



Big Hole Watershed Committee

Monthly Meeting Minutes

May 17, 2023 – 7:00 pm at the Divide Grange
Zoom option also provided

In Attendance

In-person: Pedro Marques, BHWC; Tana Nulph, BHWC; Ben LaPorte, BHWC; Tom Bowler, Resident; Betty Bowler, Resident; John Reinhardt, Rancher/BHWC; Charlie Ivor, Elkhorn Ranch; Ron Breitmeyer, MBMG; Jenna Dohman, MBMG; Jim Hagenbarth, Rancher/BHWC; Liz Jones, Rancher/BHWC; Dean Peterson, Rancher/BHWC; Howard Varner, Rancher; Rebecca Kurnick, Edaphix; Stuart Jennings, Edaphix; Art Mangels, Big Hole River Retreat; Diane Hutton, Resident/BHWC; Lacy Decker, BLM; Jeff Wolk; Julie King; and Randy Smith, Rancher/BHWC.

Zoom: Peter Frick, Rancher/BHWC; Kaitlin Boren, DNRC; and Baskin.

Meeting Minutes

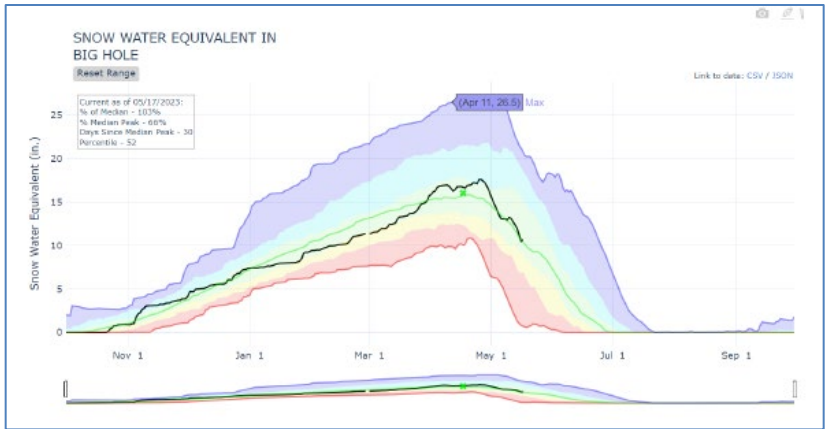
BHWC monthly meetings are held at the Divide Grange with a virtual (Zoom) option provided thanks to Southern Montana Telephone Company, who donated the internet service. Meeting minutes and recordings are available at <https://bhwc.org/monthly-meetings/> (scroll down for meeting minutes archive). Printed copies are available during in-person meetings. Contact Tana Nulph, BHWC Associate Director, at tnulph@bhwc.org or (406) 267-3421 to suggest additions or corrections.

Reports

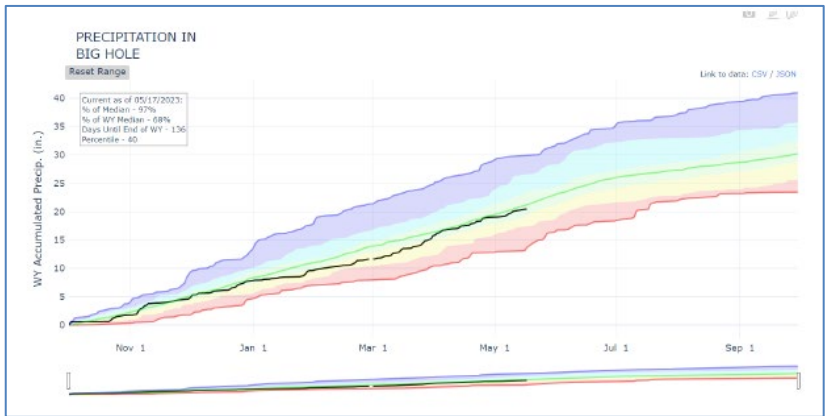
Streamflow and Snowpack Report – Matt Norberg and Kaitlin Boren, Department of Natural Resources and Conservation

- Snowpack:* Snowpack in the Big Hole is currently 96% of NRCS median values, however the modeled Hypsometery-SWE value is 121% (2004-2023). The modeled snowpack for the basin indicates that the lower elevation snowpack is gone for the season, the mid-range snowpack is well above average, and the high elevation snowpack is slightly above average. Below are the current SNOTEL observations as well as the % median for individual sites across the watershed.

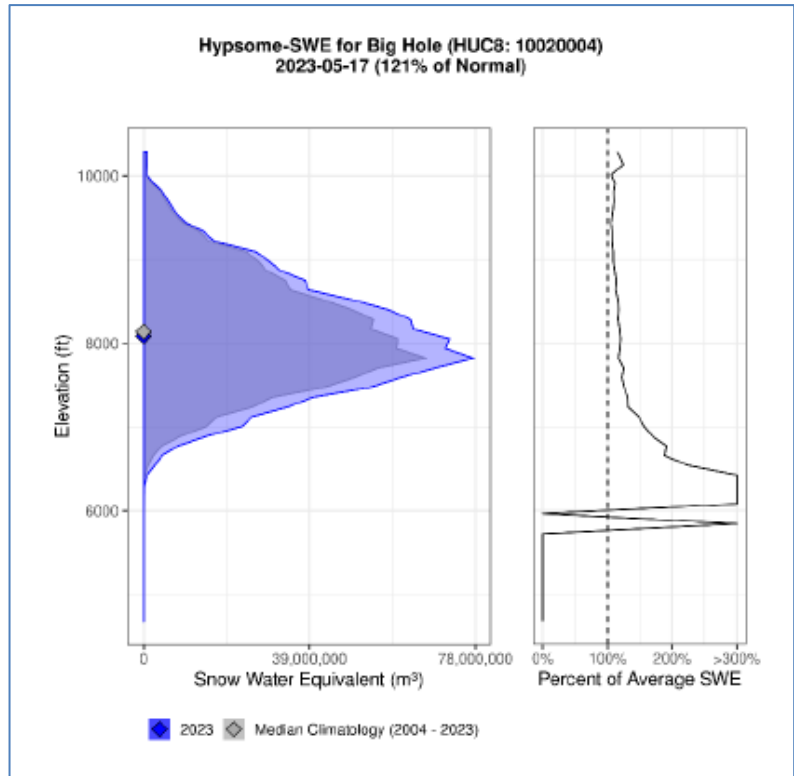
Station	Network	Elev. (ft.)	Obs	NRCS Median	% NRCS Median
Barker Lakes	SNOTEL	8250	14.7	13.4	118%
Basin Creek	SNOTEL	7180		5.0	113%
Bloody Dick	SNOTEL	7600	3.1	1.3	
Calvert Creek	SNOTEL	6430	0.0	0.0	94%
Darkhorse Lake	SNOTEL	8945	26.2	29.6	94%
Moose Creek	SNOTEL	6200	0.4	0.0	91%
Mule Creek	SNOTEL	8300	12.2	14.6	89%
Saddle Mtn.	SNOTEL	7940	18.0	18.8	89%
Slagmelt Lakes	SNOTEL	8620	41.0		
Basin Index					106%

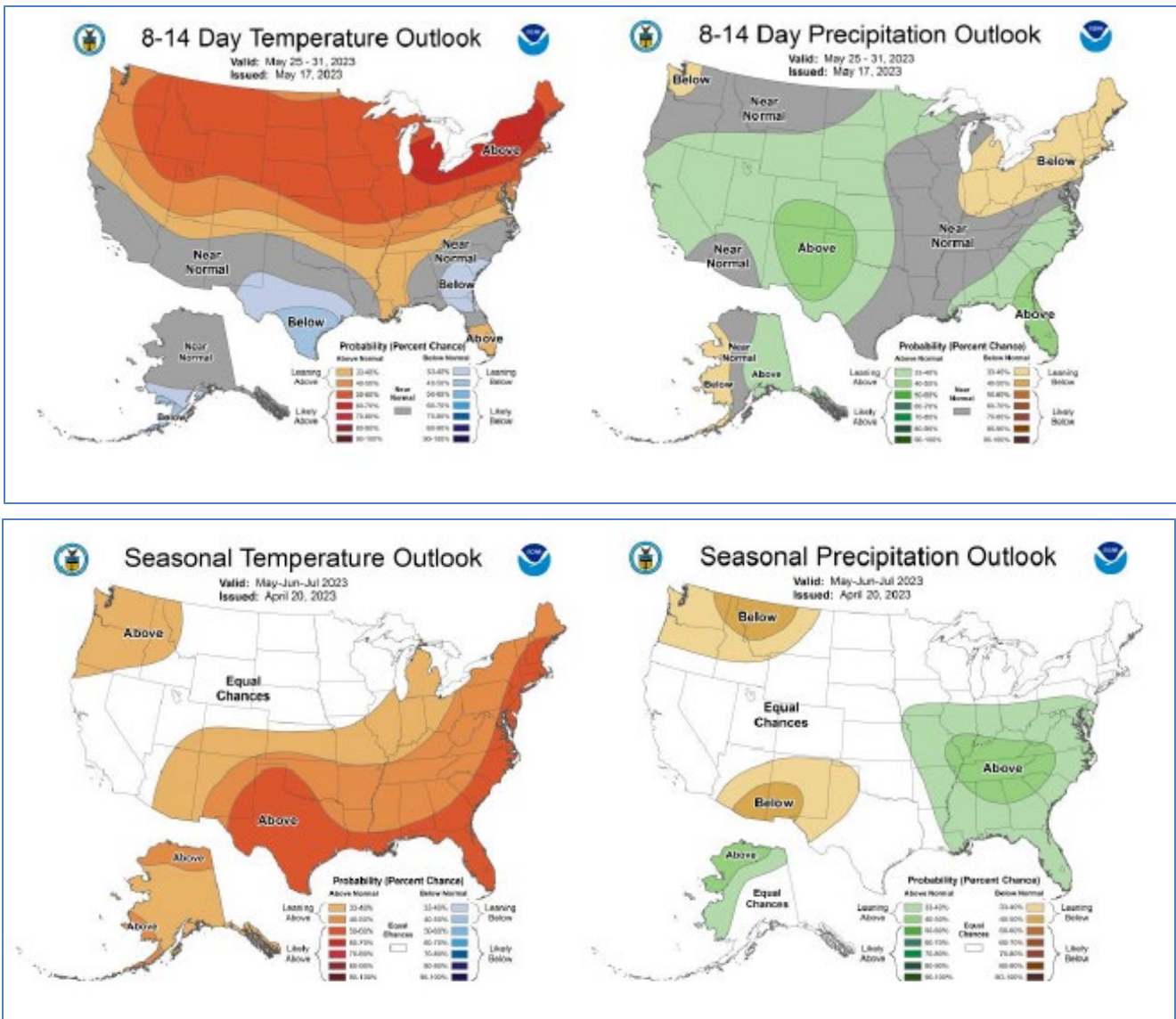


- **Precipitation:** Total precipitation in the Big Hole is currently below median values (97%).



- **CFS and Spring Runoff:** Spring conditions exhibited lower temperatures, keeping the Big Hole in ice-conditions longer than normal. This transitioned into warmer temperatures at the end of April, resulting in low elevation snowmelt. Low flow/ice conditions transitioned very quickly into spring runoff conditions on the river. Runoff conditions should remain from now until mid-June, follow a general trend to peaking the first or second week in June.
- **Outlook:** The 8–10-day outlook predicts above average temperatures and near normal average precipitation.
- **Seasonal Outlook:** The three-month outlook (May/June/July) predicts leaning above to equal chance temperatures and below to equal chances for average precipitation.
 - **ENSO Alert System Status (from NOAA):** El Niño Watch
 - **Synopsis:** A transition from ENSO-neutral is expected in the next couple of months, with a greater than 90% chance of El Niño persisting into the Northern Hemisphere winter.





Director's Report – Pedro Marques, Executive Director

- Staff:
 - MCC Fellow Allyson Allen moved into house on the new Mount Haggin/Willow Creek acquisition (FWP). Will assist with restoration work on Mount Haggin.
 - Social media contractor Peyton Butler has been cranking out social media material.
 - Associate Director Tana Nulph back from maternity leave.
- Contracts:
 - USFS partner agreement signed for conifer treatments in Trail Creek area
 - BLM partnership agreement – more funding
 - Arctic Grayling program working on agreement between FWP and USFWS that would allow funding to be funneled from USFWS (feds) to FWP (state); also working on partner agreement with BHWC
- Senate Bill 442 – allocation of marijuana money through the state. Would have created a funding mechanism that would have been applicable to the type of irrigation infrastructure projects that we do (among other things). Governor vetoed it.

Steering Committee Report – Randy Smith, Chair and Jim Hagenbarth, Vice-Chair

- The steering committee had nothing to report.

Communications and Wildlife Report – Tana Nulph, Associate Director

- Communications
 - 2023 monthly meetings
 - June – Fishery update
 - August – Old Salt Coop Farm to Market program
 - September – Sage Grouse
 - October – Wildlife
 - November – Deep Aquifer Pumping
 - Wildlife Speaker Series
 - Macroinvertebrates at Melrose Bar
 - June 14th
 - Potluck at 6:00 pm
 - Presentation at 7:00 pm
 - Clark Fork Watershed Education Program
 - Drought communications
 - Text DROUGHT to 26989 to sign up for weekly drought updates via text message
- Wildlife
 - 2023 carass removal
 - Season: May
 - Available to all Big Hole Valley ranches/residents
 - FWP trailer (trailer with winch, rails, and ramp on loan from FWP to allow BHWC to implement carcass removal season despite USFWS dump truck being snowed-in at the refuge).
 - Contributions:
 - Trailer (FWP)
 - Tractor (John Jackson)
 - Wood Chips (Tash T. Diamond Post & Pole)
 - Call John: (209) 628-2225



Restoration Report – Ben LaPorte, Program Manager

- FFIP Proposal-Mount Haggin WMA Culvert Removal and Replacements
- Spring newsletter articles and grant reporting
- BLM Participating Agreement Modification = increased \$15,000.00

New Business

- BLM Maidenrock project went out for bids, contract is in place.
 - An announcement will go out for when the area is shut down.
 - The road will be kept open to the boat launch.
 - Redoing the campground and parking lot area. Hoping to replace boat launch possibly next year.
 - Starting end of June/first part of July.
 - Divide/Jerry Creek projects nearly complete.

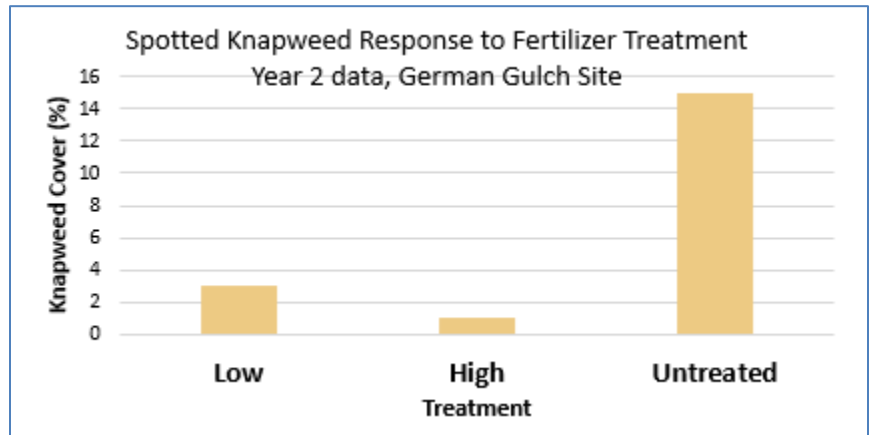
Meeting Topic:
Restoring Grassland Health through Edaphix:

*Novel Fertilization Strategies for Improving Perennial Vegetation Cover in Annual Grass
Affected Pastures*

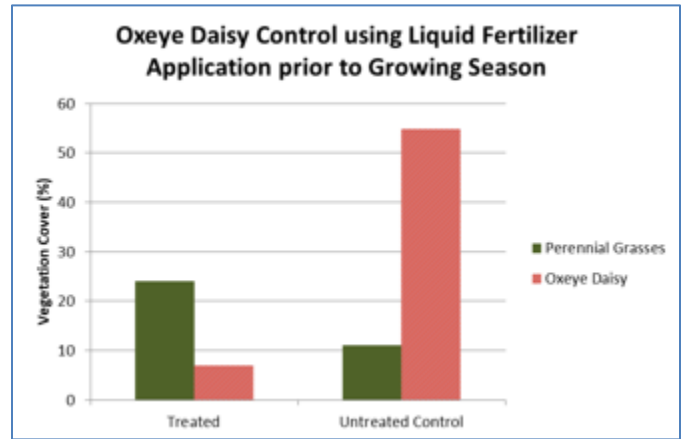
Presented by: Stuart Jennings and Rebecca Kurnick, Edaphix

What Soil Conditions Lead to More Weeds? What if we Fertilized Weeds?

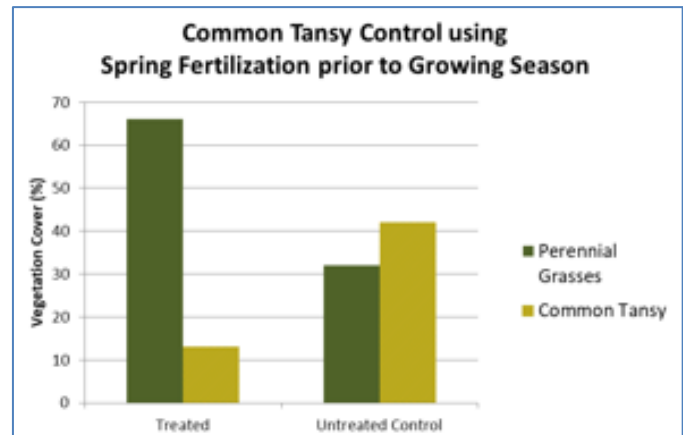
- Can nutrient dense soil be used as a management tool to prevent or discourage the growth of invasive plants? We have all seen vegetation patterns on the landscape suggesting soils impart a strong influence on the distribution of invasive plants. What if we could change soil fertility in a way that promoted the growth of desirable plants and not invasives? We will explore examples where desirable perennial plants have outcompeted weeds when treated with novel fertilizer formulations emphasizing micronutrient fertility with emphasis on cheatgrass management.
- Plant growth deficiency
- Where do weeds grow? Where do desirable plants grow?
 - Weeds grow where soil conditions and climate allow them to grow.
 - We can't change the climate.
 - What if we were able to change the soil so that weeds struggled or never became established?
 - Why are we focused on spraying weeds with petrochemicals? Is it effective?
 - Herbicides only treat the symptoms of unhealthy soil?
- Is there a way to fertilize rangeland to promote perennial native grasses but not the weeds?
 - Spotted knapweed
- Is there a way to fertilize turf grass to promote the grass but not the weeds?
 - Canadian Thistle
 - Oxeye Daisy
 - Common Tansy
- Introducing Edaphix
 - Technology: Fertilizer-based methods for improving soil quality to promote desirable vegetation and reduce weed pressure



- Patents
- First Product: NutraFix
- *Edaphic*: of the soil [Greek *edaphos*]
- Formulations emphasize micronutrient fertility
- Different formulations and application strategies for rangeland (NutraFix), turf (upcoming product) and noxious weed application (R&D)
- A new tool in the toolbox for addressing annual grass challenges



- Where do annual grasses grow?
 - Annual grasses grow where soil conditions and climate allow them to grow.
 - Every plant species has unique nutritional needs, including invasive plants.
 - What are the optimal nutritional needs for cheatgrass?
 - Aren't annual grasses just opportunists highlighting the suitability of the soil for their growth?
 - Can we change the soil chemistry to be more favorable for native perennial grasses?

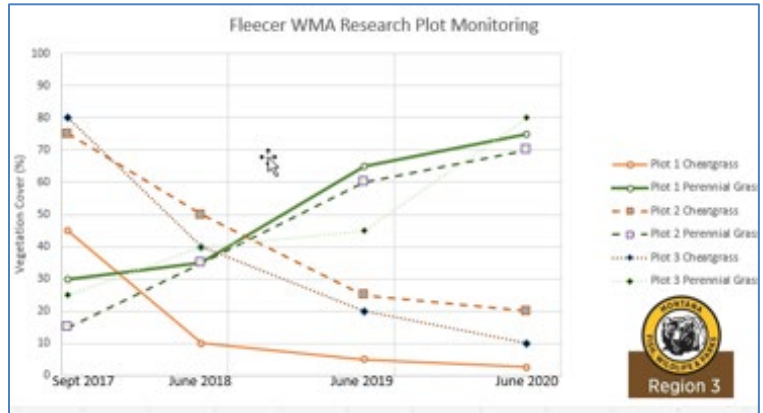


- The soil solution
 - Water available for root uptake. Annual precipitation, mineral dissolution, biological activity.
 - In a 12" precipitation zone, 43,560 cubic feet of water annually, 325,000 gallons
 - How important is the soil solution?
 - Minesoils represent unique environmental laboratories for studying soil health and weed growth due to extreme soil acidity and elevated metal levels including micronutrients iron, copper, zinc, manganese and molybdenum.
 - Recognizing that plant-available micronutrient concentrations in soil have profound impacts on weed inhibition is the basis of Edaphix technology. The experimental plot shown has few weeds and elevated micronutrient levels.

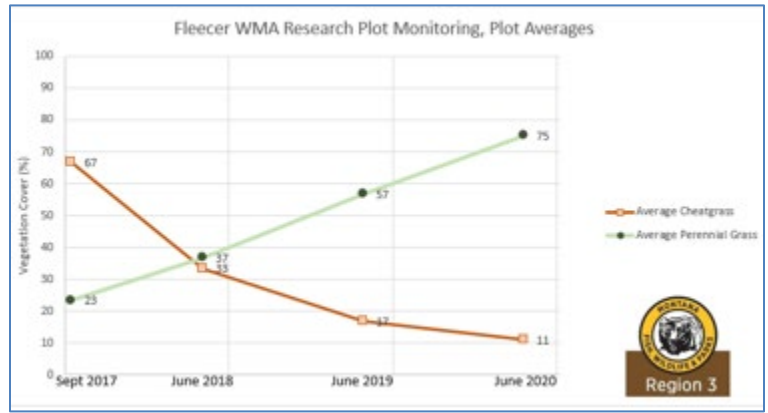


- The Edaphix discovery
 - Healthy soils supporting late successional plant species have elevated levels of non-nitrogen fertility compared to disturbed soils
 - Late successional (desirable perennial) plants thrive in soils with elevated levels of micronutrients

- Soil health can be restored by replacing lost nutrients resulting in accelerated growth of perennial plants and especially native grasses.
- Healthy soils allow perennial plants to stay green longer, have increased infiltration, increase soil carbon, outcompete invasives and have reduced fire hazard
- Healthy Levels of Macro- and Micro-nutrients are Required for Stable Perennial Plant Communities. Inputs and Withdrawals of Nutrients must be in Balance.



- When to apply
 - Ideal timing: late summer/early fall in advance of germination of winter annual plants
 - Next best timing: late winter/early spring prior to growing season
 - Since the treatment is generally a granular treatment, application can occur any time during the year. Plant response will lag depending on rainfall patterns and plant phenology.



- Conclusions
 - Effective
 - Made from naturally occurring minerals providing micronutrients and a small amount NPK
 - Easily applied
 - Long lasting
 - Restores soil fertility
 - Promotes growth of perennial grasses
- How to buy NutraFix
 - <https://www.nutrafixsoils.com/>
 - (208) 863-7529
 - nutrafix@acfwest.com
- Contact Information
 - Stuart Jennings: Stuart.Jennings@edaphix.com
 - Rebecca Kurnick: Rebecca@edaphix.com

Upcoming Meetings

- June 21, 2023: **MFWP Fishery Update** – Divide Grange/Zoom

Adjourn