

# MONTANA HIGHGROUND



PHOTO: MONTANA HIGHWAY WASHED OUT BY  
YELLOWSTONE RIVER (PHOTO BY: NEWS 4 JAX)

## Rain and Snowmelt Creates Unprecedented Flooding Throughout Montana

During the first week of May 2022, the U.S. Drought Monitor reported over 80% of Montana was suffering severe (D2) or extreme (D3) conditions. Water reserves and reservoir levels were historically low. Hebgen Dam on the Madison River (which starts in Yellowstone Park) was 10 feet below full pool. Reports by the USGS and the NRCS warned subsoil moisture was depleted, snowpack was below average, and drought was imminent. DNRC Fire was preparing for another busy season, ranchers were inventoring grazing options to avoid herd reductions, and DNRC Floodplain was visiting local communities and floodplain administrators (FPA's) with an unconvincing message - "Floods Happen".

The polite, unsaid response was - "Not this year - Not in a drought year."

### **THEN CAME JUNE. THEN CAME RAIN.**

This led to flooding rarely seen across many areas of South Central and Southwest Montana. The combination of 0.8 to over 5 inches of rain and 2 to 5 inches of snow-water equivalent melt from June 10th-13th led to unprecedented flooding in the Absaroka and Beartooth Mountains. The Yellowstone, Stillwater and Clark's Fork of the Yellowstone Rivers swelled and many creeks and streams like Rock Creek (Red Lodge), East Rosebud (Roscoe) and Boulder River (Big Timber) caused catastrophic damage - destroying homes, roads, and bridges, leaving entire communities isolated and with access. Everyone from local communities - commissioners, FPA's, neighbors - to the governor's office, the DNRC, State and local Disaster Emergency Services (DES), FEMA, and out-of-state response teams (from South Carolina, Colorado, and Florida) - scrambled to action to join the flood fight, assist with recovery efforts and reaffirm the messages:

*"Montana is Resilient" and "Open for Business".*

## NEWSLETTER HIGHLIGHTS

DNRC FLOODPLAIN - Assists  
FPA's and their Communities

Montana Drought Update

Flood History Around Montana

Building Resilient Homes - A  
Guide for Withstanding Natural  
Disasters

Emergency Notification and  
Floodplain Permitting

Risk Rating 2.0 and Floodplain  
Regulatory Requirements

Resources and Training

Around the Floodplain

Montana DNRC Contacts



Photo: Flooding by the Yellowstone River in Park County (Photo by: Brent Zundel, DNRC Regional Engineer)

### **DNRC Floodplain Assists Floodplain Administrators and Communities**

June was historic in Montana’s world of floodplain. Many counties, communities, and property owners faced unprecedented flooding. DNRC Floodplain sent personnel to the field for over two weeks to help its NFIP partners and floodplain administrators (FPAs). Five assessment teams with MT-DNRC Floodplain staff, regional engineers, and NFIP state personnel from South Carolina and Colorado, assisted with substantial damage estimates (SDEs).

The teams traveled throughout county and community floodplains in Southwest and South-Central Montana assessing and recording structure damage. The data was rolled into an online program to calculate substantial damage amounts. This information will be given to the local FPA's so they can generate substantial damage letters to the property owners for flood insurance and permitting purposes. Homeowners can appeal the determination and provide verified appraisals, market values or cost estimates if they prefer.

SDE teams and FPAs saw first hand homes that had minimal damage because they were elevated above the base flood, had flood vents, or river banks that were stable with natural vegetation. One lady in Fromberg told the teams how years previous she was required to fill in the basement of her mobile home located in the floodplain. She was thankful that she did this as she only had to dry out her crawlspace instead of a flooded basement.

When a natural disaster strikes - swift and forceful – any work done to prepare a community or administer the floodplain program regulations will pay dividends and keep people and homes safer. Do you understand how the NFIP works or how to read floodplain maps? Do you know the floodplain permitting processes or your FPA duties? If a disaster strikes, do you understand the recovery steps and process? Are you prepared?

## **Services May Be Delayed**

**A MESSAGE FROM DNRC FLOODPLAIN TEAM**

DNRC Floodplain apologizes – your community and needs are important. Our team is responding to the counties and communities with recent flooding needs. We hope to restore full state-wide services to you soon, but recognize that flooding was extensive in southwest, southcentral and northwest Montana. It may be several weeks before we return from being in the field. We will make every effort to make this interruption short. Please email us with any questions or needs and we will respond as our time allows.

**For Immediate Assistance, Call or Email:**

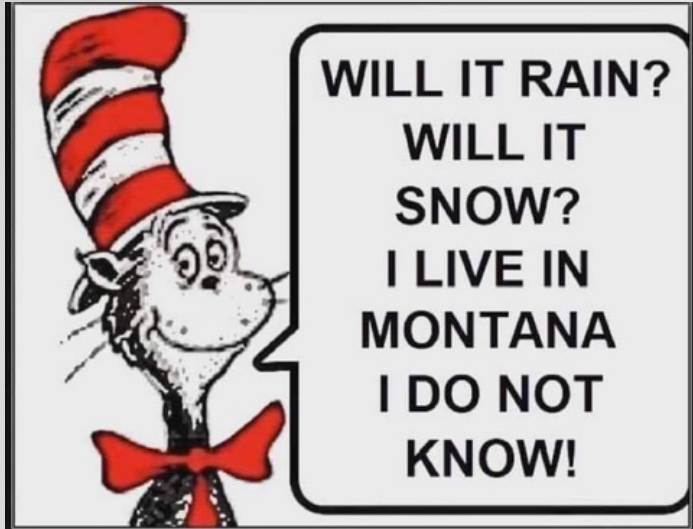
**Lindsay Zell, DNRC Admin**  
**Ph. 406.444.0862**  
**[lindsay.zell@mt.gov](mailto:lindsay.zell@mt.gov)**

She will relay your message.



***Above: Historic flooding by the Yellowstone River affected multiple counties. Photo by: B Zundel***

# What a Difference a Month Makes



## WHAT'S THE OLD SAYING IN MONTANA?

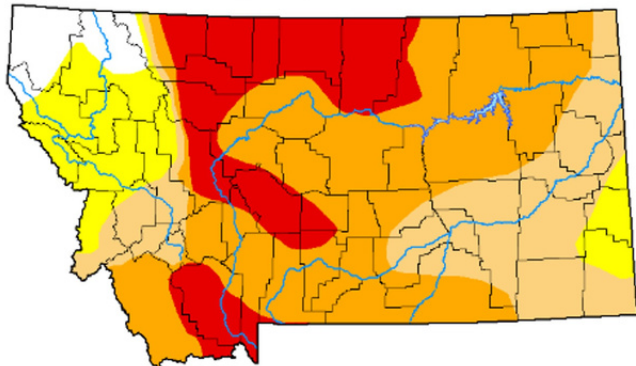
**"Don't like the weather? Wait 10 minutes and the weather will change."**

That saying could not be more true as we compare the drought conditions between May 2022 and June 2022. A good lesson to all of us to never let our guard down and keep being vigilant, mitigating, and being ready for flood events regardless of it's a flash flood, ice jam, rain on snowmelt or breach of a dam.

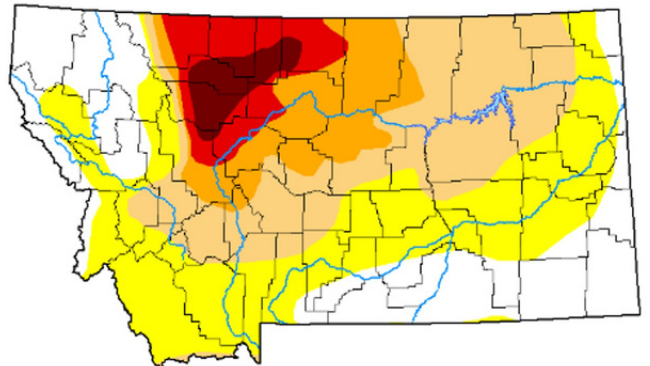
Flood events are devastating to those in its path and it requires massive coordination by multiple agencies —DNRC, Montana DES, FEMA and state and local officials—to fight the disaster, implement recovery, and employ mitigation measures. Each agency plays an important role on both the local, state and national fronts.

## U.S. Drought Monitor Conditions for Montana

May 17, 2022



June 22, 2022



### Drought Classification



ABOVE: A comparison of the U.S. Drought Monitor Maps for Montana on May 17th, 2022 and on June 22, 2022 show drought conditions improved over much of the state. Many counties went from extreme drought in May (shown in red) to abnormally dry in June (shown in yellow).



# Flood History Around Montana



## 114th Anniversary of Original Hauser Dam Failure

HELENA — One hundred and fourteen years ago the first Hauser Dam failed, causing a destructive flood and ultimately playing a large role in how dams were designed moving forward.

Hauser Dam on the Missouri River was named for Samuel Thomas Hauser, a former Territorial Governor of Montana. Built for \$1.5 million by the Missouri River Power Company, construction began in 1905 on the first dam which was made from steel. The dam was declared operational on February 12, 1907.

One issue engineers faced with construction was the riverbed at that section of the Missouri. The bedrock was covered by a thick layer of gravel, meaning it couldn't be anchored in bedrock.

On April 14, 1908, at about 2:30 p.m. the dam failed after water pressure eroded away the ash and gravel by the footing of the pillars. Crews first noticed silt-heavy water gushing from the base of the dam which prompted them to evacuate the structure. About 15 minutes later, the footings gave way, causing a breach in the dam.

A 20-30 foot wave swept downstream. Workers were able to notify people downstream, helping many get to safety in time. There were no officially reported deaths attributed to the dam's failure. Damages were estimated at more than \$1 million and pieces of metal that belong to the dam can still be found near the riverbanks downstream.

Missouri River Power began reconstruction of Hauser Dam in July 1908 and completed it in the spring of 1911. Hauser Dam is now owned by NorthWestern Energy and can produce 19 megawatts of power.



*Above: The first Hauser Dam was one of only three steel dams in the world in 1908. As a result of the dam's failure, engineers saw the use of steel as a cautionary tale and no steel dam has been built since, even though the steel was not at fault.*

*Photo by: Montana Historical Society*

### Flooding Around Montana in 2011

Flooding by Yellowstone River closed 20 miles (32 km) of Interstate 90 from Livingston to Springdale.

Floodwaters from Pryor Creek (a Yellowstone River tributary) led to the closing of Pompeys Pillar National Monument east of Billings, MT.

The Little Bighorn River and related tributaries flooded the area around Crow Agency and shut down Interstate 90 from Hardin to the Wyoming line for several days.

Montana counties that were affected by the state-wide flooding in Spring 2011 included: Big Horn, Carbon, Garfield, Granite, Jefferson, Judith Basin, Missoula, Musselshell, Petroleum, Sanders, Wheatland and Yellowstone.

A state of emergency was declared in 51 Montana counties, cities, and Indian reservations.



## THE RESILIENT HOME GUIDE

FLASH knows that having the right information at the right time is key to safeguarding your family from disasters of all kinds.

Article from FLASH website at:

<https://buyersguidetoresilienthomes.org/>

### How to Ensure Your Home Will Withstand Natural Disasters

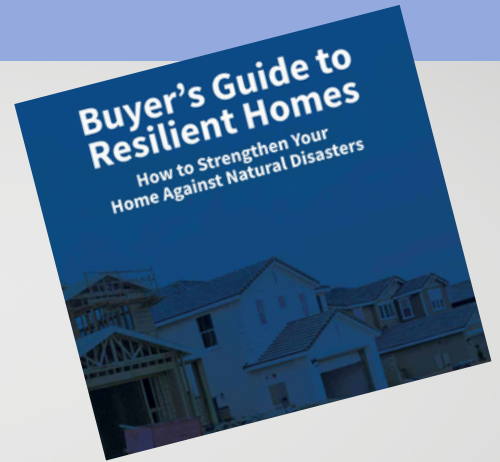
How would you feel if a natural disaster destroyed your new home, but your neighbor's home survived? Would you wonder what made the difference? Would you think it was just bad luck?

At the Federal Alliance for Safe Homes (FLASH), we call this the "Tale of Two Homes," and we have seen it unfold countless times. Earthquakes, floods, hurricanes, tornadoes, or wildfires strike communities, and many homes resist the shaking, wind, water, or fire. The families inside these homes are resilient. They bounce back swiftly and get on with their lives. Yet other homes are damaged and destroyed. Those families endure an expensive, long road to recovery. Some never make it back to "normal."

The most important lesson from this story is that no matter how it turns out, it's not just about luck. When homes survive disasters, it is almost always because someone made responsible decisions about how and where to build. They likely followed a modern building code, and inspectors verified that things were done the right way. But how do you, the buyer, find the right home?

**The Buyer's Guide to Resilient Homes has the information you need to identify homes that will still be standing after the disaster.**

The guide takes you beyond aesthetics like curb appeal and stainless steel appliances to focus on the risks where you live and how your home should perform when tested by nature. You will learn how to identify and determine a home's safety potential. You will discover features and upgrades that make it safer and stronger. We'll even help you understand how insurance provides financial security so you have the resources to recover.



Possibly the most critical time to focus on resilience is before you build or buy a home, not in the middle of a natural disaster. With the guide in hand, you may not be able to control the weather, but you can take charge of your future by knowing what to expect when disasters strike. You will not only be safer; you will be resilient no matter what you face.



**FLASH's Resilient Home Guide**

**<https://buyersguidetoresilienthomes.org/>**



*Above: A home suffered flood damage in Red Lodge, MT June 2022. Photo by: S. Wingard*

# EMERGENCY NOTIFICATION AND FLOODPLAIN PERMITTING



Riprap placed along the East Rosebud River bank after flooding and bridge repairs on Hwy 419 near Absarokee to restore access to Fishtail and Nye likely triggered emergency permitting.  
Photo by: S. Wingard (June 2022)

## EMERGENCY NOTIFICATION AND FLOODPLAIN PERMITS

An Email Message from

Larry A. Schock, CFM,  
DNRC WRD Regional Engineer  
(406) 542-5885 / lschock@mt.gov

I just wanted to send out a quick reminder about flooding, emergency notifications, floodplain permitting and actions during a flood event. .

First and foremost, now is the time to make sure that you have some sort of emergency notification and permitting process in place, and that everyone in your community is on the same page. Now is the time to talk to the local DES/OEM and your legal staff about how you want to coordinate and handle the emergency notification and permitting process, how to decide what constitutes an emergency, and how the emergency work will be handled during and after the flood.

### Here are some things to consider;

1. Does your floodplain program have a definition of what constitutes an emergency?
2. Does your community have a process to issue an emergency notification? with permit follow-up?
3. Often times during an emergency situation the work that is done is only temporary and it may have to be removed or modified after the flood in order to insure that it meets your current floodplain regulations.

Therefore, it is important that everyone (applicant, local DES/OEM personnel, you community legal staff, city council, county commissioners) understands exactly what has to be done during and after the emergency and how the process will be undertaken and enforced.

Your community floodplain ordinance/regulations can be used for guidance. If you have questions or need help, please contact me or a member of the DNRC Floodplain staff. To download permit information, go to:  
<http://dnrc.mt.gov/divisions/water/operations/floodplain-management/permitting-and-regulations>

Remember, it is better to prepare now in the relative calm, rather than in the middle of the chaos of an emergency.

*(From an Email sent by Larry to Montana floodplain administrators in March 2014)*



# Risk Rating 2.0 – Flood Insurance

**The National Flood Insurance Program (NFIP) provides insurance to help reduce the socio-economic impact of floods. The NFIP is managed by FEMA and insurance is delivered to the public through a network of 50+ insurance companies.**



## Understanding Risk Rating 2.0 and Floodplain Regulatory Requirements

Risk Rating 2.0 is the biggest change to the way the FEMA calculates flood insurance premiums in 50 years. With Risk Rating 2.0, FEMA is phasing out subsidies and quoting premiums based on actual flood risk. There has been some confusion on how some of the products and information are being used in Risk Rating 2.0. The table below shows a comparison of Floodplain Regulations and Risk Rating 2.0.

	<b>Floodplain Regulations:</b> <i>Local ordinance to regulate development in the Special Flood Hazard Area.</i>	<b>Risk Rating 2.0:</b> <i>New insurance pricing methodology from FEMA for flood risk.</i>
<b>Flood Insurance Rate Maps (FIRM)</b>	Floodplain regulations apply inside the Special Flood Hazard Area (SFHA) as identified on a community's FIRM.	The mandatory purchase requirement applies to the SFHA as identified on a community's FIRM. Flood Insurance Study information is being used along with other information to refine property flood risks and premium costs.
<b>Base Flood Elevation (BFE)</b>	BFEs are used during floodplain permitting to determine regulatory heights for safe development.	Elevation is critical. The higher the first floor, the lower the premium rates. For insurance purposes, BFEs provide the property owner with best source of information on flooding source heights. Premiums are calculated based on specific features of an individual property, including distance from water, type of flooding, flood frequency, structure foundation type, height of the lowest floor relative to lowest adjacent, and the structure's replacement cost value.
<b>Elevation Certificates (EC)</b>	Most communities require ECs as part of permitting process for new structures. Required for all Community Rating System (CRS) communities.	Elevations Certificates may be requested by insurance agents for premium ratings.
<b>Lowest Adjacent Grade (LAG)</b>	Permit applicants may be required to provide for new development in the SFHA.	Used for Letters of Map Change (LOMC) to remove mandatory purchase requirement. LOMC documentation may be used to compare and rate first floor heights. Used on ECs which can also be used in establishing premium rates.
<b>Flood openings</b>	Required for certain building construction in the SFHA.	Policyholders may receive a mitigation discount if the building's enclosure or crawlspace is constructed with proper flood openings or engineered openings with documentation.
<b>Freeboard</b>	Montana requires two feet of freeboard for new structures. First floor needs to be 2' above BFE.	First Floor Height (above the adjacent grade) can provide significant discounts on premiums. First Floor Height two feet above adjacent grade can provide 15 – 19% discount. The higher the first floor, the lower the premium.

**Floods can happen anywhere — just one inch of floodwater can cause up to \$25,000 in damage. Most homeowners insurance does not cover flood damage. Flood insurance is a separate policy that covers buildings, its contents, or both, so it is important to protect your important financial assets — your home, your business, your possessions.**

**The NFIP provides flood insurance to property owners, renters and businesses, and coverage helps them recover faster when floodwaters recede.**

**The NFIP works with communities requiring them to adopt and enforce floodplain management regulations that help mitigate flooding effects.**



Above: The Bitterroot River was at high flood stage in late May near Stevensville, MT ( Photo by: S Wingard)

## A MESSAGE FROM DOUG

Flash floods are the #1 weather-related killer in the United States. A summer rainstorm could cause a completely dry stream to be flooded in a matter of hours. So, whether at home or out on an adventure, keep flash flood safety in mind to stay safe!

**Doug Brugger, EI, CFM**  
**Floodplain Engineer**  
**MT DNRC Floodplain Program**  
**Douglas.Brugger@mt.gov**  
**(406) 444-1300**

### USEFUL FLOOD INSURANCE RESOURCES

#### Flood Insurance Statistics

<https://nfipservices.floodsmart.gov/reports-flood-insurance-data> [nfipservices.floodsmart.gov]

#### Risk Rating 2.0 Portal

<https://fema.gov/flood-insurance/work-with-nfip/risk-rating> [fema.gov]

#### Flood Insurance Outreach Materials for State & Local Officials, Agents & Property Owners

<https://www.floodsmart.gov> [floodsmart.gov]  
(insurance agent portal - top right corner)

#### NFIP General Information Help Center

1-877-336-2627

#### Flood Insurance Publications & Information

<https://www.fema.gov/flood-insurance> [fema.gov]



*Assisting  
Communities  
Throughout Montana*

**MONTANA DNRC  
FLOODPLAIN  
PROGRAM**

FOR MORE INFORMATION

[www.Floodplain.MT.Gov](http://www.Floodplain.MT.Gov)

Contact: Traci Sears  
NFIP/CAP Coordinator  
[tsears@mt.gov](mailto:tsears@mt.gov)/ Ph. 406.444.6656



*Photo by: Styler Wingard, DNRC*





# AROUND THE FLOODPLAIN

Local Floodplain Administrative Directory

<http://www.floodplain.mt.gov/floodplain-management/contacts>



## Montana Updates



### Goodbye / Best wishes

Cody Marxer - Madison County - Planner / FPA

Tanja Fransen - Meteorologist-in-Charge

NOAA/NWS / Glasgow, MT

### Welcome

Courtney Long - Planner/FPA - City of Red Lodge

Lanny Walker - City of Fort Benton - Mayor/FPA

Allissa Christensen - Town of Whitehall - FPA

### Please report personnel or contact updates to:

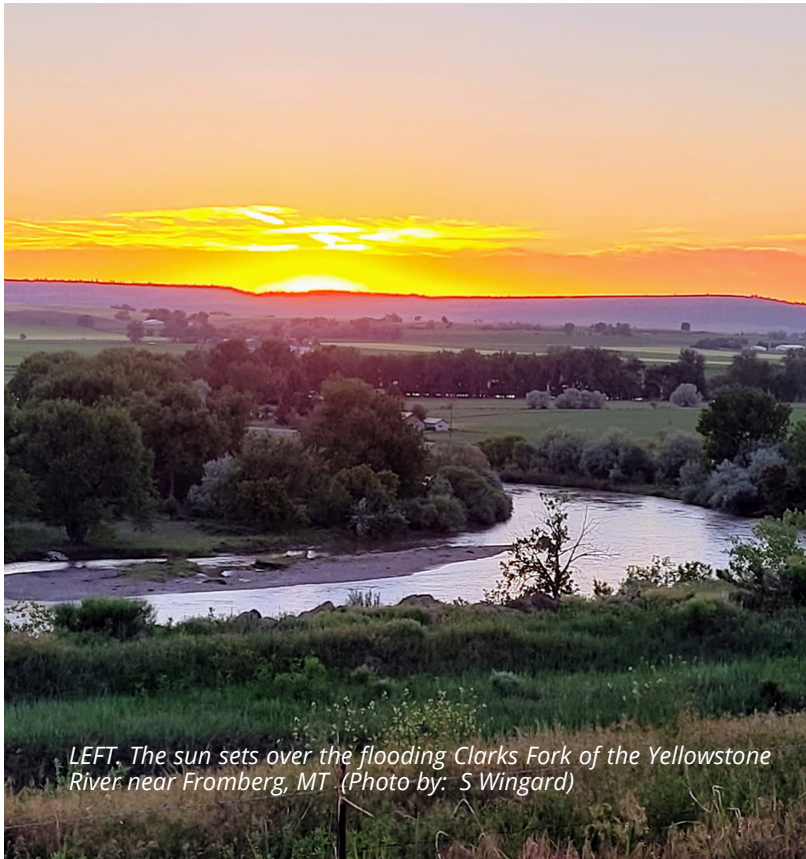
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Shaye Bodine - Floodplain Specialist | [shaye.bodine@mt.gov](mailto:shaye.bodine@mt.gov)

Shylea Wingard - Floodplain Specialist | [shylea.wingard@mt.gov](mailto:shylea.wingard@mt.gov)



PHOTO: The Stillwater River Road is a major access road for residents in Stillwater County near Absarokee, MT. It is currently closed due to flooding and erosion by the Stillwater River June 10-13th, 2022. (Photo by: S. Wingard)



LEFT. The sun sets over the flooding Clarks Fork of the Yellowstone River near Fromberg, MT. (Photo by: S Wingard)

# HAPPY RETIREMENT

## DNRC ENGINEERS

### STERLING SUNDHEIM AND MARC PITMAN

THANKS FOR YOUR YEARS  
OF SERVICE

***MORE INFORMATION TO COME.***

# DNRC FLOODPLAIN STAFF ATTENDS FLOODPLAIN CONFERENCES

Written by: Shaye Bodine, DNRC Floodplain Specialist

After two years of meeting virtually, floodplain conferences are back to in-person sessions and DNRC Floodplain staff signed up to deliver technical workshops and attended professional trainings.

In March, the Association of Montana Floodplain Managers (AMFM) met in Butte for a week of networking and learning. The conference kicked-off with a panel of some of Montana's most experienced floodplain administrators facing situations from the infamous "Yellowstone" television show. The honest and lively conversation set the stage for a week full of engaging presentations and networking. To connect with AMFM, check out [mtfloods.org/](http://mtfloods.org/) or reach out to Chairman Pam Vosen, Fergus County Floodplain Administrator.

In May, five members of the DNRC Floodplain Program participated in the first in-person conference in two years for the Association of State Floodplain Managers (ASFPM). ASFPM Vice Chairman, Ben Fennelly, rounded out representation from Montana. Many other Montana floodies, from DNRC, communities, and private firms participated online. Bureau Chief Steve Story presented on the uniqueness of Montana's Cooperating Technical Partners Program, in which Montana partners with FEMA and the private sector to maintain up-to-date flood hazard maps and other flood hazard information. Katie Shank, DNRC GIS Specialist, and Peri Turk, DNRC Floodplain Engineer, presented on how Montana has designed their CTP program to best serve the end user, communities. All presentations were well-received and presenters were peppered with dozens of questions from other state programs for the remainder of the conference.

One of the most important parts of conferences is networking, and you never know when relationships built at a conference might be critical in a time of emergency. Traci Sears and Shaye Bodine of the Community Assistance Program spent time catching up with the NFIP Coordinators for the states of Colorado (Doug Mahan) and South Carolina (Maria Cox Lamm and her team) during the ASFPM Conference.

When the June floods hit, both Doug and Maria were quick to offer help to Montana. Maria and three team members from South Carolina as well as Doug from Colorado deployed to Montana to assist communities. Teams spent a week conducting substantial damage inspections throughout Park, Stillwater, Carbon, and Flathead Counties. Next time you're at a conference – remember that you might be building a relationship that will be your saving grace during a time of crisis!

*DNRC Floodplain staff attended and presented at the Association of State Floodplain Managers (ASFPM) Conference in Orlando, Florida in May 2022.*

*Pictured (L to R): Katie Shank, Shaye Bodine, Traci Sears, Peri Turk and Steve Story.*



# MONTANA HIGHGROUND NEWSLETTER

The Montana Highground Newsletter welcomes your input.  
You are invited to share articles, information, ideas,  
projects, and photos.

Please email your contributions to:  
[shylea.wingard@mt.gov](mailto:shylea.wingard@mt.gov)

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Persons with disabilities who need an alternative accessible  
format of this document should contact the DNRC Public  
Information Officer, Cassie Wandersee at (406) 444-0465 or  
[Cassie.Wandersee@mt.gov](mailto:Cassie.Wandersee@mt.gov)



ABOVE: The Blackfoot River near Ovando, MT - May 2022  
(Photo by: Shylea Wingard)

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### MARC PITMAN

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