

Healthy Acres

A RESOURCE TO PROMOTE HEALTHY LANDS AND HEALTHY COMMUNITIES

Winter 2021



Missoula County Creates Montana's First Aquatic Invasive Species District

This summer, Missoula County Weed District staff worked with our many watershed partners and the Missoula County Commission to create Montana's first and only county-wide Aquatic Invasive Species (AIS) District. The purpose of the AIS District is two-fold: 1) to assist in coordinating efforts to prevent, survey, monitor and manage aquatic invasive species in Missoula County and 2) educate the people living and recreating in Missoula County on the identification and impacts of aquatic invasive species to our economy and environment. We are excited by the

opportunity to take this first step in growing into a more comprehensive invasive species program as well as providing a model for other counties to follow in Montana that are concerned about the negative impact aquatic invasive species pose to their communities.

Missoula County has been significantly involved in the state's AIS program for quite some time. In 2016 we began partnering with the Clearwater Resource Council and the Department of Natural Resources and Conservation to assist with AIS monitoring in the Clearwater, Swan and Blackfoot watersheds.

In 2017, we took on an even

In This Issue



The Tightly Whitey Challenge

It's not about fashionable underwear, or soiling your undies; it's about soil health. page 6



Missoula Youth Participate in Unique 4-H Projects

There are more than 200 options available to 4-H youth in Montana, ranging from weed science to robotics, cake decorating to market hogs, with everything from babysitting to scrapbooking and quilting in between. page 9

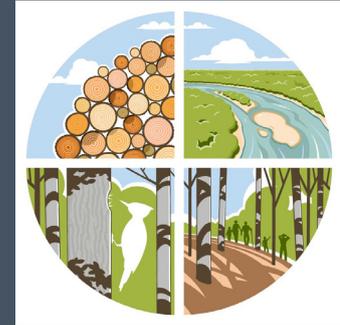
Aquatic Invasive Species District *continued*



larger role by partnering with Fish, Wildlife and Parks to staff and manage the Clearwater Watercraft Inspection Station. This is one of the busiest stations in the state, inspecting over 35,000 watercraft during the 2020 season, or 26% of the total inspections conducted across the state at 34 stations. 2020 was also the start of a large project to survey, map and list fragrant water-lily as an invasive in Missoula County. Our work has also included the establishment of treatment trials and the beginning of innovative research into the origin and impact of this species on the ecology of the lakes and streams it has invaded.

Following on the model of promoting collaboration and partnerships adopted by the weed district, the new AIS dis-

trict will lean heavily on continuing to build partnerships with the strong local, state and Tribal programs already working in and around Missoula County. We are also excited to have members from many of those groups represented on the newly created board. The board will begin 2021 with the development of strategic and operation plans for the district, as well as a list of priority species of concern to focus our education efforts. If you are interested in getting involved with district meetings, or just learning more, you can visit: <https://www.missoulacounty.us/community/boards-com-missions>.



2021 Forest Stewardship Workshop

When: Scheduled as three all-day workshops held on site and in person. Additional field work days and site visit with a certified forest stewardship advisor scheduled outside of workshop days. 2021 workshop locations: Frenchtown - May 6-7 & 14, Bozeman - June 3-4 & 11, Kalispell - July 15-16 & 23, Helena - August 5-6 & 13, Billings - September 9-10 & 17

Fee: \$110. Per ownership. Includes all course materials. Contact for information and registration: <http://forestry.msuextension.org/calendar.html>
Cindy Peterson: Phone 406-243-4706, email: cindy.peterson@umontana.edu
Website: <https://forestry.msuextension.org/forest-stewardship/index.html>

Description:

Learn about your forest, what species do you have, how are they growing, how old are your trees, what animals share your forest? Establish your own objectives for your forest, inventory your forest, and write a plan to help you reach your goals and may qualify your forest land for cost share opportunities. Receive a personalized site visit with a natural resource professional.

Meet Patrick Mangan - Missoula County Extension Horticulture Agent

Hello Missoula County, my name is Patrick Mangan. I am serving as the new horticultural programming extension agent in the Missoula Extension office.

I grew up in Missoula, and my family still has a small farm on Big Flat, west of Missoula, where we raise cattle, sheep, goats, and have a fruit orchard. I still live just down the road from the farm and help my dad out every day with the animals and management of the farm. I served as the Ravalli County Extension Agent in agriculture, horticulture, and natural resources for four years, so have many tools in my toolbox for land management as I make the move down river to Missoula County.

Professionally, I work a lot with local food systems, berry growers, orchardists, and vineyards in specialty crops. I am also passionate about pollinator health and habitat, forestry, soil health, and open land conservation. I like helping and supporting small farms and agricultural endeavors that keep people working on the land. I also spend a lot of time thinking about fighting weeds and encouraging healthy desirable plant communities.

Programmatically, I will be offering classes, seminars and workshops for Master Gardeners, those wanting to learn more about gardening and the fundamentals of home backyard management, high value horticultural crops, and



small farm planning and management. I do site visits and field inspections to help investigate issues when needed, and use research-based information as tools to help landowners reach goals and values they have.

I am looking forward to getting to know the Missoula County community, and am always happy to chat on the phone, in person, or over email.

Landowner Grant Program Coming to an End

In the 19 years this grant program has been around, Missoula County Weed District has been able to assist many individual landowners/land managers in getting a leg up on their noxious weed infestations and moving their vegetation towards a more desirable plant community. This program was created in 2000 as a means for staff to work with landowners in Missoula County that didn't fit the traditional model for the funding that already existed. In the years since the Missoula County Landowner Grant program has been in place, Missoula County Weed District has awarded 1083 grants to manage noxious weeds on private lands in Missoula County.

But as things tend to do, this program has seen waning interest in the last few years. The staff and board of the Missoula County Weed District have been assessing the program, where we have been and where we are going, as well as, whether or not this program was meeting our goals as a district. After much deliberation we de-

termined to pause the individual grant program indefinitely and turn our focus to the development of online education resources and organizing collaborative weed management groups as a means to assist the landowners/land manager of Missoula County.

Missoula County will still be assisting landowners wishing to seek cost share grants for collaborative noxious weed management through the Noxious Weed Trust Fund and FWP's Wildlife Habitat Improvement Program. We will also be keeping the door open for other collaborative and impactful projects that come our way.

We are excited about the potential education/outreach opportunities this transition represents! If you are interested in being in the loop on our upcoming education programs, join our email list by sending an email to steffany@missoulaeduplace.org

Generations Cooking Together

When people are asked to share a favorite childhood memory, it most likely involves food and/or cooking. by Kelly Moore



When people are asked to share a favorite childhood memory, it most likely involves food and/or cooking. I remember watching my Granny, with a 6-year old's rapt attention, making something called, "fried apricot pies". I could never quite figure out how the crust came to be. It so perfectly contained all that fragrant amber apricot filling. I never saw a rolling pin on the counter, a pie plate, or flour sprinkled on a board. It was long after my Granny passed away that the secret was revealed to me by an older sibling. The "crust" came from a can that magically popped out in biscuit form when tapped on the table. One by one, those canned biscuits were hand pressed into a circle,

filled, and crimped with a fork before being fried in bubbling Crisco. They were something I craved as a child and even after discovering the truth as an adult, that cherished memory could never be tarnished! I would go on to pursue my culinary interests in my education and travels, in running a small catering business, and in my current profession as an educator.

As I reflect on those days, I realize that we were not just cooking together, my Granny and I. We were strengthening our relationship as well. Multi-generational/ Intergenerational programming encourages and allows for participants to explore common interests, to understand and appreciate differences, and to share experiences through regular contact

Meet Kayla Martin - Nutrition Educator



Hi everyone, my name is Kayla Martin. I grew up in Ovando, Montana, right on the Blackfoot river. I moved to Missoula for high school and then later to California for college. I attended Pepperdine University where I majored in Psychology and Social Work and I'm currently earning my Master's in Nutrition from the University of Bridgeport.

I started working for Montana State University Extension in October as a Nutrition Educator with the EFNEP program. I'm really excited about bringing nutrition information to families and children who might not otherwise have the opportunity to learn these things! I'm looking forward to using our new online classes to reach more people in remote areas or who don't have the resources to get to our classes. Having grown up in a rural area, I know how rare it is to be offered the chance to participate in classes like ours. I think in general, people are feeling more isolated than ever and I'm hopeful that our classes can provide a sense of community and connection for our participants.

If I'm not working, I'm almost always with my black lab named Tiny, hiking, skiing, gardening, or finding any excuse to be outside!

Generations Cooking Together *continued*

in a common space.

“At the heart of our social compact is the understanding that our civil society is based on the giving and receiving of resources across the lifespan. We all need, and in turn, are needed at different stages of our lives. Intergenerational work demands that we recognize the inherent strength of each generation and the need we all share to be connected.”

Donna Butts- Generations United, Executive Director-Washington D.C.

Intergenerational programming incorporates the ideas, life experiences, diversity, and creativity of multiple generations in one place. Learning and having fun leads to impactful and often life-changing experiences. In Japan, long time intergenerational programs promoting respect, cooperation, and harmony have helped reduce conflicts of interest, improved mental health among participants, and helped to encourage the cultivation of empathy in children.

Prior to the onset of Covid this past year, a series of three in person classes were held at the Missoula Food Bank and Community Center Learning Kitchen called, “All Hands- On Deck-A Cooking Class for All Generations”. The no-cost class had one requirement-that participants be accompanied by someone older or younger in age. Other important aspects of FCS programming such as wellness, nutrition, meal planning and budgeting, growing, buying, and consuming local foods, were incorporated into each class as well. One Dad who attended with his 7 yr.-old, reported that the classes presented

a great opportunity to share in an educational and fun activity outside of the hectic responsibilities and stress of shared custody. “Making Hand Cookies” began with a conversation about how hands physically grow and age differently, how all hands create things differently, and how those unique differences should be respected and valued. Each participant chose a partner to trace their hand on parchment paper- that would later serve as a cookie cutter shape to cut out, bake, and decorate with colored frosting and candies. Following good handwashing guidelines, assembling appropriate baking and measuring equipment, and practicing safe knife skills is always an important part of any cooking



class, but the conversation that was overheard during the process, was by far the most valuable part of the entire experience: A Great Grandma said, “When I was young we didn’t have measuring cups so we used our cupped hand to measure.” Another young participant replied, “My hand wouldn’t make a very big cookie like yours would!” He then asked, “When do we get to do this again?”

Meet Molly Moran - Nutrition Educator

Originally from Vermont, Molly lives in Missoula with her fiancé and two dogs. She’s very passionate about health and wellness and is excited to share her knowledge with her community, as a Nutrition Educator for the MSU Extension EFNEP Department. This time of year, Molly enjoys skiing, drinking an extra cup of hot coffee, hiking with her dogs, and spending time in her kitchen making big pots of soup!



The Tightly Whitey Challenge

by Patrick Mangan

“You want me to do what?”



“You want me to do what?” the Master Gardener asked incredulously.

“You should steal a pair of your husband’s old tightly whities and bury them in your garden for 4 weeks,” I explained. “Come on, it’s for science!”

“I’ll use a tea towel,” she answered.

“Underwear are more fun,” I smiled. But I gave in, we would learn the same answers with either undergarment or tea towel.

That’s how we began our Tightly Whitey Soil Challenge and our journey to understand soil microbiology. It’s not about fashionable underwear, or soiling your undies; it’s about soil health.

Soils are a complex ecological web of organic and inorganic components. They are an entire ecosystem within themselves, one scientists are just beginning to understand. For typical soils, around half, or 45%, are composed of mineral soil components; gravel, sand, silt, and clay. The other 50% of a healthy soil is pore space, pockets of air between soil particles, and half of that pore space is filled with soil water, stored for later use

by plants.

According to my math, that leaves me with a left-over 5%. It is this small fraction of soil I want to talk about a lot more. This is the soil organic matter. Soil organics are the components of soil that are, or once were alive. It’s composed of dead and decaying plant residues that are slowly integrating into the soil. Soil organics also include an entire community of bacteria, fungi, and invertebrate lifeforms that feed on the plant residues and organic matter, breaking it down and releasing the nutrients bound within back into the

soil system, where plants can take them up and use them to grow vegetative structures and carry out daily metabolic functions.

This 5% of soil, the organic matter can play an outsized role in the health and functioning of the soil ecosystem, and plants have evolved to coexist with this community of soil microbiota. Plants will release substrates from their roots, called exudates, to feed the soil microbiological community and keep them healthy, active, and in close proximity to the roots of plants. The microbes feed on the exudates plants release, and feed on the soil organic matter, releasing the nutrients plants want close to root systems.

It’s a very important and dynamic system, one that supports plant growth and vegetable production in multiple ways.

You can do your own qualitative test on the health and vitality of the soil microbial community in your garden soil when you do the Tightly Whitey soil challenge. This is where the under-

Tighty Whitey Challenge *continued*

wear comes into action. Find yourself a clean pair of 100% cotton undies (it can have an elastic waistband, no worries), and get out there in your garden during the growing season, June and July will be a great time.

You'll want to dig a hole in your soil six to eight inches deep, and wide enough to spread the underwear out horizontally and flat in the bottom of the hole. After you arrange the underwear in the bottom of the hole, fill it back in with soil, no need to compact it or tamp it down, then use a stick, rock, or flagging to mark the location of your buried undergarment treasure.

Treat your garden the way you would normally manage it, with the regular watering regime and any other strategies you use to grow plants. After four weeks, dig up your underwear, and investigate what the soil microbial populations have done to the fabric.

To soil microbes and fungi, your cotton underwear are composed of the same organic substances they feed on day in and day out during the growing season. By burying your tighty whiteys in a shallow grave you gave the soil organisms a new source of carbon-based organic matter to chow down on. Your resulting holey pair of underwear show the amount of organic matter, or in this case cotton, the microbes digested in that month window of time.

If your tighty whities are a tattered, decomposed mess, then it is a good sign that you have a thriving microbial community actively engaged in building your soil. But if your underwear are mostly intact, and look like they have only experienced a hard day out on the rugby pitch, then that can be a sign that the microbial community in your soil could use some attention and feeding.

There are a lot of strategies to feed the soil

microbial community if your tighty whitey test shows they are lacking. Incorporating organic matter into your soils will increase the number and diversity of soil microbes over time. The more we feed microbes, the more there will be, and the more diversity in types we will see. Cutting back on the tillage and turning over the soil can also have a big effect. Tilling the soil infuses oxygen into the rooting zone and can kick microbes into high gear, causing them to mineralize, or eat the available organic matter up quickly, then fade away due to lack of a food supply.

A diversity of plants in our gardens, and the types of roots those plants develop can also have a positive effect on soil microbial health. Different types of microorganisms get different things from different plants, so a diverse host of plants in the soil support a diverse biological community below the soil. We can achieve this diversity through crop rotations, and through planting a diverse mix in close proximity, instead of planting a monoculture clump in our gardens. And just like other organisms, we should feed the microorganisms through the whole growing season. If we have a garden bed or space that we harvest early, then plant a cover crop that will get a living root back into the soil for the rest of the fall and into the start of winter.

So get out there this summer and explore the health of your soil through the Tighty Whitey Soil Challenge. And farmers, don't think this is only something gardeners should be doing. This challenge originated as a soil health conversation in agricultural fields. So, take a pair of your undies out to an agricultural field and bury them in it, see how the soil community is interacting beneath the surface.

Interested in Learning More about the Missoula County Weed District and Extension? Sign-up to receive our quarterly newsletters, pest alerts, upcoming programs, grants, and more. Email Steffany to sign-up @ steffany@missoulaeduplace.org



Meet Eliza Gillilan, Big Sky Watershed Corps Member



Where are you from?
Bozeman, MT

Why were you interested in becoming a Big Sky Watershed Corps member?

This is actually my fourth AmeriCorps term and second serving as a Big Sky Watershed Corps member. I initially became interested in the program as a way to grow professionally and also to learn more about on-the-ground conservation in Montana. My first term was one of my most formative learning experiences to date, and I am excited to continue building upon what I learned in this upcoming term.

Why were you interested in working with the Missoula Weed District?

First and foremost, I am just excited to delve into the world of weeds. I have previous experience with weed control but have a lot to learn in the way of botany and the ecology of weeds and biocontrols. I am also thrilled that the position will allow me to interact with landowners and other community members. In my experience, interacting with stakeholders is the best way to challenge my perspectives and test my knowledge base, which are both important to me as I grow professionally.

What projects are you most excited to work on?

Is it cheating to say that I am excited about everything? I will say that I am particularly excited about learning more about biocontrol methods both in the field and through a more scientific lens. I am also looking forward to participating in the education

programs, which will allow me to apply my previous environmental education skills while engaging the community on weeds and native species.

What do you like most about Missoula so far?

The first thing that I noticed when I moved to Missoula was the abundance of local food in the community. It's been a learning experience tackling my own garden, but I appreciated the longer growing season than I had in Bozeman, as well as the multitude of local resources available. Now that my garden is a wasteland, I have enjoyed exploring the ski areas and backcountry around this part of the state. Lolo Pass has quickly become my favorite Missoula-adjacent place for those times when I need to immerse myself in a magical winter wonderland.

Where do you see yourself in 5 years?

At the moment, I am having trouble visualizing myself in 5 weeks, much less five years. I do hope that I have attended grad school, which would indicate I finally narrowed down my extensive list of interests and am on my way to an accomplished career in conservation. Maybe I will have fulfilled my lifelong wish to adopt a pig to take strolls on country lanes in matching straw hats with, but that is more consistent with my ten-year plan.

What do you enjoy doing for fun?

On the weekends, I am most commonly found in the mountains taking low quality, low angle selfies that will never see the light of day off my phone. I also have an affinity for exploring streams, specifically to flip over rocks on the hunt for the most impressive caddisfly home. Most recently, you will find me trying to master the use of a half-broken sewing machine I just bought.

What's one thing you want to do during your year in Montana?

I feel like I am one of the only Montanans who hasn't gotten to explore Glacier, so backpacking there this summer is at the top of my list.

If you were a color, what would it be?

My intuition says I am a shade of school bus yellow but, according to the quiz I just took on a very questionable site, I am gray.

Missoula Youth Participate in Unique 4-H Projects

by Campbell Barrett

A 4-H Project is the collection of hands-on activities and educational opportunities, focused on a particular topic selected by the youth member based on their interests, and delivered under the supervision and mentorship of an adult 4-H volunteer.

There are more than 200 options available to 4-H youth in Montana, ranging from weed science to robotics, cake decorating to market hogs, with everything from babysitting to scrapbooking and quilting in between.

Despite all these options, some youth decide to go outside the box and pursue other projects, using either 4-H curriculum from other states, or sometimes working with local experts and volunteers to develop their own. Some of the 4-H projects unique to Missoula County are Miniature Horse, Llama, Pack Goat, Geology and most recently, the Cannon Project.

Miniature Horse 4-H Project

Nearly fifteen years ago, 4-H volunteers in Missoula County developed the Miniature Horse Project. They created a curriculum that included Miniature Horsemanship, Obstacle, Driving and Jumping. Just like the titles indicate, Obstacle involves leading the horses through an obstacle course, Driving involves driving a cart with a driver, and Jumping involves leading the horse over a series of jumps. Youth involved in the miniature horse project were often those who either couldn't afford a large horse or didn't have sufficient property or facilities to house one. At its peak, there were more than 30 Missoula 4-H youth enrolled in the miniature horse project.

Cannon 4-H Project

In the past two years, Missoula 4-H shooting sports project volunteers have developed a Cannon curriculum, which was approved by the State 4-H Office as an expansion of the Muzzleloader 4-H Project. It is taught by local adult volunteers who are certified 4-H Muzzleloader instructors. In addition to the history of cannon use from the years 1600 to 1900, members



participate in hands-on learning about the tools, projectile types, and carriage models, and will eventually master the safe loading, firing, cleaning and maintenance of ½ size models of Revolutionary and Civil War era cannons. Several benefits of this type of new 4-H project are that it attracts non-traditional 4-H youth to the program, and it helps in retaining older members.

For more information about 4-H in Missoula County, follow us on Facebook or Instagram: facebook.com/missoula4h or instagram.com/missoula4h.



Upcoming Programs & Opportunities

Small Farms Bootcamp



When: Monday nights, 6:30-8:00 PM, starting March 15 - May 3. (8 classes)

Format: online Web-based broadcasts and discussion

Class fee: \$50. Reference textbook, resource binder, and class materials.

Questions, contact, and registration: Patrick Mangan, Missoula County Extension, 406-258-4205, Patrick.mangan@montana.edu

Description:

A workshop series to help small farmers and agri-business people learn about land management and farm enterprise options. The workshop series is open to land owners and farmers of any size, as well as those who are thinking of starting an ag business someday. Class sessions will include themes about soil health, ag plant communities, weed management, high value crop options, and marketing your potential crops. Content offered in webinar format, with the possibility of some outdoor fieldtrips later in the spring. Market gardeners, orchardists, livestock producers, and those who think principles in small farm sustainable agriculture are beneficial encouraged to participate.

Growing a Vegetable Garden in Western Montana: Beginner Level



When: Wednesday nights, 6:30-8:00 PM, starting March 3rd - April 7th (6 classes)

Format: online web-based presentations and discussions

Class fee: free of charge

Questions, contact, and registration: Patrick Mangan, (406) 258-4205, patrick.mangan@montana.edu

Description:

If you are interested in vegetable gardening but have never tried, or if you've tried and got overwhelmed in the past, this beginning level class series might be for you. We will cover the basics of working with climate and weather, setting up a garden space, understanding basic soil science, seeds and plant starts, and watering and weeding a garden. The online webinar will help you get a backyard vegetable garden started off on the right foot.

Youth in Restoration Program accepting applications



The Youth in Restoration program offers expanded education and job mentoring opportunities to high school students in conservation and resource management. To qualify for the position; students must be 14 years old and have completed their freshman year of high school, be able to independently (bus/parent/bike/walk) get to the office daily by an arranged time, enjoy working outdoors in variable weather and terrain conditions, and have a positive attitude. Some projects require camping overnight, no experience necessary but one must be willing to do so. Applications for the position are available by contacting Steffany @ 258-4211 or steffany@missoulaeduplace.org