

THE MONTANA CONSERVATIONIST

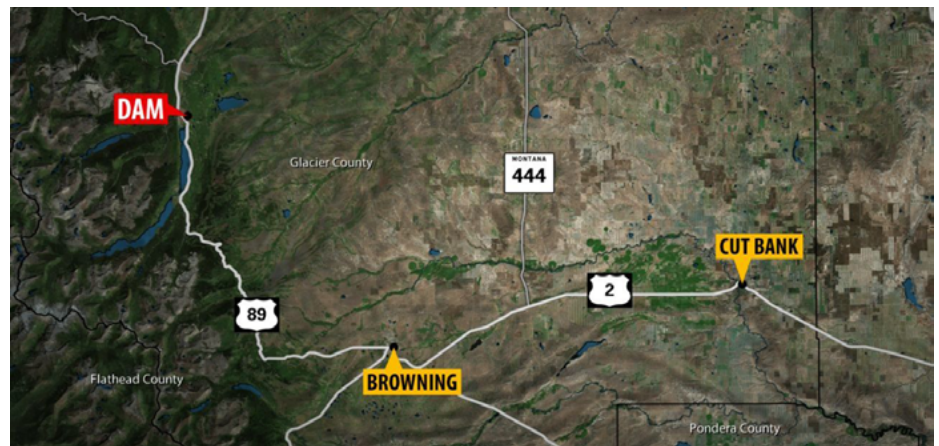
News from Montana's Conservation Districts

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Concrete drop structure fails on the St. Mary Canal

KRTV: The U.S. Bureau of Reclamation said in a news release that on Sunday, May 17, a concrete drop structure failed on the Bureau of Reclamation's Milk River Project at St. Mary Canal, northwest of Browning on the Blackfeet Indian Reservation.

The agency says that when the damage was reported, the canal was flowing approximately 200 cubic-feet-per-second (CFS) which is about 1/3 of the canal's total capacity of approximately 600 CFS. No injuries were reported, and canal flows have been shut off.

This concrete drop structure is the last of five drop structures that use gravity and siphons to convey water through the 29-mile long St. Mary Canal to the North Fork of the Milk River. Water is diverted into the canal from the St. Mary River, near Glacier National Park.

The Bureau of Reclamation, along with stakeholders of the Milk River Project, are assessing the situation to determine the impacts to the water users and options for restoring canal operation. Currently, Fresno Dam and Nelson Reservoir are both at full storage levels and will be used to provide continued irrigation deliveries. [READ MORE](#)

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Shrub encroachment on sloping grasslands can increase groundwater recharge

Science Daily: Grasslands across the globe, which support the majority of the world's grazing animals, have been transitioning to shrublands in a process that scientists call "woody plant encroachment."

Managed grazing of drylands is the most extensive form of land use on the planet, which has led to widespread efforts to reverse this trend and restore grass cover due to the belief that it results in less water entering streams and groundwater aquifers.

A new study led by Adam Schreiner-McGraw, a postdoctoral hydrology researcher at the University of California, Riverside, modeled shrub encroachment on a sloping landscape and reached a startling conclusion: Shrub encroachment on slopes can increase the amount of water that

goes into groundwater storage. The effect of shrubs is so powerful that it even counterbalances the lower annual rainfall amounts expected during climate change.

Until now, researchers have thought that woody plants like trees and shrubs have deeper roots than grass. This belief stemmed from scientists performing their related studies on flat ground.

"It is striking that ecosystem composition is what controls projected future changes to groundwater recharge," Schreiner-McGraw said. "This does not mean that climate change is not important, but that vegetation change is potentially more important and something that scientists and land managers should focus more effort on understanding."

Co-author Hoori Ajami, an assistant professor of groundwater hydrology at UC Riverside, said the paper looks at the combined effects of climate and vegetation change on groundwater-recharge processes in arid environments.

"Most studies to date have looked at these changes in isolation," Ajami said. "Here we illustrate that the combined effects of vegetation change and climate change could be greater or less than the sum of its parts."

The intrusion of shrubs into grasslands is often considered a problem because it reduces the amount of forage available for livestock grazing and can lead to more bare ground patches and subsequent increase in soil erosion. This process of creating more bare ground is called "xerification." Climate change contributes to xerification, but fire suppression and overgrazing play the biggest roles.

It makes sense that shrubs, which have deep root systems along with thick stems and many leaves, capture more water than grass does as it percolates down through the soil, leaving less available water to replenish the underground aquifers. Research on "diffuse recharge," the process by which water replenishes groundwater supplies over a large area, seems to bear this out for flat landscapes. Xerification of grasslands has thus been viewed as bad for both livestock and the water cycle.

"We approached this research with a simple premise that topography plays a role in redistributing available water, and this should affect the outcomes of xerification." [READ MORE](#)



Most farmers in the Great Plains don't grow fruits and vegetables. The pandemic is changing that.

Civil Eats: On a recent Thursday, a group of farmers from Oklahoma, Kansas, and Nebraska hosted a remote agriculture happy hour. There were a few dozen attendees, and nearly everyone was wearing a cowboy hat. In total, they farm more than 30,000 acres of cropland, most of it planted in soy, corn, or cotton destined for the global commodity market. The happy hour started with presentations about integrating livestock into cropping systems, but then things took a surprising turn: farmers began to discuss how they are feeding their families and communities.

"Normally, between me and the consumer there is a gigantic divide that is hard to cross, but now, people are hungry and I have to do something," Tom Cannon, one of the farmers on the virtual happy hour, told me several days before the gathering. Cannon, who farms

and ranches 10,000 acres near Blackwell, Oklahoma, was already feeling the squeeze from the trade wars with China when the pandemic hit.

The situation has disrupted many parts of the supply chain and left Cannon unable to move his products off the farm. He was inspired to respond after seeing long lines outside the local food pantry and bare shelves in the nearby Walmart, scenes now familiar across the country. "Even farmers are dependent on our fragile food system—and a lot of us are four days away from hunger," said Cannon. As a result, he's decided to start growing a variety of fruits and vegetables for local consumption, and he's doing it in a most unusual way.

I met Cannon this past January at No-Till on the Plains, an annual gathering in Kansas for medium

to large-scale farmers somewhere along the continuum of adopting ecological methods to protect soil health. Most have reduced or eliminated tilling on their farms in an effort to use fewer pesticides and chemical fertilizers. Many also use livestock and off-season cover crops to control weeds, enrich the soil with organic matter, retain moisture, and add nutrients for planting.

I attended the conference to speak about the public health effects of sustainable agriculture, a topic that has been a focus of my research and writing. But as I planned my remarks, I struggled with the message. On the one hand, most of the farmers at the meeting are doing a great deal more than their peers to safeguard public health by ensuring cleaner water and air, and by protecting wildlife and biodiversity.

And yet they primarily sell the same short list of crops that blanket most U.S. farmland: soy, corn, wheat, and cotton. These commodities are turned into a vast array of products with only a fraction fed directly to humans.

But COVID-19 has the potential to change everything.

Tom Cannon, for one, is planting six acres of vegetables. He calls it a "chaos garden" and it's essentially a cover crop, a crop that is planted in between cash crops. But while a standard cover crop may contain alfalfa, ryegrass, or sorghum that can be used for building soil organic matter or grazing, a chaos seed mixture might include peas, squash, radish, okra, melons, sweet corn, and other edible plants. In other words, it contains groceries. [READ MORE](#)

Dust Bowl conditions of 1930's now more than twice as likely to occur

The Guardian: The agricultural conditions known as a "dust bowl", which helped propel mass migration among drought-stricken farmers in the US during the great depression of the 1930s, are now more than twice as likely to reoccur in the region, because of climate breakdown, new research has found.

Dust bowl conditions in the 1930s wrought devastation across the US agricultural heartlands of the Great Plains, which run through the middle of the continental US stretching from Montana to Texas. The conditions are caused by a combination of heatwaves, drought and farming practices, replacing the native prairie vegetation.

Those conditions occurred in the 1930s, when they exacerbated the woes that farmers were already experiencing because of the wider economy, after two record-breaking heatwaves in 1934 and 1936, which are still the hottest US summers on record.

Such conditions could be expected to occur naturally only rarely – about once a century. But with rising concentrations of greenhouse gases in the atmosphere, dust bowl conditions are likely to become much more frequent events.

They are now at least two and a half times more likely to occur, with a frequency probability of about once in 40 years, according to projections by an international group of scientists published on Monday in the journal *Nature Climate Change*.

If global temperatures rise by more than 2C (a rise of 3.6F) above pre-industrial levels, such heatwaves will become one-in-20-year events in the region, according to the study's authors.

[READ MORE](#)

Below: Abandoned farm buildings and machinery in the dust bowl caused by poor farming technique, as seen in May 1935. Photograph: Dorothea Lange/Time Life Pictures/Getty Images



Increased frequency of connected patterns from drought to heavy rain in regional hotspots

PHYS.ORG: Like an undulating seesaw, weather in some regions swings from drought to heavy rain under the weight of climate-induced changes, according to an analysis published in *Geophysical Research Letters*. The study finds a link between droughts followed by heavy rain events, along with an increased rate of these extreme weather occurrences.

In areas with vulnerable populations and high poverty rates, these swings are likely to exacerbate conditions. This research could inform more effective climate adaptation planning and policies by identifying where these swings are likely to occur.

"Extreme dry and wet conditions are increasingly making global headlines. However, existing studies generally treat them in a separate way," said study lead author Xiaogang He, who conducted the work at Princeton University as a Ph.D. student and is now a postdoctoral fellow at Stanford University's Water in the West Program. "Their consecutive occurrence, especially in the same location within a short period, magnifies impact on local populations, and therefore deserves more attention."

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Nonprofit to close a third of Montana's abandoned oil, gas wells

MTPR: A Montana nonprofit is at the beginning of closing roughly a third of Montana's abandoned oil wells. The group says it aims to stop the wells from leaking carbon and methane into the environment.

The Well Done Foundation says it plugged its first well in Toole County in late April and monitoring shows it no longer emits greenhouse gasses.

While Montana has relatively few orphaned wells compared to other states - a couple hundred instead of thousands - Curtis Shuck with the Well Done Foundation says about two dozen wells can put tens of thousands of metric tons of greenhouse gasses to the environment.

"On an annual basis, it's literally hundreds and hundreds of semi trucks stacked up," he says. "And I had an analogy once if you lined them up from end to end, they'd stretch from Shelby to Helena."

According to the Well Done Foundation, this first well alone emitted more than 6,600 metric tons of carbon dioxide equivalent annually.

Shuck says defunct operators left the Toole County wells to the state when operators were unable to pay for plugging.

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Park County ranchers donate meat, make a difference

AgUpdate: Matt Pierson is a rancher in central Montana, just outside of Livingston. In addition to his cattle operation, Pierson serves as president of the Livingston Youth Soccer Association and is the girls varsity soccer coach for Park High School.

Being so vested in the community has allowed Pierson to easily notice people were struggling and the impact of the coronavirus made it that much worse. Pierson wasn't comfortable sitting back. He wanted to help and that is when an idea struck him.

"I decided I was overthinking this a lot. I realized we had cows, it's what we do for a living, so I started

to make some phone calls to see if I could get cows processed into hamburger and get them donated out, and if I could find the animals," Pierson said.

Pierson's phone calls proved that both of his questions were quite possible. In fact, his brain child of donating beef to local food banks basically exploded overnight. The Park County Community Foundation stepped up and offered to assist Pierson in setting up a fund, and from there, things started falling together in rapid fashion.

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10,000 acre conservation easement east of Miles City ok'd

Billings Gazette: Montana Fish, Wildlife & Parks has completed the 10,072-acre Coal Creek Conservation Easement in Custer and Prairie counties.

The easement, which is located about 12 miles south of Terry, is adjacent to an existing conservation easement held by FWP. The easements, coupled with intermingled and adjacent public land, contribute to a large footprint of conservation and public access.

Funding for the project came from the NRCS Agricultural Lands Easements (ALE) program, and from Habitat Montana, which earmarks a portion of hunting license revenue for conservation of wildlife habitat. The value of the easement was determined by an independent appraisal. No state tax dollars were used to fund the easement, which will be administered by FWP.

"Conservation easements are 100 percent voluntary," explained FWP Region 7 wildlife manager John Ensign. "In this case, the Coal Creek property lies adjacent to an easement that we completed back in the early 2000s, so the landowner was familiar with what an easement entails, and he approached us in 2016 to see if an easement might be a good fit."

In wildlife biologist Melissa Foster's view, the ranch was an excellent fit for a conservation easement.

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Another piece of the Flathead River conservation puzzle falls into place

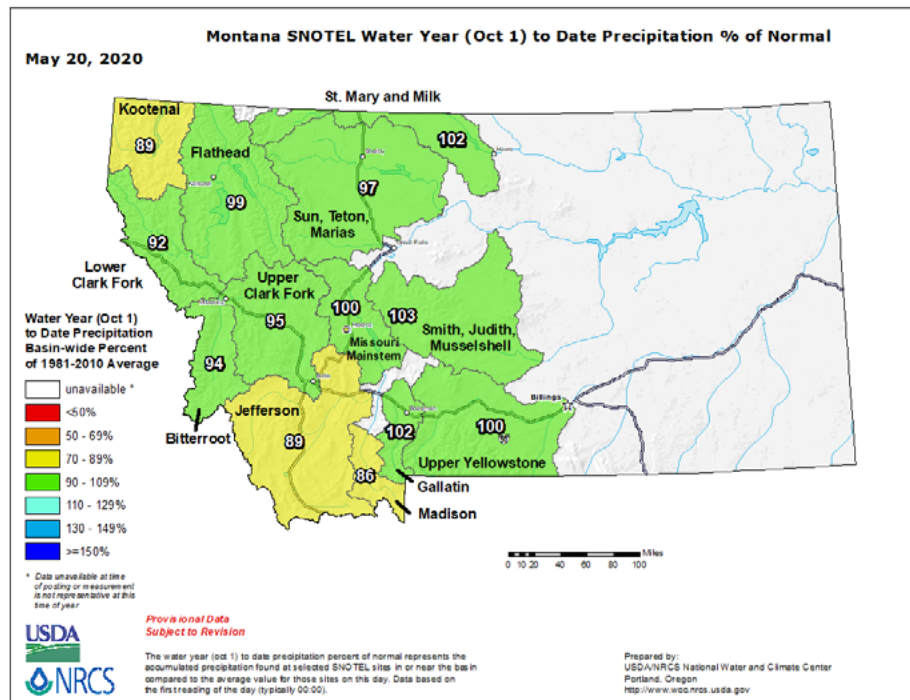
Flathead Beacon: The Flathead Land Trust has placed 155 acres of land under a conservation easement in the lower Flathead River corridor, adding to the network of nearly 12,000 acres it has already preserved or helped protect through easements and partnerships.

Dubbed the Flathead River Conservation Project, the latest piece of the conservation puzzle was completed through a years-long collaboration between the nonprofit organization and the Danford family, which has farmed the land for nearly a century. The conservation easement protects key wetlands and riparian habitat as well as rich farm soils along a third of a mile of the Flathead River adjacent to 725 acres of conserved private land.

Billed as a key stepping stone toward maintaining the water quality of Flathead River and Flathead Lake, the project also benefits fish and wildlife, farm soil, “and the incredible quality of life we enjoy in the Flathead Valley,” Paul Travis, executive director of the Flathead Land Trust, said.

According to Travis, the organization has been working to secure the land through an easement for several years, during which time it raised matching community funds and received widespread support.

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Cool April weather prolongs snowpack across Montana

Weather patterns during the first two weeks of April, while cooler than average, didn't yield much precipitation across the state of Montana. However, the below average temperatures during this period did help to delay snowmelt at many low- and mid-elevation mountain locations during the first half of the month according to data collected by SNOTEL sites maintained by the USDA Natural Resources Conservation Service (NRCS).

“Both east and west of the Divide, snowmelt was delayed by a week or two at lower elevations because of these weather patterns, which is great news as it keeps that water in the mountain snowpack and prolongs streamflow during the summer when demand is the highest,” said Lucas Zukiewicz, NRCS water supply specialist for Montana.

The last week of April brought a major weather pattern change that caused the snowpack to transition towards melt at most elevations in Montana. “The abundant sunshine and above average temperatures that persisted since April 20th took their toll on the snowpack in the mountains. Since then, rapid snowmelt caused rivers and streams in the state to begin the seasonal rise from snowmelt runoff,” said Zukiewicz.

In some areas the snowmelt is ahead of schedule, raising questions about available water supply later in the summer.

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Grants

COVID-19 Rapid Response Infrastructure RFP

Mosaic is launching an open RFP in May 2020 to make \$1 million of rapid response grants to individual nonprofit grassroots organizations, and networks of them, focused primarily on environmental protection and/or environmental justice to fund tools & technology, training, and related resources needed as a result of the COVID-19 pandemic. [More Info](#)

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](#)

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](#)

Wild & Scenic Rivers Community Watershed Science Funding

River Network and the National Park Service (NPS) are excited to announce a funding opportunity for nonprofit organizations working on community watershed science activities on NPS administered Wild and Scenic Rivers and Partnership Wild and Scenic Rivers. Funding will range from \$3,000-\$10,000 per award for work occurring between July 15th, 2020 and November 16th, 2020. Due **June 8**. [More Info](#)

Youth River Education, Recreation Program Grants

The National Park Service and River Network are pleased to announce a grant opportunity to fund projects that develop and/or expand "on-water" education, recreation, and/or cultural preservation programs for youth and young adults. Individual awards may range from \$5,000 to \$25,000. Due **June 10**. [More Info](#)

USDA Cooperative Agreements for Community Compost and Food Waste Reduction

On May 11, the USDA announced the availability of \$900,000 for local governments to host a Community Compost and Food Waste Reduction (CCFWR) pilot project for fiscal year (FY) 2020. The cooperative agreements will support projects that develop and test strategies for planning and implementing municipal compost plans and food waste reduction plans. Due **June 26**. [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**. [More Info](#)

Wetland Mitigation Banking Program Funds

USDA has \$5 million available to help states, local governments and other qualified partners develop wetland mitigation banks to restore, create or enhance wetland ecosystems. Due **July 6**. [More Info](#)

Missoula RAC Accepting Project Proposals

The Missoula Resource Advisory Committee (RAC) is now

accepting new project proposals. The application deadline is **Aug. 1**, and the committee has approximately \$151,500 in project funding to award. At least 50% of all funds must be used for projects primarily dedicated to restoring streams and watersheds, or road maintenance, decommissioning or removal. [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 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.nacdn.org/> for more info.

Jobs

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](#)

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](#)

Fisheries Technician

MT FWP is seeking a fisheries technician based in Kalispell. Closes **June 7**. [More Info](#)

Northern Rockies Program Manager

The Trust for Public Land is seeking a leader with demonstrated ability in project management and community engagement, and a background in open space acquisition and conservation and park/trail creation. This position reports to the Northern Rockies Area Director. Based in Bozeman. Posted May 19. [More Info](#)

MT WILD Program Specialist

Montana Fish, Wildlife & Parks is recruiting for a Public Education Specialist to join the Communication Education Division team. This position is located in Helena. Closes **May 27**. [More Info](#)

Coming Up

May

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.

Bumblebees' 'clever trick' fools plants into flowering earlier

BBC: Scientists have discovered a new behaviour among bumblebees that tricks plants into flowering early.

Researchers found that when deprived of pollen, bumblebees will nibble on the leaves of flowerless plants.

The damage done seems to fool the plant into flowering, sometimes up to 30 days earlier than normal.

Writing in the journal *Science*, the scientists say they have struggled to replicate the bees' trick in the laboratory.

With their fuzzy appearance and distinctive drone, bumblebees are hard to miss in gardens all over the world.

Their dense, hairy bodies make them excellent pollinators for crops like tomatoes and blueberries.

They are among the first bees

to emerge each year and work a long season. Some colonies remain active through the winter in southern and urban areas of the UK.

But despite their key role, bumblebees, like many other pollinators have seen their numbers tumble in recent decades.

One recent study pointed to climate change, reporting that an increasing number of hot days in Europe and North America was boosting local extinction rates.

But researchers have now made a discovery about bumblebees that could have relevance to their long-term survival.

Scientists in Switzerland found that when the bees were deprived of pollen, they started to nibble on the leaves of plants that hadn't yet flowered.

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