

THE CONFLUENCE

FALL 2021



— SWAN VALLEY —
CONNECTIONS

FROM THE DIRECTOR

Greetings from my homestead in Montana!

Fall is here in the Swan Valley, and it's a wonderful time of the year. Leaves on the birch at our place are turning yellow; huckleberry bushes are a burnt red. The air is crisp and clean, but at times there is the smell of smoke from fires still burning across the western states, and soon there will be smoke from my slash piles in the forest, left behind from our logging project. Everyone is starting to prepare for the coming winter — getting in firewood, thinking about hunting for meat and mushrooms, or canning salsa from garden produce. As I am harvesting my garden, I am grateful for this beautiful landscape and the people who live here.

This fall edition of *The Confluence* is about connecting to people: our community, our supporters, the neighboring communities and organizations, the state and federal agencies, and our tribal partners. We include the kick off for our second annual Wild for Wildlife fundraising campaign, as well as our annual Swan Valley Bear News from US Forest Service biologist Mark Ruby. Since there have been lots of bear sightings in the valley this fall, we want to share recent research findings from our partners and remind everyone about the resources available through Swan Valley Bear Resources.

We had a memorable soirée at the Hungry Bear Bar & Grill at the end of August, and even though it rained, we had a great turnout and still danced and enjoyed the music of Halladay Quist and the Barn Dance Revival Band. It was easy to appreciate the weather, because by that time of year, we are always grateful for rain, especially after a very hot, dry summer. It was wonderful to be together in person, and we thank all of you who joined us in person or participated in our online auction from afar!

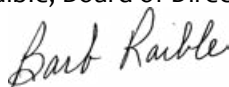
Immediately after the fundraiser, we began our fall semester college field program, Landscape and Livelihood, with students who came to the Swan from as far as Hawaii and Massachusetts. Please read our "Meet Landscape and Livelihood 2021" blog post on our website to learn more about them! We're now in the middle of our program and our L&L class has had some incredible experiences — from hiking to Holland Lookout for map & compass practice to snorkeling the Swan River to learn about bull trout and their habitat to meeting with various partners and individuals, everywhere from Polson to Lincoln to Bigfork. It's inspiring to be involved in experiential education, because it is truly wonderful to witness how all ages are fascinated when learning about the landscape, wildlife, and water, and how these things are all interconnected with each other, as well as with the people living here.

We couldn't do these programs or offer all of the services that we do without our wonderful SVC staff. They are hard-working individuals dedicated to the mission and vision of our organization. If you have the opportunity to connect with them, please take the time to thank them.

This is my last year on the board of directors, and I would like to say how grateful I am for my experience being on SVC's board over the past six years, and for previously being on Swan Ecosystem Center's board. I am grateful for all the other board members past and present, who volunteer their time and expertise on behalf of the organization. Each board member brings something to the table to move the organization forward and support our mission and goals. If you're interested in joining our organization in this capacity, please let Rebecca, staff or any board member know, as we're looking to add new members in the coming year.

Please enjoy!

Barb Raible, Board of Directors Chair



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SwanValleyConnections.org

Cover Image: L&L students cutting willows for a stream restoration project with [Big Blackfoot](#)

[Chapter of Trout Unlimited](#)

Back Cover: Looking into the Bob Marshall

Wilderness from above, on a flight

with [EcoFlight](#)

Photos by Andrea DiNino



WILD FOR WILDLIFE *Match Campaign*

By Rebecca Ramsey
Photo by Zack Clothier

Elk are bugling, ground squirrels have returned to their dens, birds are heading south, bull trout are spawning, and bears are eating everything they can get their paws on. These are just a few of the behavioral changes we notice about our wild neighbors during the autumnal cycle of life in the Swan Valley.

The wildlife of the Swan are an integral part of what makes this place so special. From the iconic predators like wolverine, Canada lynx, and grizzly bears, to their prey, including mice, snowshoe hares, and whitetail deer, to all the birds, amphibians, and fish that grace our skies, wetlands, and streams— we are all interconnected. We are all part of this incredible ecosystem.

The Swan Valley is a rare, wild place, flanked on the east by the Bob Marshall Wilderness Complex, which stretches into Glacier National Park & Waterton National Park in Canada, and on the west by the Mission Mountains Wilderness Complex, including the first tribal Wilderness in the United States. The Swan consists of approximately 93% public land, more than 4,000 wetlands, and 16% surface water. With both continental and maritime weather patterns, incredibly diverse habitats are created across our landscape. This provides a unique, clean, connected, and abundant refuge for animals and humans to coexist.

Our mission at Swan Valley Connections (SVC) is to inspire conservation and expand stewardship. In November, we aim to inspire you to learn about your wildlife neighbors with informational highlights on our social media outlets; inspire you to expand the stewardship of your own lands, and the public lands we all enjoy ownership of; and inspire you to invest in the work we do to support them.

We are excited to launch our second annual autumnal

Wild for Wildlife fundraising campaign in partnership with our friends at The Cinnabar Foundation, who share our commitment to conservation and stewardship, as well as our vision of the Swan Watershed remaining a wild, resilient place, where people are connected to the natural world. Beginning November 1, The Cinnabar Foundation will match all donations dollar for dollar up to \$12,000. Additionally, this year a generous anonymous donor, who shares our passion, is also matching any contribution of \$500 or more up to \$12,000! You have the potential to triple your investment, and your impact.

Our \$36,000 goal is ambitious, and your contribution is truly needed to support critical programs. This year, we've had a terrible huckleberry crop. This, in turn, caused bears to get into trouble early while foraging for food. SVC spearheads Swan Valley Bear Resources, a partnership with Montana Fish, Wildlife & Parks (FWP), United States Forest Service (USFS), and Living with Wildlife Foundation. This mission-based program provides property consultations for landowners, responds to conflicts, educates community members and recreationalists about living with wildlife, keeps campgrounds in the Swan Valley attractant-free, provides bear spray practice, assists with electric fencing attractants, and provides bear-resistant garbage canisters to community members in need. This program alone historically invests more than \$30,000 per year to meet mission commitments of people-bear coexistence.

Another critical program supported by SVC is working with researchers for the past 10 years to monitor the habitat, distribution, and abundance of rare carnivores - specifically Canada lynx and wolverines. Once again, this winter SVC staff will be surveying the entire southwest Crown of the Continent in partnership with the USFS, the Nature Conservancy of Montana, and the Bureau of Land Management. This is

VOLUNTEER OF THE YEAR SHANE LISOWSKI

By Andrea DiNino



In January 2020, a new name appeared on our Wildlife Tracks & Sign roster: Shane Lisowski. He drove down from Bigfork, saw some tracks and a fresh mountain lion cache, and seemed to enjoy himself. I think it's fair to say that most of us were surprised when he showed back up for our volunteer weed pulling day on the Elk Creek Conservation Area (ECCA) in June of that year. And then again at our ECCA native plant fencing day. And yet again at our Swan River cleanup. You see, we get folks from Missoula to Whitefish and even all the way from the east coast for our tracking classes, but for a hot summer day pulling weeds, our group tends to be a bit more localized and made up of familiar faces. But from our experiential education classes to our volunteer days, we began seeing almost as much of Shane as we had been seeing each other during that weird year. And he was always humble, kind, and ready to get to work on whatever was being asked of him.

It feels odd to say, but in part, we have COVID-19 to thank for bringing us Shane Lisowski.

Shane grew up in a small town of Upstate New York called West Leyden, on his grandfather's 400-acre property. He spent his days exploring outside, and would often go hiking, fishing, and camping in the nearby Adirondack Mountains. Shane left his home when he joined the Marine Corps, which took him all around the country. And it didn't take long for him to realize that he wasn't getting as much time outdoors as he expected when he enlisted. Lucky for him, someone handed him a copy of Tom Brown Jr.'s book, *The Tracker*. As Brown

relayed the wildlife tracking, survival skills, and other teachings of Stalking Wolf, an Apache elder, Shane found himself hooked. He also found himself stationed in Baltimore, not far from Tom Brown Jr.'s Tracker School. He soon began taking primitive survival skills courses there and connecting with like-minded naturalists. After relocating for duty in Rome, NY, not far from where he grew up, Shane reconnected with an old friend who he would soon marry – enter Bethany, a key player in our volunteer of the year's journey. Shane was in the Marines for 12 years, and as soon as he got out, in 2012, he and Bethany got married. The two were both busy working back in the Baltimore area, so they didn't have the opportunity to have an official honeymoon... that is, of course, until Bethany kept nudging a few years later, asking that they go somewhere and do something. When she asked, "where should we go?" Shane replied, "I don't know... here," as he pointed to the stock screensaver on his computer screen.

A quick reverse Google search revealed that the submerged multi-colored stones and mountainous horizon were none other than Lake McDonald. It was settled. The couple booked a trip to Bear Creek Ranch outside of Essex, Montana for 2016. After falling in love with Montana on that trip, Bethany and Shane began coming back to the Big Sky state every year. And by 2018, Bethany again posed a question that would shift the direction of their lives:

"Would you want to quit your job and move to Montana?" she asked.

“

Much like what our college field program students note about their experience, Shane values being able to meet real people who are currently working in the fields he's interested in. He appreciates having the opportunity to talk to them, ask them questions, and see firsthand what kind of work is involved in the profession.

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Shane was all in, and after Bethany made a cold call to the hospital in Kalispell, asking if they needed a pulmonologist and being somewhat surprised by the “yes” she received, the Lisowskis and their three dogs were on their way to buying their first home in Montana.

While Bethany began working at the hospital, Shane began focusing more on his naturalist passion and began volunteering with the Glacier Institute, conducting citizen science mountain goat counts in Glacier National Park, and earning his Montana Master Naturalist certification in the park in 2019. When COVID hit, the Glacier Institute was forced to shrink its volunteer pool, and Shane began researching other opportunities to volunteer and continue learning. To maintain a Master Naturalist certification, one must complete 20 hours of volunteer hours and eight hours of continuing education in a calendar year, and all he just wanted to do was log those hours. That's all.

Fast forward to present day, and Shane is currently the leader in the entire state of Montana, with over 263 hours of volunteer service recorded, just for this year. A Google search had led him to find SVC and our wildlife tracking classes, something he didn't realize was offered in the area, and one thing simply began leading to another. He and Bethany loved exploring the park, but the more time they spent in the Swan, the more their love for this area grew too.

“I've found more diverse plant life down there than I've ever encountered in Glacier,” Shane shared as an example.

As Shane continued to volunteer with us, he also enrolled at Oregon State University, studying fisheries and wildlife science. As a remote student, he's been able to continue to get hands-on experience through SVC and elsewhere, in the hopes that it will help him narrow down what field he wants to go into. Most recently, he was hired on as one of our rare carnivore monitoring field techs last winter and was one of our main volunteers for our cutthroat trout stream monitoring efforts this summer.

“How many juniors can say they've tracked wolverines and electroshocked fish?” Shane offered, noting how grateful he was to have had these opportunities, where he felt he had

learned much more than he would have through an online learning format.

Much like what our college field program students note about their experience, Shane values being able to meet real people who are currently working in the fields he's interested in. He appreciates having the opportunity to talk to them, ask them questions, and see firsthand what kind of work is involved in the profession. For example, in exploring the possibility of a future in fisheries, someone pointed out that he had better like, or at least not mind, the smell of fish since he'd likely spend time in some hatcheries. But, while out in the field with USFS fisheries biologist Beth Gardner this summer, Shane asked how much time Beth spends in the hatcheries, to which the answer was essentially no time. So, the possibility remains.

Shane and his wife Bethany will joke around nowadays, saying that Shane's “found his people” in this SVC and greater Swan Valley community, and we have to say that the feeling is mutual – we're grateful that Tom Brown Jr., Bethany, Google, and even COVID all led Shane Lisowski down to the Swan Valley, and we're even more grateful for all that he's brought to our organization and ecosystem.



Above: Shane collecting hair samples from a bait station during our 2020 rare carnivore monitoring project.

Opposite page: “What's this and how old is it?” - two of the many questions Shane had to answer as part of his CyberTracker Specialist certification course, hosted by SVC and led by David Moskowitz.

A 15-MINUTE WALK

By Ben Thompson, RBM Lumber; Foreword by Andrea DiNino

SVC conservation and stewardship associate Mike Mayernik was finishing up a week of teaching our Landscape & Livelihood class about forests & communities, and we were meeting Ben Thompson of RBM Lumber in Columbia Falls. We met Ben early in the morning, at an old logging project he had done up Soup Creek. When we first pulled up behind his old red pickup, a political bumper sticker caused some hushed chatter between the students in the back seat of my car, including “Oh boy, try to keep an open mind.”

We all piled out and walked along the old logging road with Ben, talking about his observational forestry practices, where he and his crew try to take a serious look at the work they’ve done, questioning the outcome and what could have been done better, and admitting to mistakes they may have made. We discussed the impact of learning from the land, the value of leaving enough trees and debris piles for squirrels and other small mammals, and how it’s all connected; we have to compromise and bend and find how we can be more compatible with the land, because as humans, we’re the only beings with this ability to make different choices and do things differently.

Although Ben was there as a resource of knowledge and experience and a teacher, he made his eternal-student mindset known by answering questions from the students with, “well, this is what I think...but what do you think?”

He also talked about the value of working with one’s hands, even though it’s a far slower pace than what the available technology offers. Ben said, “When you do handwork, you can make things better for everything. Because you’re connected to it. You’re either hot or you’re cold, because you don’t have the comfort of being in a cab. You’ve got horse flies all around your head... but the self discipline in me says you can’t stop doing it this way.” And at that, he got emotional and teared up. Some of us did too. You could feel his deep respect and admiration for the natural world.

Ben shared how he’s been meeting with our L&L students since the program started, and how it’s his favorite day of the year. In fact, it’s the only day he’s taken off of work this entire year.

When we got in the car to go up to the mill, I asked the students if he was different than they were expecting, to which they replied a resounding, “Yes, he is so sweet.” After touring the mill with Ben and his brother Roy, the two of them, along with Ben’s wife Joy, provided dinner for us and gifted us each with an RBM hat and handmade frame. At dinner, Ben reflected on past students, explaining how after all these years he’s come to the conclusion that our day together will always be one of the best days of the year. He said something along the lines of - “Usually when I’d first see the group, I used to think eh, they seem like an unremarkable bunch, but by the end of the day I always thought, no, they’re extraordinary...and so now I just know what to expect.” He also offered, “I’ve learned that you don’t really know someone until you’ve talked to them for a bit.” And I could just see the shift in the students as they nodded their heads, realizing this was reflective of the day they just had.





Opposite page: Ben Thompson at his lumber mill, [RBM Lumber](#) in Columbia Falls
 Above: Ben walking through his old logging project with our 2021 Landscape and Livelihood class, looking at areas of regeneration and discussing the outcome of the project.

It's a cool September morning on the east side of Striker Ridge in northwest Montana. The sun is just starting to peek over the higher mountains on the east side of the valley. The forest is waking up, but there are still very few sounds. Soon I hear a woodpecker trying to find breakfast in a nearby snag, and a squirrel chattering at me, telling me to be careful - I'm trespassing into his domain. (*I really don't know what he's saying, I just like acting like I do.*) So, I assure him that I'm friend, not foe. I then see a recently used bed under a dense cedar tree, where a deer spent the night - a warmer choice because it is more comfortable due to the thick mat of needles from years of accumulation.

Soon it's lighter and the woods come to life with birds and all the creatures that live there, from mice to bears. I can't see them all, but I can see the signs that they leave behind. This is a young old-growth forest, about 180 years old. It has an occasional older larch that survived the fire which wiped the forest out that many years ago. Around me there are big spruce, subalpine fir, cedar, and larch, with a few big Douglas fir mixed in. The fir beetles have killed most of the fir, and that's the reason there are so few.

I'm currently slowly walking through this awe-inspiring forest, planning what to remove and how to remove it. Most people say I'm a logger, but I say I'm a gardener with an extremely important job. I imagine that every animal, every life in the woods is trusting me to watch out for their future wellbeing. Just thinking about this responsibility brings tears to my eyes. It's a privilege and very humbling to be in the presence of such a living masterpiece.

The most important part of my day is this 15-minute walk through the woods, not only to make a plan of what to do in each area, but also to clear my head. In order to make good, fair decisions, I have to be free of deadline stress and all the

different opinions about logging. Some want to take it all; some don't want to cut a tree. I have to leave it all behind and forget about profit and jobs and everything else other than being the caretaker of this beautiful place. Then, I become a part of the forest instead of an outsider. Instead of feeling stress and like I'm in a hurry, trying to make as much money as I can so I can go home, I feel inspired, happy, and connected to the forest I'm in.

When I get to this point, I'm ready to decide which tree goes and which tree stays. Some will go because they are mature or too thick and need more room to grow. Or maybe they have a disease like mistletoe. Some will stay for many of the same reasons. Some areas will be disturbed to create a seed bed to help new seedlings start, and other areas will be left alone, so that whatever happens there can keep happening. Usually, we are working in a contract situation, so we also need to operate within what the contract allows. The goal is to help this forest thrive and provide the needs of everything that lives there.

We then haul the logs to our mill and process the logs with care and respect and make them into various wood products that will hopefully be appreciated for years to come.

It would take pages and pages to write down all the observations and thoughts that go into deciding what to do. I have been told that everyone cannot take the time to do what we do. But this is not my job to me, it's my life. People are the only living thing that has the ability to consider all other living things when making decisions. Most animals think of their own wellbeing and possibly their immediate family - if they don't eat them. I see this ability that we are created with as not only a responsibility, but a privilege. We are a part of something way bigger than we are, and I don't want to waste it working to just make a living.



SWAN VALLEY BEAR NEWS

FALL WEIGHT GAIN FROM A GRIZZLY PERSPECTIVE

By Mark Ruby, US Forest Service Biologist

Puzzling through biological connections is a practice that I think makes the discipline so interesting. Following one piece of thread helps gain a glimpse of how the entire tapestry is woven together. Contemplating the formative relationship between bears and human foods can prove to be a long thread that leads to a bear's diet, energy budget, and availability of an easy meal. Grizzly bears are strongly motivated by their stomachs. The amount of food a bear gets translates directly to that bear's success in the wild, not just for foraging energy and body growth during the spring, summer, and fall, but also for reproduction. The fall represents a critical time for bears as their metabolism kicks into overdrive to create a never-ending hunger, driving them to continually consume calories to pack on the pounds before they head to the den for the winter.

An enigmatic species, bears are large omnivorous mammals whose diets can be dominated by berries, insects, grasses or protein. In northwest Montana, the amount of protein in a bear's diet depends both on where in the ecosystem that bear makes its living as well as the time of year. Looking at isotopes collected from both bear blood and hair, collected from captured bears across the ecosystem, researchers broke down these samples to evaluate what dominated bear diets by season. Bear blood samples give insight to what the bear has eaten recently (1-2 weeks from digestion before collection), while hair describes what has been assimilated from a diet over longer periods of time (2-3 months). Provided that grizzlies in our ecosystem rely on a diverse array of natural foods, one can understand why both blood and hair samples are necessary for a picture of what bears eat. Enough samples of blood and hair from individual grizzly bears spread across the ecosystem can generate patterns for what foods are most important to a grizzly bear by season and lend insight to whether or not the population is finding enough food. The research has been revealing in identifying that grizzly bears on the Rocky Mountain Front consume far more protein relative to those grizzly bears sampled from the Swan Valley. Rocky Mountain Front grizzly bear diets were between 56%-85% protein, depending on the sex of the bear and the season, compared to Swan Valley grizzly bears, who averaged 55% protein. Both areas were much higher in protein content compared to the northern Swan Mountain Front on the eastern edge of the Flathead Valley, where bears averaged less than 20% dietary protein.

Dietary protein is particularly interesting considering that bears must put on 100-300 pounds of fat reserves to live off of during the winter denning months. A sizable portion of this weight gain occurs in the late summer and fall. A grizzly captured twice over the course of a six-week period in Rumble Creek had gained 6 inches in measured circumference around the chest. This measurement loosely translates to gaining 100 pounds in a month and a half. After all, denning bears metabolize their body fats while in their den, losing very little bone density or muscle

mass despite their sedentary winter routine. For females, levels of fat reserves will metabolically determine the number of cubs that can be born in the den and nursed over the next two years. Researchers at Washington State University have helped identify that a female needs to carry 20% of her body weight in fat into the den to have a chance at giving birth to cubs that winter.

Given that weight gain is so vital — not just for survival, but also for success and reproduction — a grizzly bear's dietary composition is important to understand. Tasked with significant energy needs, the animal has evolved to use many different plant, insect, and animal food sources to increase the opportunities of finding food on the landscape. The resultant protein balance is like an investment portfolio of differing foods a bear can use to best facilitate both body maintenance and energy storage. A mixed diet of protein and vegetation can give bears high calorie diets with the appropriate partitioning of protein for maintenance of lean muscle mass and carbohydrates for fat buildup.

The energy expenditure vs. energy intake budget of a successful grizzly bear must be far into the black. And this must



Photo by Steven Gnam

not be an easy undertaking for a bear. A grizzly will range across large tracts of habitat that hold both mountains and valleys. Digging for mountaintop caches of whitebark pine seeds and army cutworm moths, or thinning berries from huckleberry bushes is not light work. Meeting the needs of a 300-800 lb. body, while storing enough energy for the winter, based on a diet of bite-sized morsels seems a difficult task. Research has indicated grizzly bears are able to gain three to six pounds a day in the height of their foraging season. To maintain body size, this means a grizzly may eat up to 90 lbs. of food a day, depending on the size, age, and metabolism of the bear.

Finding protein to eat on the landscape can be a tricky business. Gut piles may be scattered about during hunting season, but for growing bears seeking out seasonally available protein is not something easily passed up. Dominant protein sources for grizzlies in northwest Montana include whitebark pine seeds, army cutworm moths, and animal matter. While grizzly bears are predators, they are mostly scavengers, picking up easy meals from already dead animals, excavating caches of whitebark pine seeds or rolling alpine rocks to eat moths. .

Just how much can grizzlies eat? Army cutworm moths found in high elevation mountain talus slopes can be a major bear food. Bears dig into the rocks to find caches of moths. As many as 20 bears have been observed on McDonald Peak in the Mission Mountains digging for these moths. Studies of the same foraging strategy in Glacier National Park estimate grizzlies eat around 40,000 moths a day at the rate of 1,700 moths an hour. The researchers observed the bears digging around 200 dig

sites a day on the mountainside, foraging for the moth species. For perspective, moths are estimated to have an energy value of 7 kilocalories(kcals) per gram, which is similar to mule deer venison, estimated at 7.32 kcals per gram. Glacier Park research estimates that bears were consuming 20,000 kcals per day. That is the kcal equivalent of 33 Big Macs from McDonalds. At this feeding rate, a grizzly bear can consume half of its annual energy budget in just 30 days of feeding. Yet relatively little is known about the sites grizzly bears forage for moths in the alpine talus and we lack full scale knowledge of the availability of these sites across the mountains of the Northern Continental Divide Ecosystem. A graduate student is currently working to shed light into this puzzle in Glacier National Park.

Dense food sources, such as berries and certain forbs, are very beneficial to bears. They provide high energy yield to very low investment. Patches of cow parsnip, clover, horsetail, or fruit-bearing shrubs such as chokecherry or huckleberry are high value bear foods. By counting seeds found in bear scat, researchers have estimated that grizzlies can consume 100,000 huckleberries a day. Given its need for calories, it is easy to see that any aggregated food resource is extremely desirable for a hungry bear to skip the travel needs and plop down and gorge itself in a small area.

Examining patterns of human-bear conflict over eight years in the Yellowstone Ecosystem, years with high incidence of bears damaging property and obtaining human-based foods were inversely correlated with low abundance of naturally-occurring bear foods. The story is no different in our Montana valleys, where both people and bears live. Bears can learn to use anthropogenic foods as easy substitutes to naturally-occurring foods. This is an alluring, but potentially deadly, recipe for hungry bears that are driven to find easy-to-access anthropogenic foods around homes, campgrounds, restaurants, or other businesses. Garbage, chickens, livestock grain, fruit trees, bird seed, and other attractants require relatively little energy expended by a bear, but can contain high rewards in terms of calories gained. The animal can learn to identify these things as an easy meal and return again and again to not just the original human attractant, but similar attractants on other properties. From a bear's perspective, an easy meal makes sense. It is a leg up in the weight gaining race before the winter months. However, this anthropogenic food use is a slippery slope. A bear whose fear is overridden by food reward can become increasingly bold in foraging for human attractants, becoming a safety risk to people and property. Here it becomes very important to prevent a bear from receiving any human-based foods by storing them, leading to the adage: "a fed bear is a dead bear." This is why it's all the more reason to prevent potential conflicts in the first place by securing human based foods from them appropriately when living or recreating in bear country.

Understanding bear foods and diets are important for grizzly bear management and conservation. Agencies weave both research and management together to ensure adequate habitat management for grizzly bears in the Northern Continental Divide Ecosystem. Additionally, managers can use body conditions, like fat levels, to let the bears themselves indicate the state of bear foods in the ecosystem. This top-down information helps managers ensure that the habitat is supporting a healthy population here in Northwest Montana.



If you need help or advice on different ways to secure various bear attractants around your home, professionals from [Swan Valley Bear Resources](#) are available for free property consultations. If you need a bear-resistant garbage can, please contact Swan Valley Connections. They're free (with a suggested donation)! Swan Valley Connections offers time and expertise to help build electric fence to contain chickens, small livestock, orchards, apiaries, or other attractants. Our time is free to you.

It's important to report any bear conflicts immediately, so that bear managers can help provide a solution, either by

helping contain attractants, or relocating the bear before it becomes conditioned to human food sources. Help your neighbors by reporting conflicts. Often times a bear may only visit your property once and get into your garbage or eat a couple of chickens, and it's important to realize that the next night it might be getting into your neighbors' garbage or chickens, and so on until the bear is conditioned to human food attractants and ultimately the bear must be removed from the wild. Of course, the ideal scenario is that everyone contains all their bear attractants before a conflict occurs!

If you need to report a bear receiving an unnatural food reward around your home, or a bear that has caused property damage, please report immediately to:

For Grizzly Bears: Montana Fish, Wildlife & Parks Conflict Specialist **Tim Manley, 406-250-1265**

For Black Bears: Montana, Fish, Wildlife & Parks Conflict Specialist **Erik Wenum, 406-250-0062**

IMPROVING WATER QUALITY AND WATERSHED HEALTH THROUGH PARTNERSHIPS

By Rebecca Ramsey



Completed Whitetail Creek Slump rehabilitation project, where coir mat fabric has been applied. The area has been stabilized & will be planted with willows, and seeded with native grasses.

Photo by L&L '21 student Sara Soroka

Autumn signals the end of the year, as well as the end of a productive and educational project. Swan Valley Connections (SVC) is wrapping up five years of work to improve water quality in the Swan River and four of its tributaries — Goat, Squeezer, Woodward, and Whitetail Creeks — and ultimately Swan Lake. The multifaceted project reduces nonpoint-source pollutants into these public waterways. Our state agency partners at the Department of Natural Resources & Conservation (DNRC) and the Montana Department of Environmental Quality (DEQ) were instrumental in implementing and funding the work and keeping the Swan Watershed cold, clean, and connected.

According to the United States Environmental Protection Agency (EPA), the term “nonpoint source” is defined to mean any source of water pollution that does not meet the legal definition of “point source” in section 502(14) of the Clean Water Act. The definition of “point source” means any discernible, confined, and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged. This term does not include agricultural storm water discharges and return flows from irrigated agriculture.

Nonpoint-source (NPS) pollution generally results from land runoff, precipitation, atmospheric deposition, drainage, seepage, or hydrologic modification. NPS, unlike pollution from industrial and sewage treatment plants, comes from many diffuse sources. NPS pollution is caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up and carries away natural and human-made pollutants, finally depositing them into lakes, rivers, wetlands, coastal waters, and ground waters.

The “Water Quality Protection Plan and Total Maximum Daily Loads (TMDLs) for the Swan Lake Watershed” were

developed and accepted by the EPA in 2004. A TMDL is the calculation of the maximum amount of a pollutant allowed to enter a waterbody so that the waterbody will meet and continue to meet water quality standards for that particular pollutant, according to the EPA. A TMDL determines a pollutant reduction target and allocates load reductions necessary to the source(s) of the pollutant. The causes of impairment for Jim and Goat Creeks were identified as fine sediment. One way fine sediment negatively impacts our native fish, including bull and cutthroat trout, is by covering the gravel beds they use to spawn in, choking out their eggs. For Swan Lake, particulate organic carbon was identified as potentially causing decreased dissolved oxygen in the bottom waters of the lake. A lack of dissolved oxygen can also lead to conditions that do not support native fish survival.

Since the completion of TMDLs, Swan Valley Connections (and formerly our parent organization, Swan Ecosystem Center), has coordinated and led efforts in the watershed to implement restoration projects that have led to load reductions called for by the Water Quality Protection Plan, which identified Jim and Goat Creeks as impaired, and Swan Lake as threatened. For Jim and Goat Creek, three source area types were identified: road erosion, riparian and streambank protection, and “other timber harvest impacts.”

In the years since, Jim Creek has been removed from the list of impaired waterbodies. In 2016 SVC applied for a grant from the DEQ 319 program and went to work with DNRC in 2017 to address the impairments in and around Goat Creek to address road and hill slope erosion. The project included implementation of road Best Management Practices (BMPs) in Goat and Squeezer Creek drainages and South Woodward Creek, and stabilizing a slope mass-wasting failure in the Whitetail Creek drainage.

In addition to the sediment reduction benefits, this project has also been used as an educational tool for a number of conservation professionals, and especially for college students in SVC’s Landscape & Livelihood college courses since 2017. The students have observed firsthand the planning and implementation of collaborative conservation on the ground. They have been able to meet with the conservation professionals and land managers involved, and witness the project through many phases of implementation, concluding with a tour for our 2021 class during their Watershed Dynamics course on October 13th, alongside the Water Quality Technical



Above: Landscape and Livelihood 2019 meeting with Clay Stephenson from Montana DNRC to look at the Goat Creek bridge abutment removal, done to help reduce sediment in the creek.

Advisory Group (TAG) that helped to develop the project.

The Goat Creek restoration included replacing bridge abutments to allow for better flow and less bank erosion. The Squeezer Creek and Upper South Woodward projects included upgrading undersized culverts and correcting the slope of the road design to redirect road sediment runoff away from the stream. The Whitetail Creek rehabilitation project included stabilizing a hillside and former roadway with native vegetation plantings to prevent further erosion into the drainage.

Adding to the restoration activities and educational opportunities of this important project is a commitment to monitoring the results of each phase of the project by SVC, DNRC, and additional partners, including the Swan Lakers and the US Forest Service - Flathead National Forest. Monitoring helps to estimate the sediment load reductions achieved because of the on-the-ground project implementations, as well as the water quality of Swan Lake downstream. Photo monitoring is another technique implemented to assess the physical changes happening at each of the sites.

We are fortunate in the Swan Watershed to not only be the wettest watershed in the state of Montana, but also one of the cleanest. The DEQ will be re-evaluating Goat Creek soon to determine if it is eligible to be removed from the list of impaired streams.

CONTINUING THE LEGACY: FOREST MANAGEMENT ON THE SWAN LEGACY FOREST

By Mike Mayernik

The smell of freshly cut limbs and trees wafts through the air as I walk through the project area. The low hum of the harvester, a large and impressive piece of logging equipment, works right over the hill. This is the first of what I, and Swan Valley Connections (SVC), hope to be many forest stewardship and restoration projects on the Swan Legacy Forest, that can be used as demonstration sites to engage students and other landowners by displaying examples of exemplary stewardship and property management.

Swan Legacy Forest (SLF) is the name SVC settled on for the 160-acre parcel of land now owned by SVC in the Swan Valley. Located on the east side of the highway across from the Condon Community Library, the SLF was the last ¼ section of the Montana Legacy Project. This effort, led by The Trust for Public Lands and The Nature Conservancy (TNC), conserved 310,000 acres of Plum Creek Timber Company lands from development and transferred them into federal, state, and private land ownership, starting in the late 2000s. TNC gifted this 160-acre property to SVC in part to utilize it for continuing TNC's conservation goals and values of the Swan Valley, and to provide a space for educational opportunities about stewardship and conservation. To ensure that the piece of land is conserved into the future, there is a conservation easement on the property, held by the Montana Land Reliance. SVC has also owned the western half of the Elk Creek Conservation Area (640 acres) since 2006, which we co-manage in partnership with the Confederated Salish and Kootenai Tribes.

Pre-European settlement, much of the Swan Valley bottom, including where the SLF property is located, was dominated by widely spaced, large and often very old, thick-barked and fire-resilient ponderosa pines, western larch, and Douglas firs. This forest had a very open understory and not a lot of young and small trees. This was due both to frequent, low-severity understory wildfires caused by Native Americans, intentionally burning around campsites and travel routes, and to natural, lightning-caused wildfires. These large trees, which survived much of the wildfire activity, were the first to be logged and removed in the early days of settlement. This, along with the suppression of regular, low-intensity wildfires, has caused some changes in our valley bottom forests. Now, though there are still many ponderosa pine, larch, and Douglas fir, there are also many fire-susceptible and thin-barked species, including spruce, subalpine fir, grand fir, and lodgepole pine. The removal of fire disturbances has also led to many trees growing much closer together, unlike the previously widely spaced forests. As part of an effort to redirect the forest back towards the trajectory of having older, larger, and fire-tolerant species, SVC started its first forest stewardship project on the SLF this fall.

In September, SVC contracted Condon-based Euchre Mountain Logging, owned by Nathan Richardson, to do a 16-



acre forest thinning treatment on the SLF property. Our vision for the thinning was a variable-density thinning, with 10-20 foot average crown spacing remaining after treatment. Overall, pre-treatment, the stand of trees was growing well, but it was getting to the point of being too crowded and had more trees than the site could sustain and grow well. The competition for water, nutrients, and sunlight was evident in the narrowing of tree rings in recent years, a sign of diminishing growing conditions in trees. To promote sustainable forestry practices, it was time for a thinning. The treatment would thin understory trees to help the larger trees continue to grow. It would retain large legacy trees, such as ponderosa pine, western larch, and Douglas fir, while targeting the harvesting of some of the more fire-susceptible spruce, lodgepole pine, subalpine fir, and grand fir. We also wanted to retain small, untreated, thick forested patches for wildlife hiding cover, when possible, as well as leave

or create some snags (standing dead trees) for wildlife habitat. For instance, we made sure to leave any spruce that showed extensive woodpecker use.

Reducing the wildfire risk to the stand, and in turn to the neighborhood and community, was one of the main goals of the project. Pre-treatment, the likelihood of a sustained, intense crown fire burning through the forest on the wrong, dry summer day was high. The variable-density style of thinning we used meant that some trees were thinned so that their crowns were spaced apart, and some trees were left with their crowns touching. This mosaic still allows for wildlife cover, while giving the canopy gaps to reduce the intensity and spread of wildfire.

The equipment utilized by Nathan Richardson and Euchre Mountain Logging is impressive. The first piece used is the harvester, also known as an “in woods processor.” Local Condon resident Wyatt Trull was the operator of the harvester for this project. I wrote a description of trees to harvest and talked with Wyatt about our vision for the thinning. He took that information and, utilizing his own knowledge and experience, he started the project. The harvester has a big arm and cutting head that extends out in front of the machine. It essentially has a super-sized chainsaw that cuts the tree from the stump and lays it down in a controlled manner. Then, the harvester passes the log through the cutting head on rollers, delimbing the tree and measuring it to a specific length, at which time the chainsaw comes down and cuts the tree to that length. It then passes the next length of the tree through and repeats. Meanwhile, Wyatt plans where the delimbed log will go and where he'll pile the slash so that his machine can drive on top of it. This “slash mat,” along with the six very large and wide tires of the harvester, help minimize soil compaction and disturbance. For such a large machine, it was impressive to watch Wyatt gracefully run the harvester and selectively thin the stand. Since the thinned trees were processed “in woods,” most of the slash, limbs, and nutrients will remain on site and slowly break down, helping to build healthy soil; only some of the slash will be piled and burned if there are large concentrations. Wyatt did an excellent job in working with our goals and vision and was very efficient. He did a great job on the project and SVC is thrilled with how the treatment turned out.

After the harvester was mostly finished with the thinning, the forwarder, operated by Condon resident Boomer Alexander, worked its way through the project. The forwarder

has a large grapple arm that is used to pick up the logs and set them on a rack to be transported. The forwarder hauls the logs from the cutting site to the log landing site and sorts the logs into several different stacks, depending on where the logs will go. The forwarder grapple was also used to pile some of the extensive piles of slash that will be burned once they're dry and when conditions are right during the open burning season. The process for the harvester and forwarder took about two weeks from start to finish. The final step is the log truck transporting



the logs to Pyramid Mountain Lumber in Seeley for sawlogs or Willis Enterprises in Bonner for pulp. These deliveries are done by Euchre Mountain's truck driver and Condon resident Joe Anderson. There will be about 11-12 loads of logs going to the mills and supporting the local economy, and the selective thinning leaves behind a healthy, well-stocked forest, offering opportunities for sustainable timber harvest into the future.

Another goal of the project was to create a small access road into the property. Previously, the only access was through a gated US Forest Service road. Because of this, SVC would have to ask permission to open the gate every time we wanted to drive into our property. Permission was of course always granted, but this new road will give SVC the ability to easily access the property as needed for future forest restoration projects, as well as education and forest stewardship programs with the public.

SVC plans to utilize the SLF property, the current forest management project, and future projects as educational opportunities for private landowners, students, and other interested individuals who would like to learn about active forest management practices, forest ecology, and how forests change over time. The first group to join us on the property recently

was our current college field program class - Landscape & Livelihood. These seven students from across the U.S. visited the treatment area, and were able to make observations about its current condition, contemplate what it historically looked like and how fire and climate have affected it, and compare it to other forest stands on the property. With all of this information in mind, the class will be creating a proposed forest management plan for another portion of the property as one of their assignments this semester.

If you're interested in learning more about active forest management, we're planning to offer volunteer opportunities and various programs on conservation and stewardship down the road on the Swan Legacy Forest property; we hope to see you out there soon.



*With only a few weeks left of our Landscape and Livelihood college field program, we just wanted to say thank you to this class for such an incredible semester! We can't wait to see the paths you each take!
May many of them be dirt.*



WILD FOR WILDLIFE (CONTINUED)

approximately an \$80,000 annual program. Quality carnivore monitoring provides valuable information for wildlife and ecosystem management and policy decisions, based on accurate historical metrics and facts. These are two of SVC's primary wildlife programs your contributions support each year.

Additionally, SVC invests resources in the form of staff time, education, and expertise, maintenance efforts, and specialized equipment into wildlife monitoring throughout the Swan Valley. With our various agency partners, we participate in projects ranging from native fish monitoring to wetland and forest restoration (a service we also offer to local landowners). We offer citizen science opportunities to monitor rare carnivores and native fish. And we host a wide range of educational opportunities for people of all ages, from our experiential college field programs to our wildlife tracks & sign courses to our free monthly presentations, featuring opportunities to learn about wildlife, their habitats, and more.

You can view past presentations and trail camera videos at <http://www.swanvalleyconnections.org/videos>.

From November 1 – 30, join us in getting Wild for Wildlife and invest to double or triple your donation to SVC programs. Your dollars positively impact this special place that we, and a rich abundance of wildlife, call home.



Photo by Steven Gnam

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NOVEMBER 1-30

Wild for Wildlife
Fundraising Campaign

NOVEMBER 3

How Wildfire Shapes Elk Nutrition
Zoom Presentation with Lauren Snobl

DECEMBER 1

Virtual Alumni Research Summit
Zoom Presentation with *Wildlife in the West* and *Landscape and Livelihood* alumni

DECEMBER 4

Wildlife Tracks & Sign (**FULL**)

DECEMBER 11

Wildlife Tracks & Sign

JANUARY 5

Monthly Zoom Presentation (TBD)

JANUARY 22

Wildlife Tracks & Sign

FEBRUARY 2

Monthly Zoom Presentation (TBD)

FEBRUARY 5

Wildlife Tracks & Sign

FEBRUARY 19-20

Weekend Warrior Master Naturalist Begins

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