment at the end of the day. We look forward to visiting the area in years to come.

Storm Water Education

The Cfwep.Org crew presented our stormwater education program curriculum to 350+ 8th graders from East Middle School. During our visits, the EMS students requested that we help them organize a stream clean-up event! Stay tuned for more details.

Butte Central High School students completed mapping of storm drains near Butte Central. In the Spring of 2014, the students will mark the drains they mapped.

MPRES Project—MEA/MFT

The Montana Partnership with Regions for Excellence in STEM project is entering its second year. An additional 50 teachers have joined the project for this year. The teacher-trainers from the MPRES project presented at the Belgrade Teachers' Convention in October.

MONTANA AUDUBON
CONSERVATION
EDUCATION CENTER

The Montana Audubon Conservation Education Center is situated along the Yellowstone River on 27 acres of land that has been transformed from a gravel pit into an outdoor education center. Through a partnership with the Yellowstone River Parks Association and restoration efforts by countless volunteers, the Audubon Center has become a natural refuge for native plants, animals, and community members. The Audubon Center's mission is to promote appreciation, knowledge, and conservation of Montana's native birds, other wildlife, and natural ecosystems through high quality conservation education programs for all ages.

The Audubon Center offers a variety of programs for the public, including monthly Weekend Wonders Family Programs, Friday Nature Nights for kids, Hands-on Homeschool Science classes, two weekly preschool programs, Adventure in Nature camps, and after school classes. Private programs such as birthday parties and scout troop visits to earn badges are also available. Our hallmark program is the Audubon Naturalists in the Schools, which engages 4th and 5th grade classes in the year-long study of nature through field trips and in class visits. We also work with other schools from preschool to college level in order to provide hands-on learning experiences. These programs connect people to place through the exploration and restoration of Billings' native ecosystems. The Center is a place for students young and old to engage with nature and enhance their knowledge of the plants and animals that live in their own backyards. Just ten minutes from the heart of Billings, the Audubon Center is truly an oasis in the city.

Montana Department of
ENVIRONMENTAL
QUALITY

Photo: Frank Ponikvar

CFR Cleanup Crew

The ultimate goal of the Clark Fork River (CFR) remediation and restoration project is to clean up the river to protect human health and the environment. The cleanup that began in March has been extremely successful; over 300,000 cubic yards of mine waste have been removed. Floodplain rebuilding and revegetating has also taken place and will continue into the spring of 2014. The Department of Environmental Quality has found it valuable to actively engage the public, provide and promote educational activities relating to the site, and offer opportunities for people to become involved with the project. Education helps people take a more active role in the cleanup of their river, and these partnerships are what make a project of this magnitude successful. If you are interested in learning more about the CFR cleanup, please contact Katie Garcin at 406-841-5042 or at kgarcin@mt.gov.

CTEC

The Citizens' Technical Environmental Committee (CTEC) is a group of volunteer citizens who work with the Environmental Protection Agency (EPA), the state of Montana, responsible parties, and others to make the Superfund process and cleanup decisions in the Butte and Clark Fork Basin area of Montana understandable to everyone. CTEC board members make up a diverse group of individuals from all walks of life.

The easiest way to understand the role of a technical assistance committee in Superfund is to think of a triangle with a represented party at each point. In the instance of the Clark Fork Superfund process, the EPA and Montana Department of Environmental Quality (DEQ) represent the federal and state governments, the Potentially Responsible Parties (PRPs) represent their own and their investors' interests, and CTEC represents the interests of the local community. In the Clark Fork, the PRP is British Petroleum-Atlantic Richfield Company (BP-ARCO). The goal is for all three parties to ensure to have input into the EPA's final cleanup decision.

CTEC is required by the EPA to hire independent scientific experts who review documents and provide public outreach and education on behalf of the local community. CTEC also provides citizens access to a variety of studies about contaminants in the surface water, ground water, and air. CTEC reviews are funded by the Technical Assistance Grant program. This program was created by the federal government in 1986 to help promote local public involvement in the Superfund process. Through this program, CTEC informs local citizens about cleanup options, meetings, and how to contact those persons who are influential in choosing a course of action.

The CTEC board prepares technical comments on the Superfund process. These technical comments are designed to provide decision-makers with an independent perspective on current Superfund activities. CTEC operates separately from the PRP's or the EPA and serves as an independent group of citizens working for local residents, ensuring that the communities most affected by the EPA's decisions have access to objective information. CTEC presents this information so that basin residents can reach informed opinions and make those opinions known. In addition, CTEC has and will continue to, in cases where appropriate, question or criticize the methods, findings and conclusions of BP-ARCO and/or the EPA.

CTEC has been working on the Butte area Superfund process for more than 15 years. Its consultants have reviewed literally hundreds of thousands of pages of scientific data from a variety of sources, including BP-ARCO, the EPA, environmental groups, and independent scientists, and condensed them into our comments. Our public information efforts include our website at www.buttectec.org, facebook page and public meetings.

If you have questions regarding CTEC, or you would like to comment directly to us, please attend one of our meetings or contact us. All meetings are open to the public, and we are always happy to answer your questions.

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Facebook: CTECButte

By Richard I. Gibson

"the ugliest town in the world"

There is a small obscure memorial to Alma Higgins in Butte. The garden has been there since 1931; it sits against the retaining wall

at the northwestern corner of the parking lot between First Baptist Church and the Covellite Theater (old First Presbyterian Church) on West Broadway Street. The location is essentially the back yard of the old Montana Hotel that stood there until it burned down in 1988, and where Alma lived when she died March 16, 1962.

Who was Alma Bielenberg Higgins? Alma Bielenberg Higgins was born in 1874; she came to Butte from her native Deer Lodge in 1920 when she was 46 years old. She was an active member of various clubs and organizations, and founded the Civic Improvement League of Deer Lodge in 1902. Alma Higgins and Montana Womens' Clubs generally were leading forces behind the creation of the State Forester position in 1909, a precursor to the University of Montana's School of Forestry. Also in Deer Lodge, Alma convinced her father, Nicholas Bielenberg, to acquire the mortgage on the Deer Lodge Women's League Chapter House and donate it to the organization, giving Alma a platform for her early civic works. Her father was a German immigrant credited with establishing the sheep-raising industry in western Montana. He became a close friend of Teddy Roosevelt. In Butte, he was a partner in the Butte Butchering Company as well as the Pilot Butte Mining Company.

Alma Bielenberg Higgins
Photo - Butte-Silver Bow Public Archives

Butte was ugly in the 1920s (called "the ugliest town in the world" by Time magazine in 1928), but Higgins worked hard to beautify Butte through photography exhibits and letter-writing campaigns, as well creating and encouraging 18 Butte garden clubs. Her "Garden Week" in Butte in 1922 became a national event, still celebrated, thanks to her lobbying and the national designation by President Harding in 1923. President Harding might have met Higgins that year during his visit to Butte, when Harding Way was named, just a month before Harding's death in office on August 2, 1923.

As a political activist, promoter, and conservationist, Higgins became prominent by connecting urban beautification – flower gardens – to the broader stewardship movement that was largely focused on forest reserves. She became known as the nation's "Christmas Tree Lady" after promoting live Christmas trees, one of which became the first National Christmas Tree.

Alma Higgins died in 1962 with a remarkable legacy of conservation and leadership – largely forgotten today. Norm DeNeal and his colleagues carry on her tradition, developing and caring for the Lexington Gardens, the flowers at the Berkeley Pit visitor center, and all over Butte.

Here is Dick Gibson's blogspot: **http://buttehistory.blogspot.com/p/about-dick-gibson.html**

Reference: Janet Finn and Ellen Crain (Eds.), Motherlode: Legacies of Women's Lives and Labors in Butte, Montana. Livingston, MT: Clark City Press: 2005, p. 204-228.

MTech & Cfwep.Org Hosting MEEA in 2014

By Carolyn Sevier
MEEA Board Chair 2013

People in Montana know their place. When asked "where are you from?" Montanans are as likely to cite mountain ranges or river valleys as they are cities and towns. When asked "what do you do?" they will often discuss outdoor recreation at the same level as career; for many the career is itself dependent on the natural world. When asked "why do you live here?" the answer almost universally includes references to the natural landscape. The Montana Environmental Education Association (MEEA) supports those who are working to maintain that legacy with our kids. Started twenty-two years ago at a gathering of in-school educators, resource specialists, and private organizations, MEEA works to foster education in and about Montana's outdoor environment through professional development and support. In the time since that meeting, a growing body of research has shown the importance of outdoor-oriented education for children-to provide a context and application for school lessons, combat physical ailments like obesity and diabetes, and help build science literacy for future decision-makers. The MEEA Conference is our flagship program - bringing together educators and resources from around the state and highlighting the outdoor education programs of the host city. See you in Butte in March for the 2014 MEEA Conference!

Ask Dr. A

From: Bethanie, Joscelyn, Naomi, Kasey, Leah, Blake, Riley, Jordan, and other curious students from East Middle School (EMS)

Questions: ***Many EMS students who went on one of our fall fieldtrips had deeper questions regarding mine tailings. For example, several students asked: how tailings got into Silver Bow Creek; specifically, how do tailings harm aquatic life; and how long will it take for our watershed to recover?***

What are tailings?

Tailings result from the mining process and are considered a toxic waste. Tailings from Butte can show various colors; from a light, sandy brown to a mix of red, yellow, green and/or blue. The red color is due to iron in the tailings; the yellow is due to the sulfur; while the green and blue are due to copper in the tailings. Tailings also contain various heavy metals, such as iron, lead, zinc and copper. Lastly, tailings have a texture that is fine-grained, like flour or powder.

Tailings are formed during the second step of getting copper. Generally speaking, there are three steps in obtaining and purifying copper. First is the 'mining' step. This step involves getting the ore out from underground. Ore is rock with enough metal in it to make it worth mining. Explosives blast the rock and electric shovels bring the ore to the surface. This step results in two products: 1) copper-rich ore; and 2) waste rock or overburden (non-valuable earthen material).

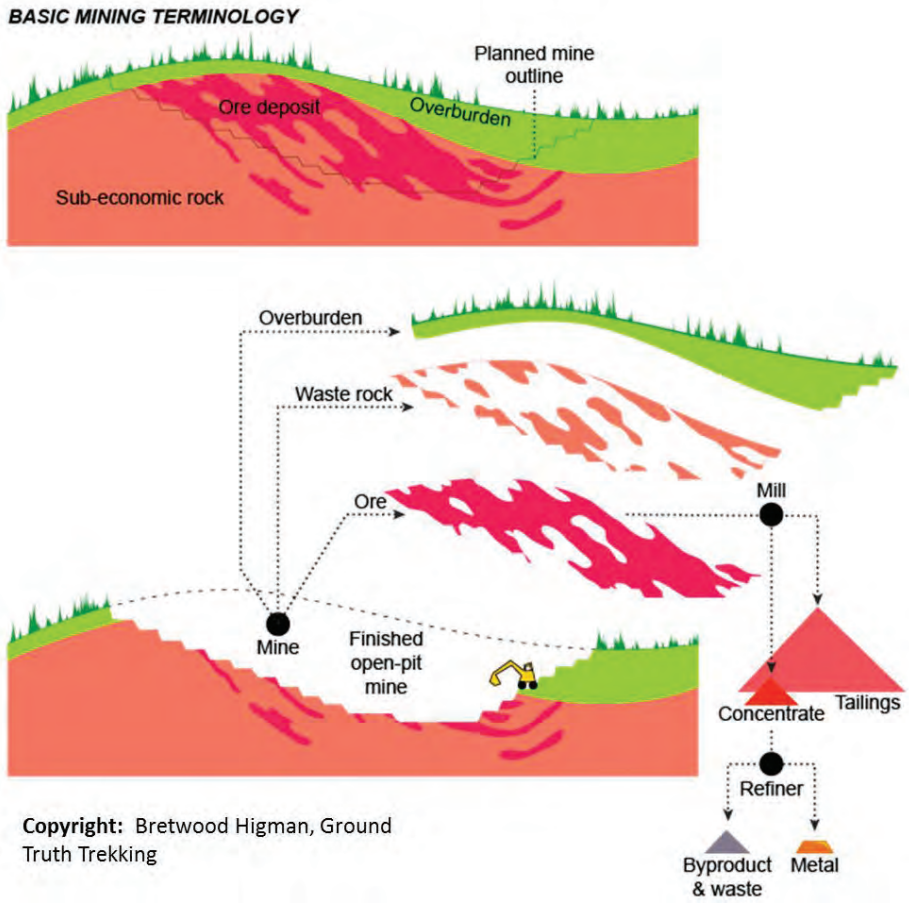
The second step is called 'milling and concentrating' or 'mineral processing.' This step involves separating the copper from the ore. The ore is crushed in several stages until it is a fine powder. Water and chemicals are also added to the crushed ore, resulting in chemical reactions that free the copper. The material is then separated and dried. This second step results in two products: 1) copper concentrate; and 2) tailings (also called slickens by local ranchers). So tailings are the fine-grained wastes that remain after most of the copper has been extracted from crushed ore. This waste was called 'tailings' because the ore goes into the 'head' of the concentrator and waste material came out of the 'tail' end of the concentrating process.

The third step is the 'smelting' process. The copper concentrate from the second step is exposed to intense heat, and more chemicals are added. This process separates the copper from the other elements contained in the concentrate. This step results in three products: 1) copper (about 90% pure); 2) air pollution (containing sulfuric acid and arsenic); and 3) slag (consisting mostly of iron and silica). In general, the volume of slag waste from copper smelting is small compared to the volumes of overburden and tailings waste.

Why are tailings so bad for the environment?

Tailings are bad for the environment because they release acids and metals into the environment. When tailings enter creeks, rivers, lakes and other bodies of water during rain and snow melt, they cause big problems. First of all, tailings lower the pH of the water by releasing acids. Acids cause the proteins that are in the cell's membrane to change shape and unfold, causing "holes" in a cell. These holes make it impossible for cells to do their jobs. So acids make it difficult for living organisms to absorb nutrients, balance salts, repair damages, and so on. Acidic waters result in deformities of aquatic insects and other macroinvertebrates. They can also affect a fish's ability to take in oxygen by causing mucus to form on the gills. Acids also interrupt the formation of eggs of many species resulting in brittle or weak eggs. In summary, acids in our waters can result in decreased reproduction, decreased growth, disease, or death of aquatic animals. Tailings on land cause similar problems for vegetation and land animals.

Another problem that tailings cause in water bodies is the introduction of high loads of toxic metals. Under normal circumstances these toxic metals are usually bound and unavailable for organisms to absorb them into their bodies. However, under acidic conditions, metals become dissolved in water making them more easily absorbed by aquatic life. Toxic metals disrupt normal biological functions of vital organs, leading to illness and death.



How did the tailings get into Silver Bow Creek?

Tailings got into the waters and on the land of the Upper Clark Fork River Watershed because of historical mining practices and a natural disaster. Historically, mining companies had used Silver Bow Creek to wash tailings piles downstream.

This method was practiced until regulations were put in place that required proper handling of tailings. The Flood of 1908 (a natural disaster) spread tailings throughout the Upper Clark Fork Watershed's floodplains and wetlands. In some areas tailings deposits were as thick as 25 feet!

How long does it take to clean a watershed?

Our Superfund status guarantees that our Upper Clark Fork Watershed must be remediated and restored. The cleaning of our watershed began in the 1980's on the Butte Hill. Since then many areas in and around Butte, and at the Milltown Dam site have been cleaned and vegetation planted. The work on the Clark Fork River upstream from Milltown near Warm Springs Ponds started this year. At this point, the work is expected to continue for a couple of decades into the 2030's. The clean-up is working; the fact that Silver Bow Creek is now included in Montana's fishing regulations after being considered a dead creek is testament to the many successes of our restoration. While it seems to take a long time, once the tailings are removed, Mother Nature rebounds quickly.

Dr. John Ray

Voices of the Watershed

Dr. John Ray

The goal of this feature series is to include perspectives from multiple viewpoints and from various stakeholders. ***As always, the Cfwep.Org program remains neutral and informational in our position regarding issues related to the restoration. The opinions and perspectives presented by the interviewees are reflective of that person and not necessarily those of Cfwep.Org or its partners.*** *Our goal is to create an active and informed citizenry who are able to make decisions based upon scientific fact. We believe that sharing multiple viewpoints regarding the restoration process is a means to achieving this goal. We hope you enjoy the series!*

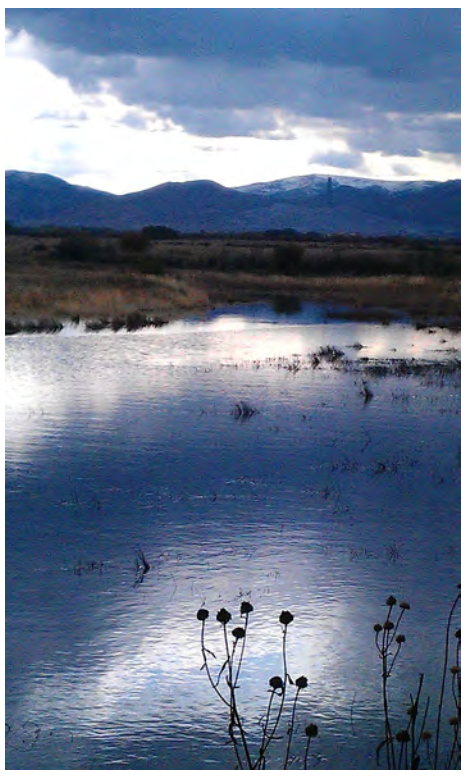
For the past 20 years, I've worked with Superfund issues and been a part of the conversation about Superfund in Butte. I have been a member of the Citizens Technical Environmental Committee (CTEC) and was elected President of the CTEC board in May 2012. I have also served on the boards of the Clark Fork Coalition and the Montana Environmental Information Center, two state-wide environmental advocacy groups. I have been part of the Butte Restoration Alliance's Environmental Committee and was appointed by the Environmental Protection Agency (EPA) to the Citizens' Advisory Group who provided input to EPA regarding the Butte Priority Soils plan. One may ask, "Why be involved?" or "What is my interest in these issues?"

Butte's Superfund cleanup is a matter of public health and safety, as well as a vital issue in terms of local economic development. As citizens, we have a right to a clean and healthy natural environment. Citizens cannot leave cleanup decisions solely to government. Millions of dollars have been spent on the cleanup, and citizens have a right to know what has been accomplished. Citizens have a duty to hold government accountable for the quality of our Superfund cleanup.

One reason I became interested in the Superfund issues within Butte because of my interest in Environmental Justice. As defined by the EPA, Environmental Justice is:

"the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. It will be achieved when everyone enjoys the same degree of protection from environmental and health hazards and equal access to the decision-making process to have a healthy environment in which to live, learn, and work."

In Butte, the citizens most affected by historic mining practices and Superfund cleanup are indeed those who are also the least advantaged. In particular, the Butte Priority Soils area (Uptown Butte) has a disparately high percentage of low-income citizens. These citizens deserve a voice in the cleanup of their homes, and should be represented in policy meetings and discussions about their neighborhoods. My efforts have been focused toward ensuring that there is an active, engaged, and informed citizenry within Butte. In addition to my many appointments and efforts through formalized boards, I have also provided training for the EPA on citizen involvement and environmental justice.



While progress has been made in Butte, I believe that we still have many problems to tackle and that keeping our citizenry informed of these issues is critical. We need to continue dialogue and study about additional issues of concern in Butte. For example, most of the remedies in place for Butte include capping waste in place. Caps can be susceptible to failure by means of: bio-irrigation; advection; desiccation; erosion; weathering; bio-intrusion; and stabilization problems. Caps also have significant construction, repair and maintenance difficulties. Why is it that caps are the most common solution offered to Butte residents?

Another area of concern to me is the mitigation of the Parrot tailings, which are a potential threat to Butte's ground water and Silver Bow Creek. A number of local scientists believe that current groundwater data clearly shows that the decision to leave the Parrot tailings in place was based on faulty information. In my opinion, the Parrot tailings should have been removed as part of the Butte Priority Soils Record of Decision.

I believe that clean up problems also exist in terms of the lack of justification for the EPA's lead and arsenic action levels; potential problems when lime-treated Berkeley Pit water is discharged into Silver Bow Creek; the discharge of dioxin from the Montana Pole Plant ; and the quality of the EPA's sponsored health study.

Citizen involvement in discussing Superfund issues and their proposed remedies is critical. In fact, EPA is mandated to promote full and meaningful citizen involvement in Superfund decision-making, hence, the EPA's sponsorship of the Citizen's Technical Education Committee and various public meetings. In my opinion, a state of inertia has swept over EPA in that it seems this agency refuses to critically evaluate its approach to cleanup in light of citizen concerns and emerging scientific evidence. Reviews of EPA's performance, such as Five-Year Reviews, are conducted by the EPA. When you have an agency evaluating itself, what confidence can the public have in the validity and integrity of the process?

I encourage citizens to become more involved, to learn more about the Butte clean-up, to ask deeper questions about the studies being conducted on your behalf, to reach out to your policy-makers, and to engage in public discourse about these issues. We need to challenge the current thinking and demand that higher quality studies are being conducted.

Editor's Note: Dr. Ray refers to the Metro Storm Drain, which was part of the historic Silver Bow Creek as "Silver Bow Creek". Local citizens have filed a lawsuit to re-name the storm drain Silver Bow Creek.

Cfwep.Org

Teacher Feature: Tim Ryan - EthnoTech

On a great Montana day we visited with Tim Ryan, an educator of primitive and cultural tools. It is through a better understanding of where we came from, that helps us create the future. Tim was gracious enough to give us an interview at Flathead Lake.

Cfwep.Org: *You are an informal educator and a business owner. What is EthnoTech and who are your partners?*

Tim: EthnoTech is a Cultural Resource Management firm with Heritage Education Services. My partners are Dave Schwab and Don Sam. Dave, Don and I worked together for the Confederated Salish and Kootenai Tribes Historic Preservation Office for over 10 years. We were involved with many job duties centered around archaeological survey of the landscape for the preservation and management of cultural resources.

Cultural Resources are archaeological sites, traditional use sites, burial sites, tipi rings, trails, traditional plants communities, oral histories of a place, historic cabins and structures, and places involved with prominent people that are connected to local tribes. Cultural resources are mapped with GPS and GIS technologies. To identify a cultural resource, we research historic archives and literature, and interview tribal and non-tribal elders and other knowledgeable people of a place. Excavation test pits of a site are performed to assess the amount of buried cultural materials (artifacts). Sometimes excavation of a site is necessary in order to salvage the buried cultural materials before destruction of those items from unavoidable undertakings like that of road building, dams and reservoirs building, mining, pipelines, and power lines construction.

The activities we perform are to protect significant historical items and properties that may be important for humanity to learn from the past and contribute to the historical record for the future.

Dave is our archaeologist for the Cultural Resource Management or Section 106 compliance of the National Historic Preservation Act. Dave essentially taught the science of Archaeology to Don and me.

Don is our business manager and recently has been contracted to help the tribal administration and governmental processes with his native tribe in British Columbia, Canada. Don and I have extensive mapping skills with GPS and GIS equipment and computers.

Dave and I had the opportunity to map three sections of the Lewis and Clark route through Montana. The GPS data that we generated by mapping the trails has contributed to the maps now used to show the Lewis and Clark route.

I am EthnoTech's Heritage Education Specialist. I travel around the Northwest teaching about the local tribes and historic activities of the past. This educational outreach was inspired by our archaeological studies, elder interviews and teachings.

Cfwep.Org: *Besides EthnoTech, tell us about your other experiences providing education.*

Tim: While I was at the Tribal Historic Preservation Office, we started to implement educational presentations to our elders and council. I fulfilled that role for the Preservation Office. The work that we developed in recording the elders and mapping cultural resources was presented at major archaeology and anthropology conferences around the United States, and I was the one to present our papers. After getting somewhat versed in public speaking, I was inspired to share the knowledge that I had gathered through the years with the tribes and the general public. I left the Tribal Preservation Office to teach traditional skills and knowledge to our tribal membership to ensure that this knowledge is retained and not lost. As an elder told me, being Indian is also to know your land, how it works, and your place in that land.

I worked with the schools on and off the reservation for two years when I was invited to teach at the Salish Kootenai College, which lasted for four years. For the last nine years I have been teaching in the general public schools, colleges and universities, civic organizations, museums, public events, Forest Service, and for the BLM.

Cfwep.Org: *After doing this for the last nine years, what do think of the process now?*

Tim: A fair amount of my work with the public schools is supported by the Indian Education For All programs administered by the State of Montana. That work exposed me to a lot of teachers, and they started to invite me into the classroom for other educational subjects besides American Indian culture. Many science teachers are now having me teach and illustrate the indigenous sciences and perspective on our environment. The cultural landscape can be defined by an environment manipulated by a group of people and the archaeological evidence found within it, which has been part of the ecosystem for thousands of years. Understanding the environment around us also requires knowing how peoples have used it in the past. My American Indian teachings have evolved into more of environmental awareness teachings.

Cfwep.Org:*: How do students react to your teachings?*

Tim: I think that I bring to the student a more tangible consciousness of American Indian culture and the complex, intimate connection to the environment around us. Hopefully, this can be realized and internalized with the student. I hope they can relate their own ancestral heritage and dependence on intact ecosystems. I think that they are fascinated by the many items of material culture that makes life possible that can be supplied by this environment. Usually they tell me that they want to make some of the items I have as teaching tools.

Cfwep.Org: *Would you elaborate on the "River Honoring Events?" You story said it started with the Flathead River and logging.*

Tim: In the 1970's, the Flathead River that runs through the Flathead Reservation was proposed to be logged for the large old growth ponderosa trees along the riverbanks. These trees afforded the shade and cover for the many long-held family camps. The trees also have cultural scars from ancestors harvesting the cambium for food. It was the elders that spoke out about the importance of those old growth trees. Because of the oral histories and stories of traditional use that we were able to gather, the trees were spared. Also, proposed and designated dam sites on the river generated a lot of protest by the tribal membership. Following these events, the idea of a River Honoring was born.

Germaine White, who provides educational outreach to the tribe for the Natural Resources Department, hosts the annual Flathead River Honoring event. Students from the area, both tribal members and non-members, attend over 20 stations or tipis that have speakers presenting on the importance of the river to the tribes, culture, wildlife, fisheries, and ecosystem management. I have had a station for the last 12 years. The event also honors individuals that have done extensive work and advocacy for the river. I was honored in 2009.

Cfwep.Org: *You've recently worked with the Butte Archives and Butte High School earlier this year; can you tell us about your experience?*

I was very impressed with the professionalism of the Butte Archives staff and their recognition of the Salish and Pend d'Orielle people who lived and traveled in the Butte area. Ellen Crain did a wonderful job with the Salish exhibit and collaborating with the Butte High School students and teachers. I really enjoyed myself with the Butte High School's teacher Chris Fisk and his history students. They treated me with the utmost respect for my knowledge and skills. Chris can really get those kids engaged, which makes my work more enjoyable. I would like to see more teachers have the opportunity to apply experiential learning, which was a more traditional way of learning for all our ancestors.

5th Annual Southwest Montana Kids Fly Fishing and Conservation Camp

By Chris Doyle

The first week of August 2013 marked Cfwep's 5th Annual Fly Fishing and Conservation Camp. The camp was a huge success this year as we had the highest number of participants in the camp's five year history. Participants were from southwest Montana including Butte, Anaconda, Whitehall, and Dillon.

The camp was three days and two nights as well as a classroom day before the trip. The students on the camp were introduced to a variety of skills and knowledge including: basic and intermediate fly fishing techniques, basic fly tying; stream and stillwater fishing tactics; fish ecology and identification; insect identification, riparian ecology and function; stream restoration and conservation; mining history; current mining practices that protect the environment; current restoration and remediation of the Upper Clark Fork

Watershed; Warm Springs Ponds Treatment Facility operations; Washoe fish hatchery operations and current westlope cutthroat trout status in Montana; stream access issues; how to correctly read and follow Montana's fishing regulations; and sportsmen etiquette and ethics. The camp included many regional and local experts with backgrounds in the sport of fly fishing and science.

The camp began with a class day on August 5th and included a trip to the Big Hole River. While at the river, the students learned about aquatic insects, how to identify them and resemble them in their fly tying techniques. The afternoon was filled with learning how to assemble fly rods, different casting techniques, and tying flies. The students tied three different flies: the wooly bugger, a damsel fly larvae, and a renegade.

Students hit the field on the morning of August 7th. We started off with an excellent educational tour of the history of mining, including current and past restoration and remediation efforts on the Butte Hill and throughout the Upper Clark Fork Watershed. Students learned about the key differences between yesterday's and today's mining practices. We concluded the morning tour with a talk by Tim Reilly of Pioneer Technical. He discussed the current restoration and clean up of Silver Bow Creek in Durant Canyon. After the presentation, the kids tied on their flies and tried their luck fishing on Silver Bow Creek. Although not many fish were caught on Silver Bow Creek, it was an awesome experience for the kids. It was an opportunity for them to fish this creek in its first few years after being restored and witness the rebirth of a native trout stream to southwest Montana. This is only the third year that Silver Bow Creek has been listed in the Montana Fishing Regulations.

Next it was off to the camp headquarters at Camp Watanopa on Georgetown Lake. The evening was spent fishing on Georgetown Lake and the kids got their first lesson in stillwater fly fishing. On the morning of August 8th, we took the kids fishing on Rock Creek near Phillipsburg, MT. This blue ribbon trout stream offers some of the best fly fishing in the world. The kids had a great time fishing on Rock Creek and nearly all of them caught fish. They were able to catch Westslope cutthroat trout, brown trout, and mountain whitefish. The evening of the 8th was a choice left up to the individual camper on where they wanted to fish. Some of them chose to go back to Rock Creek, some picked to fish Georgetown Lake, and yet others wanted to try their luck fishing Flint Creek.

The morning of the 9th was spent fishing on Warm Springs Creek near the outfall of the Warm Springs Ponds Water Treatment Complex. After the morning fishing was concluded, the kids participated in an excellent tour of the current operations of the Warm Springs Ponds Water Treatment Facility. There they learned how the water from Silver Bow Creek is brought into the facility and cleaned. Then it was off to another excellent tour at the Washoe Fish Hatchery in Anaconda, MT. The kids learned about how the westlope cutthroat trout are raised in the hatchery, and how they are distributed throughout the state of Montana as well as other states. The camp concluded with a pizza party sponsored by the Red Zone in Butte, where we reminisced on the week's fishing adventures and shared fishing tales.

This camp is a great opportunity for young individuals in southwest Montana who have an interest in fly fishing. The 6th Annual Kids Fly Fishing and Conservation Camp will be in the summer of 2014. Look for posters and announcements starting in May 2014 in Butte, Anaconda, and Deer Lodge or look us up on **www.cfwep.org**.

We would like to thank Montana Resources and the Dennis and Phyllis Washington Foundation for their generous donation to the fly fishing and conservation camp. There are also many other sponsors and supporters of our camp who we would like to thank. Special thanks to: Mountain West Holding Company, the RedZone and Bill Robinson, Big Sky Optical, Montana International Diagnostic Radiology Specialist PLLC, Anaconda Disposal, Anaconda Veterinary Clinic, Yeoman Insurance, Carroll Living Trust, Debra Bedar Physical Therapy, Wal-Mart, Butte Produce and Biff Dewolf, Patagonia, Dillon YMCA, Camp Fire Ponderosa Council, Warm Springs Ponds, Washoe Fish Hatchery, Matt Wilhelm, Joe Kambic, Dave Haagengruber, Tara Feaster, Maureen Downey, Tom Mocilac, Brandon McLean, Lacey Dobyns, Jack Walker, Glen Brackett, Norman Bohrnsen, Fran Johnson's Sports Shop, Bob Ward and Sons, The Stone Fly Shop, Anaconda Ace Hardware, Steve Connole, Ray Brandl, Capps Taxidermy, and Tim Reilly.

There are a number of amazing environmental education groups at work across the state of Montana. On the following pages, we've highlighted a few of those agencies who are leading the way. Cfwep.Org and Montana Tech will host the Montana Environmental Education Association conference March 20-21, 2014. If you are interested in presenting at or attending the MEEA conference, please contact us at aalvarado@mtech.edu or visit www.montanaeea.org.

Water and Environmental Technologies (WET)

Water and Environmental Technologies (WET) is an environmental consulting and engineering firm located in Butte, Anaconda, and Great Falls. WET provides professional environmental services to address water and environmental-related problems for its clients. While most would not consider WET to be a traditional source of environmental education, the engineers and scientists at WET routinely offer volunteer services to local teachers. WET personnel aim to engage students in questions about their watersheds and illustrate various engineering solutions to local environmental problems. For example, the WET engineers have been involved with Cfwep.Org for many years helping to deliver both the Restoration Education programming funded by the Natural Resource Damage Program and the Stormwater Education programming funded by Butte Silver-Bow. In addition, WET provides training for Butte Silver-Bow personnel and other contractors regarding best management practices (BMP's) for stormwater management. We believe that through our outreach and volunteer efforts, local students will benefit from our direct experiences and unique engineering perspective about environmental issues.

Watershed Education Network (WEN)

By Kitty Galloway

The Watershed Education Network (WEN) is a Missoula based nonprofit organization that began as an all volunteer effort, and since 1996 has fostered knowledge, appreciation and awareness of watershed health through science and outreach. WEN believes education builds the inherent connection between rivers and the people who live near them. Through our programs, we inspire preK-12 students and teachers to learn about and become stewards for our regional watersheds.

The School Stream Monitoring Program (SSMP) is the cornerstone of WEN's work with youth. Each fall and spring, WEN leads approximately 2,500 students from 39 local schools to 27 stream sites across western Montana. On these field trips, students rotate through three stations where they collect aquatic macroinvertebrates, measure chemical parameters, and collect physical data. By measuring these parameters, students become aware of stream health and are able to generate analysis of the data they collect. They are field scientists investigating the health of their local river! WEN also leads a weekend Stream Team, where we engage community volunteers to collect advanced data on select stream sites.

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water@montanawatershed.org

Montana Environmen

Blackfoot Challenge

By Sara Schmidt

The Blackfoot Challenge is a nonprofit watershed-based organization that coordinates collaborative approaches to conserve and enhance the natural resources and rural way of life in the Blackfoot Watershed. Recognizing that community awareness, participation and involvement are central to the Challenge's mission, the Education Committee formed early on. Programs are designed to reach all ages through place-based education. A variety of adult-focused programs are offered throughout the year, ranging from Community Gardening and Farm-to-Table Cooking Classes to Watershed Geology Tours and Bear-Aware Presentations. Programs reaching youth are designed around the resource education needs of teachers and students, and develop from recommendations provided by the Teachers Steering Committee. Some of the Challenge's hallmark programs include Adopt-A-Species, Trumpeter Swan Release Days, and Youth Field Days. To find out more about these place-based education programs, please visit www.blackfootchallenge.org.

Berkeley Pit Public Education Committee

Local residents make up half of this volunteer group, with other members drawn from entities directly involved with the Pit Project. The Committee's work is staffed by Butte-Silver Bow County and is funded by Atlantic Richfield Co. (also known as BP-ARCO) and Montana Resources, as part of their responsibilities under the EPA Record of Decision for the Berkeley Pit site.

CITIZEN MEMBERS:

Brian Park (Chair)
Bobbi Stauffer
Joe Griffin
Dave Isakson
Jim Jonas
Helen Joyce
Carol Link
Josh Peck
Debbie Smith

OTHER MEMBERS:

Cord Harris (BP-ARCO)
Marci Sheehan (BP-ARCO)
Julia Crain (BSB)
Jon Sesso (BSB)
John Sorich (BSB)
Arlene Alvarado (CFWEP)
Rayelynn Connole (CFWEP)
Frank Ponikvar (CFWEP)
Colleen Elliott (CTEC)
Nikia Greene (EPA)
Sara Sparks (EPA)
Justin Ringsak (Consultant)
Ted Duaime (MBMG)
Nick Tucci (MBMG)
Daryl Reed (MTDEQ)
Tad Dale (Montana Resources)

tal Education Groups

FLATHEAD CORE
COMMUNITY OF RESOURCE EDUCATORS

Flathead Community of Resource Educators (CORE) was formed in 1992 as an affiliation of environmental educators and natural resource professionals. Serving as a network of individuals and organizations, we work together to increase awareness and understanding about the natural, historical and cultural resources of Northwest Montana.

Our group has produced several successful projects through the years including: a county-wide stream monitoring program called Project Freeflow, involving up to 20 schools; the development and distribution of a newcomers package, "Keeping Montana the Last Best Place"; and the creation of a Teacher's Guide to Outdoor Education Sites and natural resource speakers list. We have also helped plan and sponsor a wildlife issues forum; developed suggested approaches for presenting information on bull trout; helped match area high school students with resource professionals for work on local projects; and offered a forum for educators to showcase their environmental education efforts during a local science symposium.

Flathead Watershed Sourcebook: A Guide to an Extraordinary Place is our most recent project. The Sourcebook, along with the website, serves as a primer to the Flathead Watershed. Viewed from a bioregional perspective, these projects discuss the many people and systems that make up the Flathead Watershed — one of the most biologically intact ecosystems in North America. The Flathead Watershed Sourcebook weds science and art, nature and human-nature into an appealing and informative resource for citizens and educators. Long-time residents, new community members and visitors will find details of the geography, cultures, natural history and economics of the Flathead Watershed. Curriculum is under development.

Contact Info: Flathead CORE
www.flatheadcore.org
info@flatheadcore.org

MT WILD

Montana Fish, Wildlife & Parks education center, MT WILD, is in its third year of providing education programs for 4th-12th grade students from across the state, with a total of over 5,000 kids being served in 2013. MT WILD's mission is to provide an engaging and inspiring place for people to learn about Montana's fish and wildlife, and become inspired to enjoy, value and conserve those natural resources. MT WILD occupies a refurbished historic building that overlooks scenic, 60-acre Spring Meadow Lake State Park in Helena, MT. The education center houses an exhibit hall with displays, an auditorium, and a wet lab. MT WILD also has a fishing dock and archer range. Teachers get to choose from a variety of conservation programs that focus on STEM. MT WILD also has grant money available for outlying school districts to help reimburse for transportation and lodging. For more information visit http://fwp.mt.gov/education/montanaWild/ or email Laurie Evarts at levarts@mt.gov or call 444-9945.

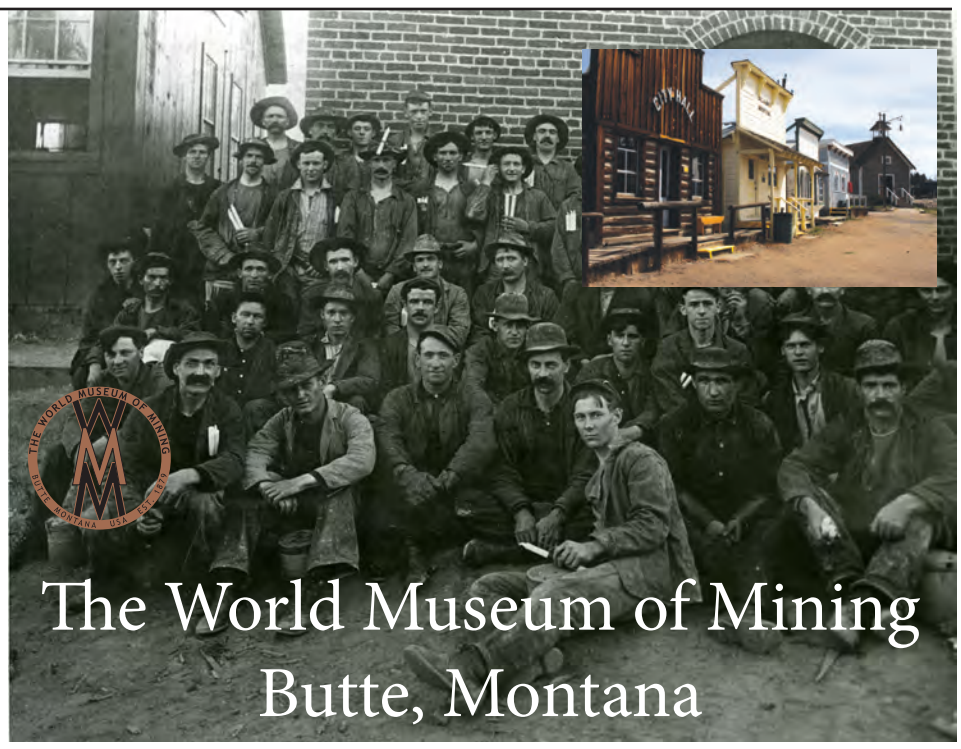
Clark Fork Coalition

By Ellie Rial

The Clark Fork Coalition (CFC) provides educational opportunities for adults and youth throughout the watershed. We work with many partners to deliver a package of experiential learning opportunities, which give young people the know-how to participate in the Clark Fork's extraordinary revival and the inspiration to protect these restoration investments into the future.

Our Creeks in the Classroom initiative includes classroom presentations and service learning projects. Hands on the Ranch is a classroom and field-based restoration curriculum for high school students in the Upper Clark Fork. Students learn about river ecology concepts including how to assess stream health and the principles of repairing local waterways. For 6th graders, we offer our Kids River Expo, which includes two classroom visits and a full day exploratory field trip. All of these are part of our Rivers Stewards of Tomorrow program.

The Coalition also offers watershed education opportunities for adults. Each month CFC hosts a Walk & Talk, featuring a new topic related to current events in our watershed. This event brings the community together by featuring expert guest speakers in watershed science. We also offer continuing education credits for real estate professionals through our Living Near Water courses. These courses are open to the public, are free of charge, and teach participants about the science, regulations, and "how to" of living on property near streams, wetlands, lakes or reservoirs.



The World Museum of Mining Butte, Montana

The World Museum of Mining was founded in 1963 when the close of Butte's mining heyday was less than two decades away. In the end, Butte experienced a century of hard rock mining and earned the reputation of being home to one of the world's most productive copper mines of all time.

Jennifer duToit - WMM

The museum exists to preserve the enduring history of Butte and the legacy of its rich mining and cultural heritage.

The World Museum of Mining is one of the few museums in the world located on an actual mine yard – the Orphan Girl Mine. With fifty exhibit buildings, countless artifacts, and over sixty primary exhibits in the mine yard, visitors can spend a couple of hours to an entire day lost in the unfolding story.

By walking the streets of Hell Roarin' Gulch and venturing to the depths of the Orphan Girl Mine, you can almost see the miners blackened faces and hear their exhausted sighs at the conclusion of the workday.

The World Museum of Mining is located at 155 Museum Way in historic Uptown Butte and open to the public from April to the end of October. More information is available by calling 406.723.7211 or emailing info@miningmuseum.org.

The Montana Waterfowl Foundation(MWF)

The Montana Waterfowl Foundation (MWF) is a non-profit educational organization dedicated to the conservation of native waterfowl and their habitats. MWF's primary purpose is to educate the public about the need to secure protected rest and nesting areas for native waterfowl. Our primary activities include educational programs for students, and working with governmental agencies and local businesses in waterfowl preservation efforts. MWF provides an area safe from mammalian predators for wild birds, maintains a captive flock of some species for educational purposes, and is actively involved in propagation of Trumpeter Swans used in the reintroduction efforts on the Flathead Indian Reservation and Blackfoot Valley. Recently, we've completed construction of two breeding pens for Trumpeter Swans to aid in this effort. In the future, we plan to add a Harlequin Duck aviary to accommodate its unique habitat requirements.

At MWF, we strive to provide a resource-rich, diverse facility for environmental education. We encourage educators, students and interested third parties to make use of our facility. Teachers who've used our services see the MWF as a valuable resource for field trips and student education.

Donations are accepted at the foundation.

Blacktail Creek

"Restoring Cutthroat Habitat"

Seth Reedy and Capri Gillam, graduate students at Montana Tech in the Environmental Engineering department, are researching Blacktail Creek

By Capri Gillam

Capri Gillam is an Environmental Engineering Master's student at Montana Tech in Butte. She earned her Bachelor's degree in 2009 from Montana State University in biological sciences, and has worked around the globe doing ecology studies as well as wildlife and ecosystem sustainability. Capri is an avid outdoorsman and enjoys adventures, hiking, fishing, and backcountry camping.

Butte has a long and famous history as a mining town, and has been dubbed "The Richest Hill on Earth." According to the Mining History Association, the earliest discoveries of gold in the area occurred in 1864. Since this time, a matrix of over 10,000 miles of tunnels have been carved under the city. Silver Bow Creek and its tributaries were used for smelting, mining, and waste removal from both the city and industry. Only more recently are the historical impacts of mining being addressed.

In 2008, the Atlantic Richfield Company (ARCO), now known as BP-ARCO, agreed to pay the state of Montana a settlement of $169 million for mining damages along the Clark Fork River. As part of these funds, the Natural Resources Damage Program (NRDP) set aside a budget to "improve fishery and wildlife habitat and related recreational opportunities in the Upper Clark Fork basin."

This past summer, the Montana Tech Environmental Engineering department received funding to complete a riparian assessment along Blacktail Creek. This Clark Fork tributary feeds into Silver Bow Creek and is a part of the larger restoration project funded by the state.

The goal of the project is to develop an assessment of riparian corridor health based on vegetation diversity, fish habitat, and total erosion. A collaborative team that includes the National Resources Damage Program (NRDP) and the Water Resource Council (WRC) is working together to pinpoint source problems along the creek and make recommendations for riparian habitat improvement.

This project is designed to prioritize stream reaches based on a riparian health score, and to propose projects that will best improve the overall health of the creek. Ultimately, by improving stream habitat and riparian health in the upper Clark Fork tributaries, native cutthroat trout can regain access from headwater streams into the Upper Clark Fork where they can repopulate their native waters.