

VOICE OF THE MISSOURI

Mission Statement

To understand, conserve, and enhance the unique ecological and recreational resources of the Upper Missouri River Watershed.



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UMOWA Updates by Sherry Meador, UMOWA Board Chair

Welcome to our Winter Newsletter. We had a pleasant Summer this year with a fair amount of rain and relatively little smoke. While the mosquitoes were a bit rough, there was a great Blue Wing Olive hatch in September as a result of the good early summer flushing flows.

The annual UMOWA Rendezvous was held at the Craig Tap House with some great barbeque, live music, and a lively auction. We were excited to debut our River Health Summary interactive dashboard at the event. It was great to talk with everyone about our projects and to meet new folks. We hope you'll be able to join us in June 2024 for our next rendezvous.

We continued our macroinvertebrate and water quality sampling this year. The new information will be included in the River Health Summary Report dashboard on our website as we continue working to update and analyze the data. Updates will be posted. We invite you to engage with us in the on-going discussion regarding river health.

Our board members spent a day in Missoula collecting bio-control agents for leafy spurge, which they then released along the river corridor as part of our integrated weed management program. We appreciate the volunteer landowners who helped with releasing the bugs in different areas. We were able to treat the entire stretch of islands between Holter Dam and Cascade in addition to significant areas of land boarding the river corridor with our Noxious Weed Trust Fund grant.

As part of the annual Bashin Trash, our board members and volunteers collected trash at boat ramps and along riverbanks between Holter Dam and Craig. We are excited to be a part of the annual event and to host the after party at the Craig Tap House. We appreciate those who joined us and bought raffle tickets for the RO Drift Boat. We look forward to next year's event.

We were sad to see Pat Hunter, a founding member of UMOWA, leave our board for adventures abroad and wish him well. Bill Ryan wrote a wonderful tribute which follows. Please stay up to date on our projects by checking out our website, signing up for emails, and following UMOWA on Facebook and Instagram. Also, feel free to email me, smeador@umowa.org, if you would like to become involved with UMOWA or have questions about our projects. We appreciate your support.

The Role of River Islands in Noxious Weed Management

by Melissa Maggio, MT Biocontrol Project Coordinator | mtbiocontrol.org

Noxious weeds are a significant problem in many areas of Montana with integrated weed management (IWM) practices leading to the greatest likelihood of reduction. IWM combines a variety of tools including prevention, grazing, biocontrol, herbicide, cultivation, hand pulling and digging, cutting and mowing, and seeding competitive vegetation that lead to the desired level of control. These methods can be combined in different ways depending on the location, weed species, and landowner's goals.

Classical biological control of weeds (biocontrol) is the practice of importing and releasing host-specific natural enemies (usually insects) to control an introduced, non-native weed species. Before release, each biocontrol agent must be carefully tested to ensure they will not negatively impact plants other than the target weed. Permitted biocontrol agent movements are closely regulated by the US government. An understanding of the agents' ecological needs, life cycle, and how to correctly release them are necessary to ensure they survive, thrive, and control the target weed.

An example of a common and effective biocontrol system in Montana: leafy spurge

Leafy spurge is a perennial noxious weed with a deep taproot (up to 25 ft in depth) and an extensive horizontal root system. Stems are densely clustered and are up to 3 ft tall. Leaves are



narrow and flowers are minute, bright green to bright yellow in color and enclosed by showy, yellow-green bracts (often mistaken for the flower). When the stems or leaves of leafy spurge are broken, a white sticky liquid is produced.

There are several species of insects that are currently being used as biocontrol agents to aid in the management of leafy spurge. The most common and effective are the flea beetles (*Aphthona* spp.) and a borer beetle (*Oberea erythrocephala*). These insects impact leafy spurge in different ways and therefore establishment of both species results in greater impact to the weed infestation. The larvae of the flea beetles feed on the root hairs and young roots, damaging the root system and hindering the uptake of nutrients. Additionally, flea beetles can build up large populations resulting in significant defoliation of the plants, which can affect the plant's ability to photosynthesize. The larvae of the borer beetle feed on the roots and stems causing damage to the plant that hinders its ability to uptake nutrients. Additionally, the females girdle the stem below the flower and above where they lay eggs. This girdling often results in the desiccation of the flowerhead and therefore reduces seed production. ■

Montana's Wildlife

by Joe Kerkvliet, UMOWA Board Member

“Grizzly Charges Bird Hunter at Freezeout Lake”

“Jefferson River Floaters Attacked by River Otters”

Yikes! These recent headlines and others make Montana outdoor enthusiasts wonder. Are we in danger when we fish, hunt, hike, or paddle? Should we change our behavior when we recreate? Should we just stay home? Or should we push for changes in wildlife management? To explore these questions, let's see how we got where we are.

Montana hosts healthy populations of wildlife, but it hasn't always been this way. At the beginning of the 20th century, Montana's elk, deer, moose, bighorn sheep, antelope, and other wildlife were on the ropes due to overhunting, few game laws, no enforcement, and land use change. But, in 100 years, Montana's elk population climbed from less than 3000 to over 150,000. Grizzly bear increased from about 300 in 1972 to nearly



2000 today. Wolves went from zero to over 1000. These success stories were driven by the efforts of many Montanans—in transplanting projects, strict game laws, setting aside wildlife refuges, volunteerism, and financial and political support.

But wildlife numbers are not all that has grown. Montanans now number over one million and most of us enjoy the outdoors, hiking, fishing, hunting, paddling, skiing, birdwatching, etc. Also, 12 million people come to Montana each year and most of them come to recreate in Montana's mountains, plains, rivers and lakes. Anyone who floats or fishes the Upper Missouri can attest to increasing numbers of people.

With more wildlife and more outdoor people, uncomfortable confrontations are inevitable.

So what can we do?

We could try to limit wildlife numbers and confine them to small areas. But, this is neither feasible nor ecologically viable. People are attracted to wildlife, and the numerous confrontations between tourists and bison in Yellowstone tell us this won't work. Also, small numbers of wildlife in small areas lead to population crashes and unhealthy inbreeding.

We could change our behavior to mitigate the chances of confrontation. Try to avoid disturbing wildlife. Be respectful of

their place in the world. Don't walk on spawning redds in the river. Avoid nesting and calving areas. Leave your kill if a grizzly decides she wants it. As Robin Kimmerer, the noted author of Braiding Sweetgrass advises, think of wildlife not as an "it" but as a "who" with needs and families just like us.

Finally, accept that some risks are part of outdoor activities and a part of their charm. Just as highway driving has inherent risks, outdoor activities cannot be entirely safe or predictable. Just as the charm of fly fishing would disappear if we caught every fish we cast to, the charm of outdoor recreation would be reduced if the experience was completely contrived and came with no risky surprises. ■

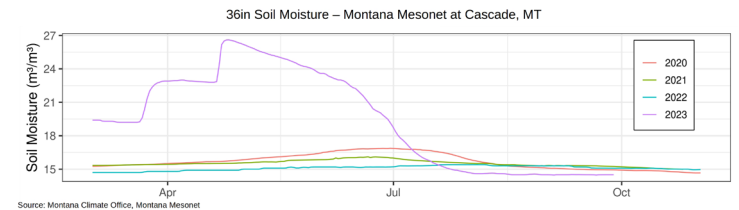
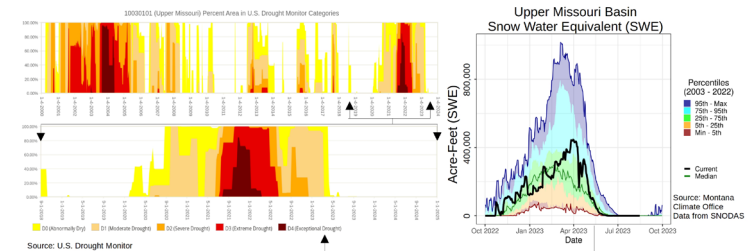
Current Drought Status and How We Got There

by Zachary Hoylman, PhD, Assistant State Climatologist, University of Montana

Drought is a conceptually intuitive, yet scientifically complex phenomenon to monitor. This complexity arises from the numerous drivers of dryness that contribute to drought impacts. Such drivers include precipitation, atmospheric aridity (i.e. low humidity and hot temperatures), snowmelt dynamics and streamflow abundance, all of which are important to consider. Robust drought assessments are especially challenging to conduct in geographically and topographically complex areas such as Montana and the Upper Missouri River Basin. Drought in these regions is challenging to map because conditions change significantly over short distances. However, new partnerships, tools, models and monitoring networks are helping to enhance Montana's drought awareness and assessment capabilities.

The Upper Missouri River basin is no stranger to drought, and has experienced several extreme and prolonged drought events in the past several decades. The most recent drought event in the Upper Missouri River basin started in the spring of 2020 and continued for 3 years until finally ending in 2023. This particular drought was driven by long term, multi-annual deficits in precipitation, hot and dry atmospheric conditions and inconsistent snowpack. Thankfully, conditions in the basin have recently improved. However, the question arises; how do we know when a drought starts or when a drought ends? Surprisingly, this is a challenging question to answer.

In many locations, especially in Montana, soil moisture is a critical consideration when evaluating drought conditions because it accounts for all current and prior weather events. Furthermore, soil moisture deficits from the previous year and/or dry atmospheric conditions can easily out-weigh above average rainfall. Data from the Montana Mesonet, operated by the Montana Climate Office, is a critical source of information that aids in drought assessment because it tracks drought-critical conditions such as soil moisture that normal weather



stations cannot observe. Consider the soil moisture time series from Cascade, MT (shown in the graphs above). Despite near normal precipitation and robust early July rains in 2020, soil moisture recharge failed to occur down to a 36 inch soil depth, initiating the multi-year drought. This soil moisture deficit continued for several years until, in 2023, above normal snowpack and relatively consistent seasonal rains caused significant soil moisture recharge to depth. These wet soil moisture conditions contributed to alleviating drought impacts in the Upper Missouri River basin and concluding the multi-year drought. These direct observations of soil moisture are critical to understand drought conditions impacting Montanans.

Drought is a common feature of Montana's landscape that will reappear in the Upper Missouri River basin. Be a part of the monitoring effort by analyzing data from the Montana Mesonet (<https://mesonet.climate.umt.edu/dash/>) or by monitoring and reporting conditions on the Upper Missouri River Basin Drought Dashboard (<https://drought.climate.umt.edu/>). ■

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Pat Hunter, More Than Just “Water Under the Bridge”

by Bill Ryan, UMOWA Board Member



So many times, we fail to look at the quality of water that sustains all of life. It seems that we assume all is good and go about our business. But thankfully there are those people who truly are aware of their surroundings and take the time to truly look at the water and appreciate what it does. Pat Hunter is one of those people. Pat spent the lions' share of his life

fishing the northern waters off Alaska acutely aware that any degradation meant those waters could not feed the world and sustain the people who fished them. He picked Wolf Creek,

Montana as home in the off season. We are lucky he did. He saw the beautiful river running through the canyon and decided it could use some help. Pat was a founding member of Upper Missouri Watershed Alliance, a group dedicated to keeping the Missouri river healthy for all to enjoy. He has donated his time, resources, and efforts to all of our projects without waver. He has been a friend to the river and the whole community. Pat has decided to travel and see a little more of the world. So, I say Farewell and Thanks Pat, on behalf of the River, the Board, and Members of UMOWA. You will always have a home here so stop back and check on your river once in a while. ■