

THE MONTANA CONSERVATIONIST

News from Montana's Conservation Districts

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Montanans encouraged to start a garden

Over the next month, the Montana Department of Agriculture is challenging folks across the state to get out and get growing! In conjunction with the Montana Agricultural Business Association, East Helena High School FFA and Montana State University Extension, the Department is launching an online campaign to help folks start their own home garden.

"Spring is in full swing and with many of us working and schooling from home, now is a great time to start a garden," said Department Director Ben Thomas. "Starting a garden at home is a fun and productive activity for the whole family and a great way to learn more about food production."

During the month of May, the "Get out and Grow" campaign will provide many resources and webinars to help folks understand the different types of gardens and plants that can be grown in them. The campaign will help with everything from garden planning and seed selection to watering techniques and soil health. [READ MORE](#)

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Busy as bees with pollinators in mind

By *Sunni Heikes-Knapton, NACD*: Pollinators don't worry about pandemics. Stay-at-home orders and social isolation aren't stopping the bees, butterflies, bats and moths from doing their important tasks in our landscape. Similarly, our nation's conservation districts also continue their valuable work during a challenging time, even on efforts that help those same pollinators to keep working.

For the board and staff of the Lake County Conservation District in Montana, they have adjusted to the challenges of COVID-19 and have maintained work in several areas, including their very successful Pollinator Initiative. Now entering its fourth year, this program continues to promote and support pollinator habitat in the northwest region of the state.

"The pollinator initiative's goals are to provide free pollinator seed mixes to the public and technical assistance in establishing, maintaining and monitoring a pollinator plot," said Sarah Klaus of the Lake County Conservation District. "We have been able to keep our pollinator initiative alive by sending seed by mail, doing socially-distanced site visits and email communicating."

The district is able to cycle employees at the office who continue to process and package their popular seed packets, which includes a mix of species that was custom-designed for their region by their staff. To date, the Lake County Conservation District has helped establish more than nine acres of plantings in the county by working with over 220 participants,



and they have created a community garden with the Boys and Girls Club that includes several pollinator beds.

In an era where in-person communication has been restricted, the district has found ways to distribute information to a range of interested parties. They use social media and email newsletters to get their message out, and for the first time this year, they are educating and advising other districts in Montana. They share their resources, seed mixes and provide two acres of seed for districts who are starting their own pollinator initiatives.

"We are proud that we created a program that people are excited about and that they want to get involved with," Klaus said. "The desire to create pollinator habitat is refreshing and inspires us to keep expanding."

Despite encountering a number of disruptions and canceling outreach and education events, they have adjusted to keep conservation work going. While the challenges can be stressful, the outcomes of their work provide a much needed bit of good news during a hard time.

"The Pollinator Initiative is a shiny bit of light, not only for us, but for many of the participants who are hoping to plant a pollinator plot," Klaus said. "Even during a crisis, people still care about creating habitat for pollinators."

To learn more about the work of Lake County Conservation District, go to <https://lakecountyconservationdistrict.org/>.



Butte BLM Field Office collaborates to covert root wads to fish habitat

In the past 20 years, insect and disease activity has been on the rise in the western United States and Canada's forests. Periodic infestations are natural elements of the landscape, but past management decisions and changing forest conditions have elevated them to epidemic levels.

In Montana, one of the most impactful insects has been the mountain pine beetle (MPB) (*Dendroctonus ponderosae*). The most recent MPB epidemic started in the 1990s and peaked around 2006-2008.

The beetle has had a significant ecological force at the landscape level, causing high levels of mortality in mature timber stands. Within Montana, this epidemic spread across more than six million acres, or 23 percent of the state's 25.6 million acres of forest on private, state, and federal lands. Tree mortality was greater than

90 percent in some timber stands within the BLM's Butte Field Office.

After the epidemic, many forestry projects designed to address the MPB mortality have been completed and continue to be implemented by land owners and agencies within Montana (BLM, United States Forest Service, Montana Department of Natural Resources, Montana Fish Wildlife and Parks, private landowners, and others). The Butte Field Office ran into a rather unique challenge and had to get creative when treating some of the high-use campgrounds within the Big Hole River Valley, known for blue-ribbon trout fishing and spectacular high mountain scenery.

Determining the right course of action was complicated. BLM specialists had to look at many issues, including the safety of campground users, maintaining the integrity of campsites, retaining

wildlife habitat and movement corridors, and visual resources. Hundreds of large, mature lodgepole pine trees had to be removed.

Residual live trees presented one of the largest issues. As the stand was thinned, the shallow root systems on the live lodgepole pine were not able to withstand spring moisture and high winds. Those wind-thrown trees were hazardous to both campground users and campground facilities. When the trees inevitably toppled, their root wads came up as well, creating large holes and a mess to clean up.

Beginning in 2011, two timber sales were used to help remove hazard trees and clean up the sites. They provided sawlogs that went to local lumber mills, posts and poles for fencing, houselogs, logs to be carved into bears (which the carver donates to charities around Butte), and plenty of firewood.

After the timber sales, BLM staff spent time each summer cleaning up the sites and removing root wads from windthrown trees. Residual down trees were cut up and stacked for firewood for campground users. "This was a big hit," said Michael O'Brien, BLM Forester with the Butte Field Office and Project Lead. "Folks really appreciated having easily accessible firewood throughout the summers."

Although the firewood was a big hit, there was still one BIG issue. What to do with all the root wads? During the summer of 2017, while O'Brien was visiting his in-laws in Salmon, ID, an idea came to mind.

[READ MORE](#)

Experts apply microbiome research to agricultural science to increase crop yield

Phys.Org: The global demand and consumption of agricultural crops is increasing at a rapid pace. According to the 2019 Global Agricultural Productivity Report, global yield needs to increase at an average annual rate of 1.73 percent to sustainably produce food, feed, fiber and bioenergy for 10 billion people in 2050. In the US, however, agricultural productivity is struggling to keep pace with population growth, highlighting the importance of research into traditional practices as well as new ones.

In an effort to increase crop yield, scientists at Northern Arizona University's Pathogen and Microbiome Institute (PMI) are working with Purdue University researchers to study the bacterial and fungal communities in soil to understand how microbiomes are impacting agricultural crops. They believe technological advances in microbiome science will ultimately help farmers around the world grow more food at a lower cost.

Nicholas Bokulich, a PMI assistant research professor, and Greg Caporaso, an associate professor of biological sciences and director of PMI's Center for Applied Microbiome Science (CAMS), have been testing a long-held farming belief that phylogenetics—the study of the evolutionary relationship between organisms—should be used to define crop rotation schedules.

The team recently published its findings regarding microbiome research in agricultural food

production in *Evolutionary Applications*. The paper is titled, "Phylogenetic farming: Can evolutionary history predict crop rotation via the soil microbiome?"

Specifically, the traditional approach has been to rotate distantly related crops across different years to maximize plant yield. "One hypothesis for why this may be helpful is that plant pathogens are specific to a single host or to very closely related hosts. If you grow closely related crops in adjacent years, there is a higher chance that pathogens may be lying in wait for their hosts in the second year," Caporaso said. "But this hypothesis has not been directly tested."

The team's experiment, supported by a grant from the USDA National Institute of Food and Agriculture, spanned two outdoor growing seasons. In the first year, Purdue scientists Kathryn Ingerslew and Ian Kaplan grew 36 crops and agricultural weeds that differed in evolutionary divergence from the tomato. The experimental plots ranged from tomato (the same species) to eggplant (the same genus as tomato, but a different species) and sweet peppers (the same family as tomato, but in a different genus and species) through corn, wheat and rye, which are much more distant relatives of the tomato.

[READ MORE](#)

Fire, mixed species grazing increase livestock production in study

The Ada News: Researchers from Oklahoma State University are partnering with university scientists and researchers in two other states on a project using fire and mixed animal species to graze in an effort to enhance livestock production and more sustainable rangelands.

Enhancing Livestock Production from Rangelands in the Great Plains is a research project funded through a five-year, \$10 million grant from the U.S. Department of Agriculture National Institute of Food and Agriculture. Partnering with OSU are researchers and scientists from Texas A&M AgriLife Research, Texas A&M AgriLife Extension and the University of Nebraska.

The project will help agriculture producers adopt management practices that will increase food production and more sustainable rangelands, said Sam Fuhlendorf, regents professor and Groendyke Chair in Wildlife Conservation with OSU's Department of Natural Resource Ecology and Management.

"We're dealing mostly with cattle and goats in this project. Cattle have always been important in the Great Plains," said Fuhlendorf, who serves as the lead OSU principal investigator on the research portion of the study. "We're using goats because they eat different plants than cattle, and many of the types of plants they eat are species ranchers spend a lot of money trying to control." [READ MORE](#)

The Asian giant hornet has arrived. Bees beware

Vox: A giant, bee-killing insect dubbed the “murder hornet” is making inroads in the United States, threatening crops that depend on pollination, and humans who may get in its way.

The Asian giant hornet, *Vespa mandarinia*, is native to places like Japan, South Korea, and Taiwan, but was detected in Washington state late last year. Canadian officials also found the hornet in British Columbia in August.

The menacing orange-and-black hornets have workers that can grow an inch and a half long and queens that get up to two inches in length. They have a painful sting that can be fatal to humans — if they are allergic — and unlike most bees, hornets can sting more

than once. Despite their name, however, people have little to fear from them: The British Columbia Ministry of Agriculture said that they

“are not interested in humans, pets and large animals.”

[READ MORE](#)



Sprinkling of rock dust may improve soil health and crop yield

Technology Networks: Adding basalt rock dust to farmers' fields could help soils to store four times more carbon dioxide (CO₂) and increase crop yields, according to new research by academics at the University of Sheffield.

The study, published in *Global Change Biology*, found that adding the dust increased yields of the cereal crop sorghum by as much as 20 percent. A single application of basalt enabled the soil to absorb between two and four tons of damaging CO₂ over five years – four times more than untreated soils – suggesting the method also has potential to mitigate the climate crisis.

Removing greenhouse gases from the atmosphere, along with

slashing emissions from fossil fuels, is crucial to meeting the Paris Agreement target of limiting global temperature rises to 1.5C above pre-industrial levels. According to the UN's Intergovernmental Panel on Climate Change, cropland and grassland soil has the potential to store up to 8.6 gigatons of CO₂ per year – equivalent to almost 1.5 times the annual emissions of the United States.

The team of scientists at the University of Sheffield's Leverhulme Centre for Climate Change Mitigation, affiliated to the Institutes for Sustainable Food and Energy, used the University's world-class controlled environment facility to conduct the experiments.

Basalt contains at least six nutrients

that are essential for plant growth and very low concentrations of toxins. The study found adding it to the soil increased yields of sorghum – the world's fifth most important crop for food and animal feed – by up to 20 percent. This was achieved without the use of phosphate and potassium fertilizers – making the method suitable for organic farmers.

The basalt also helped to mitigate soil acidification. This is usually treated with agricultural lime – the production of which accounts for two percent of agricultural greenhouse gas emissions in the United States.

[READ MORE](#)

USDA announces \$5 million in wetland mitigation banking funds

USDA Press Release, May 5: The USDA's Natural Resources Conservation Service (NRCS) announced today the availability of up to \$5 million for wetland mitigation banks. This funding through the Wetland Mitigation Banking Program is available to help conservation partners develop or establish mitigation banks to help agricultural producers maintain eligibility for USDA programs.

"Wetlands are critically important to the health of our natural resources -- filtering water, reducing soil loss and providing habitat to our nation's wildlife while also helping to sequester carbon from the atmosphere," said NRCS Chief Matthew Lohr.

"Through the Wetland Mitigation Banking Program, we're working with experienced wetland mitigation partners to give farmers another option to meet Farm Bill requirements."

Wetland mitigation banking is the restoration, creation or enhancement of wetlands to compensate for unavoidable impacts on wetlands at other locations. The Farm Bill's wetland conservation provisions, commonly called Swampbuster provisions, aim to remove certain incentives to convert wetlands or to produce agricultural commodities on converted wetlands.

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NRCS hiring 1,000-plus employees to bolster field offices

AgWeek: Understaffed for years, the Natural Resources Conservation Service is making a push to hire more than 1,000 employees so farmers can be assured of receiving technical assistance on conservation practices.

"We need about another 1,200 employees across the board to actually maintain peak performance across the country, so we've been very aggressive in working with our HR team all across the country," NRCS Chief Matt Lohr said on Agri-Pulse's "Open Mic" podcast April 19.

The goal, he said, is to be at 10,600 employees by the end of the

year. So far this fiscal year, which ends Sept. 30, NRCS has hired 331 employees.

As of late January, the agency had about 8,800 full-time staff, with about 98% of them outside of Washington, D.C., and the vast majority of those in more than 2,500 offices nationwide.

The increased hires will be welcome in rural America. New personnel are "a great opportunity to help out landowners and the rural economy," says Coleman Garrison, director of government affairs for the National Association of Conservation Districts.

[READ MORE](#)

UM researchers urge governments to address transboundary mining pollution

Flathead Beacon: Led by a local University of Montana researcher, an international group of science and policy experts published a joint commentary in the acclaimed journal "Science" urging U.S. and Canadian leadership to address damages and risks caused by Canadian mine pollution flowing downstream into U.S. border states like Montana.

The joint publication highlights the threat and impacts of Canadian mines on shared rivers, fisheries and communities, and calls on the two governments to "align large-scale mine assessments with defensible science."

"Our paper highlights key shortcomings with mine evaluation and permitting processes in transboundary rivers," Erin Sexton, a researcher at UM's Flathead Lake Biological Station and the paper's lead author, said. "We concluded that Canada, the United States and Indigenous governments must collaboratively engage on joint environmental assessment of proposed, existing and legacy mines in our shared rivers."

According to the researchers, some of the most culturally and ecologically significant rivers flowing from Canada into the United States are impaired or threatened by a modern-day mining boom, where mines in British Columbia threaten downstream regions in Montana, Idaho, Washington and Alaska.

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Grants

Ranching for Rivers

The Ranching for Rivers program is accepting applicants on a rolling basis for 2020. Conservation Districts and watershed groups with identified projects, or individual landowners working with a local CD or watershed group may apply. The program offers 50% cost-share for project implementation and/or the development of a Grazing Management Plan. [More Info](#)

RDG Project & Planning Grants

The DNRC Reclamation and Development Grants Program (RDGP) is now accepting grant applications for RDG Project Grants - up to \$500,000. Grants are available to any city, county, Tribe, conservation district, or other local government subdivision in Montana. Proposed grants must provide natural resource benefits in one of two categories: 1) Reclamation projects; 2) Crucial state need: must prevent or eliminate damage to natural resources or capture extraordinary public benefit that would otherwise be lost. **Deadline: June 1** [More Info](#)

Montana Grazing Lands Education Mini-Grants

The Montana Grazing Lands Conservation Initiative (GLCI) is accepting applications for mini-grants and demonstration projects. The mini-grants will provide funding for educational events throughout the year and support partners and organizations with an interest in the conservation, education, and awareness of grazing lands and natural resources in Montana.

Mini-grant funding requests are limited to a minimum of \$50 and a maximum of \$1,000. There is no application deadline. [More Info](#)

Watershed Stewardship Funding

SWCDM, in partnership with DNRC and DEQ, is offering a one-time funding opportunity for Conservation Districts engaging in watershed planning and stakeholder engagement efforts! The deadline for applications is **May 13th** at 5:00 PM. For more information and application form, Visit: <https://swcdm.org/watershed-stewardship-funding/> or contact stephanie@macdnet.org for questions.

SWCDM Pollinator Cost Share

SWCDM, in partnership with NRCS, is offering 50% Cost-share on local-scale pollinator initiative programs. SWCDM will be accepting applications until Wednesday, **May 27**. Individual entities are eligible for up to \$5,000. Cost-share will require a 50% non-federal match. [More Info](#)

2020 Technical Assistance Grants

Natural Resources Conservation Service (NRCS) has entered into an agreement with NACD to provide funding to enhance conservation district technical assistance across the nation. A significant portion of the granted funds will be awarded directly to conservation districts to hire staff where additional capacity is needed to improve customer service and reduce workload pressure. Application deadline: **June 1**. [More Info](#)

Future Fisheries Grants

The Future Fisheries Improvement Program provides funding to projects that restore essential habitats for the growth and propagation of wild fish populations in lakes, rivers, and streams. Any entity with a good on-the-ground project that benefits wild fish can apply for funding through the Future Fisheries Program, including (but is not limited to) landowners, anglers, civic groups, conservation districts, or governmental agencies. Due **June 1**. [More Info](#)

Conservation Innovation Grants

Conservation Innovation Grants (CIG) are competitive grants that drive public and private sector innovation in resource conservation. CIG projects inspire creative problem solving that boosts production on farms, ranches, and private forests - ultimately, they improve water quality, soil health, and wildlife habitat. Deadline: **June 29**. Webinar for interested applicants **May 13**. [More Info](#)

Events, etc

Upper Columbia Basin Monitoring Workshop

Presented by Whitefish Lake Institute and the Flathead Lake Biological Station on Friday, **May 29, 2020** from 10am – 3pm at the Flathead Lake Biological Station. This training is free and open to the public. Mileage reimbursement up to 100 miles is available and sampling equipment will be made available as needed as well. Please RSVP by MAY 1st to

Coming Up

May

- 11 MACD Board Conference Call
- 12 SWCDM Board Conference Call
- 13 MACD Education Committee Conference Call
- 19 District Operations Committee Conference Call
- 25 MACD Executive Committee Conference Call RESCHEDULED

June

- 8-10 MACD Spring Board Meeting, Helena
- 22 MACD Executive Committee Conference Call

Have a story, funding opportunity, or event to share?

Please email tmc@macdnet.org with details.

Cynthia Ingelfinger at cynthia@whitefishlake.org

Montana Youth Range Camp

The annual Montana Youth Range Camp, hosted by the Lewis & Clark Conservation District, will be held August 3-6, 2020, at the C Bar N Ranch near Augusta, Montana. Visit <https://lccd.mt.nacdnet.org/> for more info.

Jobs

Range and Wildlife Conservationist - Billings

This position is located in the USDA field office in Yellowstone County, Montana and will provide conservation services for wildlife conservation in Yellowstone County, Montana and the surrounding counties. Deadline: **May 21.** [More Info](#)

MCC Field Crew Members

MCC is seeking field crew members for the summer term. Crews will camp for most of their terms, oftentimes in remote locations in varied terrain and in all weather conditions. Work may include building or maintaining trails, treating or removing invasive species, building fences, operating chainsaws to reduce wildfire risks by thinning trees, among many other types of projects. [READ MORE](#)

Assistant Fuels Reduction Program Administrator

The Lower Musselshell Conservation District in Roundup,

MT is looking to hire an assistant fuel reduction program administrator. The applicant will work directly with the Fuel Reduction Program Administrator and the USDA-NRCS office to further develop and administer the district's Fuels Reduction Program. Contact Wendy Jones, Wendy.Jones@MT.nacdnet.net for more info.

Project Manager

Montana Aquatic Resources Services is seeking a project manager based in Livingston. The project manager's role is to support MARS' mission through the administration and oversight of restoration and mitigation projects, including planning, implementation and long-term project management. [More Info](#)

Webinars

New tools for pinyon-juniper management: Balancing needs of sagebrush and woodland obligate birds

This webinar will highlight recent literature on wildlife response to pinyon-juniper management across the West, and new science and tools for considering sagebrush- and woodland-obligate songbirds, like pinyon jay, in conifer management. Knowledge gained from wildlife studies will be put into context of emerging remote sensing analyses that provide a comprehensive picture of continued woodland change. **May 27, 11am.** [More Info](#)