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Monthly

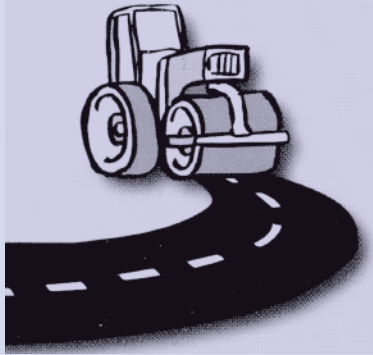
May 2021



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**Wild Horse Roundup: Story by Sandy Sharkey starting page 6**

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*See Page 5 for details.*



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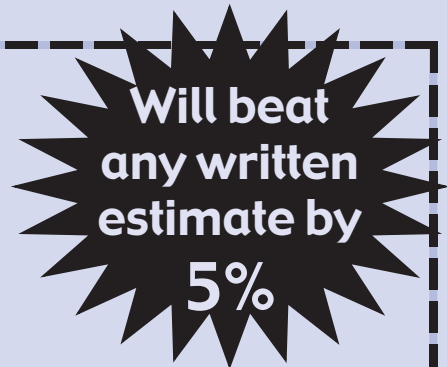
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COPY EDITOR, PRODUCTION & DESIGN  
**Anita M. Wilks**  
CONTRIBUTING WRITERS  
**Diane Bergstrom**  
[BuffaloFieldCampaign.org](http://BuffaloFieldCampaign.org)  
**Jennifer Dimas - CSU**  
**EarthTalk**  
**Batista Gremaud**  
**Mary Guiden - CSU**  
**Oliver Milman - High Country News**  
**Jim Plane - State Farm Insurance**  
**SandySharkey.com**  
**Robyn Vincent - High Country News**  
**Valerie Wedel**  
**A.M. Wilks**  
CONTRIBUTING PHOTOGRAPHERS/ARTIST  
**Diane Bergstrom**  
**CSU**  
**Sandy Sharkey Photography**  
**Anna Shvets - Pexels**  
**Valerie Wedel**  
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# Covid Vaccine Canyon Clinic

The Coal Creek Canyon Improvement Association has volunteered the local Hall as an immunization site for all mountain residents who call/email for a reservation to get the vaccine to help in protection against the Covid virus.

**On Saturday May 15th you may come to the CCCIA Hall: 31528 Highway 72 in Coal Creek Canyon** at the time of your reservation to get your first shot. The date for your second shot will be determined while you are there. Either 21 or 28 days after your first shot depending on whether it is Moderna or Pfizer being administered.

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**The clinic will be open from 9 AM to 4 PM** and try to carpool if possible to avoid traffic and parking issues at the Hall parking lot.

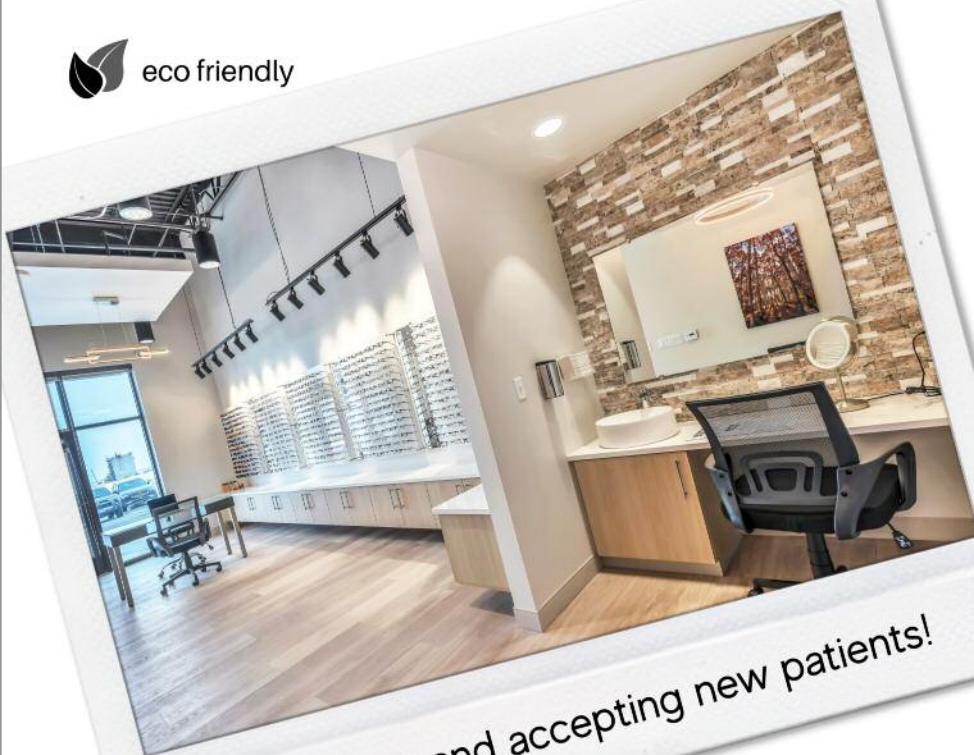


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# Sandy Sharkey Sounds Alarm For Wild Horses

Heartbreaking news: the Bureau of Land Management (BLM) is planning to round up 80% of the beloved wild horses of Onaqui in Utah. From July 12th to July 22nd, the sounds of helicopters will fill the skies over this vast desert.

Through my photography, one of my goals is to show the deep connections that wild horses share. Family is everything. Stallions, mares and foals have close bonds with each other, and it is very moving to witness.

This July, terrified families of wild horses will be chased by helicopters for miles. The stallions, mares and foals will give every ounce of determination to stay together. Foals will collapse, mares will cry out and stallions will fight to save



their families. But in the end, after all endurance and heart from the wild horses is exhausted, the heavy hand of mankind and machinery will prevail. Not only will these magnificent, sentient animals lose their freedom, they will lose their families. Their heart and their spirit will be broken.

In the U.S, there are approximately 53,000 wild horses and burros currently languishing in holding facilities. The BLM has released their roundup schedule, and an additional 10,000 wild horses and burros will be

captured, separated from their families, 'processed,' and shipped to holding facilities. Some will be adopted by caring people. Some will be rescued by sanctuaries. Unscrupulous buyers will 'adopt' wild horses then ship them to auction where kill buyers are lying in wait. Most captured wild horses and burros will live out their lives in massive outdoor pens similar to cattle stockyards.

Why is this happening?

In the 50's and 60's, 'mustangers' were capturing wild horses and selling them for pet food. The wild horse numbers in severe decline, Congress passed the 'Wild Free-Roaming Horses and Burros Act' in 1971 in order to protect 'living symbols of pioneer spirit.' The BLM, tasked with regulating public lands, had always kept the

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## Highlander Wild Horse

their cattle and sheep on public lands.

Utah's Onaqui HMA is over 206,000 acres. According to the BLM, this rangeland will only support 120 to 210 wild horses. Yet over 7,000 privately owned sheep and cattle steamroll through the Onaqui range, with grazing rights subsidized by the American taxpayer.

This story is told over and over again throughout several states. In 2021, over 10,000 wild horses will be removed from public lands in Wyoming, Oregon, Arizona, Nevada, Colorado, Idaho, and Utah. These numbers include wild burros. The roundups and warehousing of wild horses and burros costs the American taxpayer an estimated 65 million dollars a year. This is added to the subsidies handed to private ranchers for grazing their livestock on public lands.

Given the BLM's propensity for siding with the interests of the livestock industry, it is time for change. On March 15th 2021, President Biden's choice for Interior Secretary was confirmed: Deb Haaland.

Haaland is the first Native American to serve as a cabinet secretary. Favouring science to (Continued on next page.)



interests of livestock grazing as a top priority. With the passing of this new law, the BLM faced a challenge from the cattlemen who had a stronghold on grazing districts. Where would the wild horses fit in?

In order to regulate the wild horses on public lands, the BLM created 'Herd Management Areas' (HMA's), and 'Appropriate Management Levels' (AML's). This would not only restrict the geographical regions where wild horses could exist, it would also severely limit the number of wild horses deemed acceptable to the health of the rangeland. In 2013, the National Academy of Sciences found that the AML system had no basis in science. In fact, the 'AML's' for wild horses were determined by the private livestock industry, who pays a pittance to graze

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## Highlander Wild Horse



protect public lands, Haaland is a long-time supporter of America's wild horses and burros.

The BLM has long resisted science-based management for the wild horse and burro program, instead favoring the use of cruel helicopter roundups leading to the warehousing of thousands of wild horses and burros.

With Haaland's appointment, the time is now.

The interests of the private livestock industry have driven the BLM's Wild Horse and Burro program for over 50 years. It's time for an unbiased, science-based task force to overhaul the broken system, including safe, humane on-range fertility control, updated Appropriate Management Levels, and protections from slaughter. Until

the Wild Horse and Burro program is reviewed, overhauled, and based on current science, we must halt the helicopters.

In 2018, I drove over 4,000 miles throughout the American southwest to photograph the living symbol of freedom: the wild horse. From snow-capped mountaintops to vast desert spaces, I observed wild horse families, mares and stallions snuggling close, foals romping and playing.



The close bonds between wild horse families are a beautiful thing to see. The untamed spirit of the wild horse



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## Highlander Wild Horse

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Sandy Sharkey is a professional  
wild horse photographer, writer,  
guest speaker and advocate. Her  
images of wild horses adorn  
homes and office spaces around  
the world.

Please see her work at

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can teach us a thing or two about ourselves, and  
the freedom that exists in all of us.

Again in 2021, helicopters will chase down  
and separate terrified wild horses from their  
families. There are many factors missing from  
the BLM's release of the 2021 wild horse and  
burro roundup schedule.

But there is one omission that stands out:  
compassion.

Please add your voice for the protection of wild  
horses and burros, and the need to move  
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# Wild Horses Can Help Prevent Wildfires

By Valerie Wedel

Wild horses... The image of a horse, wild, free, head up, mane blowing and tail flagged high, lives in our hearts. Your writer has had the great joy of seeing this sight in person. The first time I saw this was in New Mexico. A pair of mustangs, a paint and a black, running the open range together. Years later, the sight, smell and taste of the desert, with horses on the wind, and feelings it evoked, are as clear as if it happened just yesterday. Horses, running free on open range, sing to our spirit.

Wild horses living free on open range also help prevent wildfires! After the summer of 2020, when our west burned, the sky turned red and dim for hundreds of miles, and people struggled to breathe... Preventing and mitigating wild fires should be on all our minds.

Wild horses' grazing patterns are such that they graze down a large variety of fuels that make fires burn too hot. They reduce the number and severity of wildfires. They help trees, by breaking off dead, low-hanging branches, and turning the dead branches into mulch on the soil. This prevents fires from becoming catastrophically hot and destroying the trees. It also replenishes soil, and makes the trees healthier.

As rancher William E. Simpson wrote in his article of 2017, wild horses have a symbiotic relationship with trees, and open range vegetation.(1) They do this better than cattle or other domestic livestock, for many reasons. Since horses only have one stomach (sheep and cattle each have four), horses eat seeds, and then re-distribute them in pre-fertilized packages on the land. This encourages new growth of vegetation. Simpson's article is highly recommended, for a rancher's common sense approach to fire mitigation through wild horses, free on open range.

In 2019, Simpson appeared on a radio show associated with Southern Oregon University. He talked about new science, supporting a need for substantially increased numbers of wild horses in remote wilderness areas.(2) He cited data, proving modern wild horses were here, on the North American continent, before the Vikings or Columbus arrived. These startling findings overturn earlier theories that horses, originally native here, completely disappeared from North America during a mass extinction event, at the end of the last ice age. Horses have apparently been here all along! Amazing science. This means restoring native wild horses to some of their original habitats is also helping heal our land and water.

There is an organization called "Wild Horse Fire Brigade."(3) They are devoted to re-introducing wild

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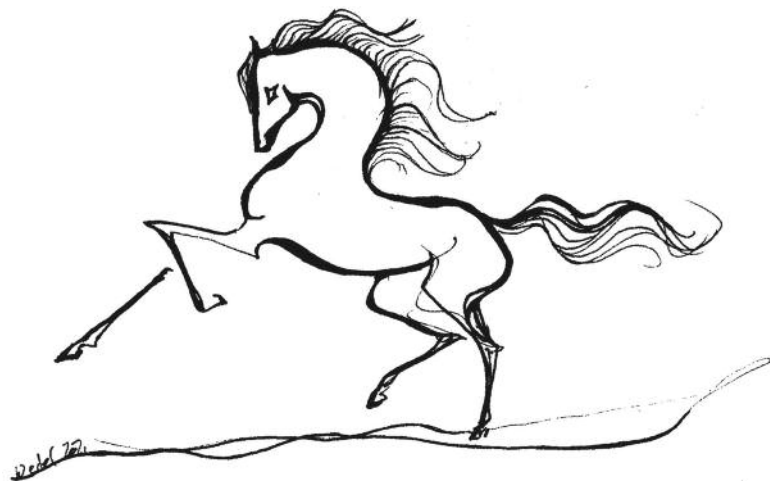
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You can help: Visit the website, and read the Natural Fire Abatement and Forest Protection Plan. Contact our legislators to enlist their support. Would it be possible to adopt wild horses and trailer them to these areas for release?

Could we even locate a herd on some of our open space lands in Colorado?

*References*

1. <https://www.horsetalk.co.nz> Simpson, William E. *Fighting Wildfires With Horses – An Untapped Equine Fire Brigade.* July 8, 2017.
2. <https://www.ijpr.org/show/the-jefferson-exchange-How-Wild-Horses-Could-Reduce-Fire-Danger> (Link will take reader to a radio talk show, from the University of Southern Oregon, October 15, 2019)
3. <https://www.wildhorsefirebrigade.com/> Website containing current science of wildfire mitigation, and how wild horses help with this in remote wilderness areas.

**Editor’s Note:** While I won’t discredit the ideas and merits of this article, I do however have issues with transporting wild horses. Even if it is to benefit them and help prevent forest fires, they are wild and I think only horses already captured and in holding pens could be good candidates.

horses to their native and ancestral habitat, in remote western wilderness areas. There is no competition with domestic livestock in these areas, because the land is too rough, remote and dangerous to run domestic livestock. There is no worry about overpopulation of horses in these areas either. All the apex predators - bears, wolves, coyotes, lions - on our continent may hunt wild horses.(2) Such apex predators still live in the remote areas proposed for relocation of wild herds of horses. In these remote and dangerous locations, wild horses will reduce fire danger and strengthen the local ecosystems. They will help restore and heal our land.

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# What The Narwhal Can Tell Us

By Matt Simon April 9, 2021 High Country News

## An analysis of the species' 10-foot-long tusk shows an accumulation of mercury and a change in diet as sea ice retreats.

This story was originally published in WIRED and is reproduced here as part of the Climate Desk collaboration. Researchers have long debated what the 10-foot-long tooth that erupts from a narwhal's head is actually for. Perhaps it has something to do with sexual selection, and males with longer horns attract more females. Or maybe the things sense salinity. Or perhaps a narwhal uses its tusk to flush out prey on the ocean bottom.

Whatever the purpose, scientists know this for certain: The Arctic region, which the narwhals call home, is warming twice as fast as the rest of the planet, and by analyzing these tusks, researchers can glean surprisingly detailed insights into how the animals are dealing with catastrophic change. It's not looking good.

Writing in March in the journal *Current Biology*, scientists described what they found in ten tusks collected from animals in northwest Greenland. Because a tusk grows continuously over the many decades of a narwhal's life, the researchers could read the outsized teeth like the

rings of a tree. They found that between 1962 and 2000, the mercury in the tusks increased by an average of 0.3% a year, but between 2000 and 2010 it increased by 1.9% per year. This is consistent with increased mercury discovered in the bodies of other top predators in several regions across the Arctic, possibly due to air pollution blowing in from the south.

The scientists are also finding evidence in the tusks that the narwhals' diet is changing, from consuming species associated with sea ice to eating more open-ocean species. This corresponds to a dramatic decline in Arctic sea ice since the year 1990. "Instead of doing 40 years of work to get 40 years of data, you can in one year of work get narwhal tusks and go back 50 years in time," says McGill University wildlife toxicologist Jean-Pierre Desforges, one of the lead authors on the paper. "So that's the really remarkable thing."

Mercury is a potent neurotoxin that bioaccumulates in species as they ingest it over a lifetime. When an organism at the bottom of the food chain consumes mercury, it collects in its tissues. Then something bigger eats that animal and its mercury, and so on up the food chain. Some top predators, like the polar bear, bioaccumulate a lot of mercury but can also expel it—the bears sequester it in their thick fur. No such luck for the smooth-skinned narwhal. "For an animal that lives a long time — these whales can live over 50 years — they're accumulating mercury year after year," says Desforges. "That's why they get to really high levels, and that's of course why we're concerned. If these levels get high enough, they could have a negative effect for the species." That might include reproductive or cognitive effects, since mercury is a neurotoxin.

The other troubling signal the researchers found in the tusks hinted at the whales' changing food sources. They looked for stable isotopes of carbon and nitrogen, residues of narwhals' diet that linger in their tusks. Carbon reveals information about the prey's habitat — for instance, if it lived in the open ocean or closer to land. Nitrogen tells you its trophic level, or where in the food chain it was. "Together, they give you an idea of the overall foraging ecology of the species," says Desforges.

As with mercury, Desforges could map how this diet changed over time. Prior to 1990, the whales had been feeding on "sympagic" prey associated with icy habitat—Arctic cod and halibut. Then their diet began to shift toward more "pelagic," or open-ocean, prey like capelin, a member of the smelt family. "We're not looking at actual stomach contents of prey or anything," says Desforges. "But we are essentially arguing that this temporal pattern matches extremely well with what we know about sea ice extent in the Arctic, which after 1990 starts dropping pretty

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dramatically.”

A narwhal tooth grows continuously over the many decades of a narwhal’s life, allowing researchers to read the outsized teeth like the rings of a tree.

A couple of things could be going on. As the sea ice retreats in the Arctic, the ecosystems below it may be reshuffling, leading to population declines among Arctic cod and halibut. In that case, the narwhals would have to turn to hunting open-ocean species to make up their dietary deficit. On the other hand, those populations of cod and halibut may not necessarily be declining, but simply shifting north. Or it could be that as Arctic waters warm, more capelin are around, and the narwhals aren’t about to pass up an abundant meal.

But if a fish is a fish, why would it matter what the narwhals are eating, so long as they’re getting enough food? It turns out that not all fish are created equal. “Arctic species are more nutritious, energy-wise,” says Desforges. To survive the cold, fish need to pack on fat, which means more calories for the predators that feed on them, like narwhals. “If they’re shifting prey to less Arctic species, that could be having an effect on their energy level intakes,” Desforges adds. “Whether that is true is yet to be seen, but it’s certainly the big question that we need to start asking ourselves.”

This dietary reshuffling — which may or may not be a problem for the narwhal — could collide with rising mercury levels, which are a problem for any animal. These two threats could turn out to be more problematic combined than they are alone. “That’s the tricky part,” says Desforges. “We essentially have data that suggests that things are changing, but we really don’t have an idea of how that’s impacting the whales here.”

The power of this tusk-analysis technique is that it can theoretically allow scientists to look even further back in time than the 1960s. Taking a tissue sample from a living narwhal only gives you data on how the individual is faring at that moment. But natural history museums all over the world have narwhal tusks in their collections going back over 100 years. “Museum collections offer a great opportunity to look at these changes



*Narwhals breach in the Arctic Ocean. oooOOC / CC via Flickr*

over even deeper time,” says Moe Flannery, senior collections manager of birds and mammals at the California Academy of Sciences, who wasn’t involved in this work. “Museum specimens hold this hidden information that is not easily accessible, but is accessible to researchers who study changes over time.”

Looking forward in time, though, it’s hard to say what a rapidly changing Arctic will have in store for the narwhal, and what signals of climate change we might find in its tusks in the future.

*Matt Simon is a science journalist at WIRED, where he covers biology, robotics, cannabis and the environment.*

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# The Neuroscience Of Exercise

By Batista Gremaud

Neuroscience is the study of the brain, the spinal cord, how the nervous system develops, its structure, what it does, and its impact on behavior and cognitive functions. The neuroscience of physical, mental, and spiritual health is very dear to my heart because of my family’s history of mental illness. My family practiced healthy living; we lived on a farm, and ate fresh vegetables we grew in our garden. We were dancers, athletes, health-conscious, and spiritual.

So...what went wrong?

My sister was diagnosed with schizophrenia at age 20. She just passed away last Christmas, having spent her entire life in mental institutions. My brother suffered brain damage when he was 5 months old. He is still in a mental institution today at 64 years old. My mother suffered from religious psychosis and was hospitalized on many occasions. My father couldn’t take it anymore. When I was 10 years old, he jumped out a second-story window, broke all his bones, and ended up in the psych ward. Consequently, he was on medication for the rest of his life and passed away from dementia in 2009.

As a teenager, I was confused and baffled by all these dysfunctional behaviors; I didn’t want to be like them, I left home at age 15. And so began my conquest of searching for answers throughout my entire life. Here are some of my findings:

The brain can regenerate itself with the right activities, mindsets, and nutrition. It is what we know as neuroplasticity.

The benefits of mindset and nutrition for brain health are widespread, but not so much when it relates to exercise. Research shows that exercise induces neuroplasticity. It increases oxygen in the brain by opening new pathways internally. It stimulates the development of blood vessels in the brain, improves healing of neural tissue, creates new neurons in memory formation areas of the brain, and stimulates cellular growth that supports cognitive function. It stabilizes mood behavior by augmenting the production of mood-elevating neurochemicals such as dopamine and endorphins. Other studies indicate that it helps in addiction recovery and potentially tempering impulsive/compulsive behaviors because it also increases the production of serotonin.

The nervous system connects every cell in the body to the brain through the spine. It controls every cell, tissue, and organ, as well as emotions, feelings, and thoughts. The brain is like the electrical panel in your home, the nerves are like the wiring, and the spinal cord the conduit.

When your nervous system is stressed out, you are prone to:

- Overthinking
- Poor diet

Doing strenuous exercises counterproductive to where your body is at by not factoring in your age, posture, conditioning, limitation of range of motion, injuries or the right fitness tool to physically strengthen the body.

The chances are that your nervousness will blow a fuse, potentially resulting in injury, illness, depression, anxiety, and/or addictions.

If the conduit is damaged, the electricity will not reach the control box. Similarly, if the spine is misaligned, it affects the nerve tissue by altering blood flow to the spinal cord and impairs the neurochemicals’ delivery to the brain.

Bad posture prematurely ages the spine, joints, tendons, and ligaments and results in injuries such as sciatica, frozen shoulder, knee pain, hip pain, and back pain.

Clearing the neuromuscular pathways to the brain through postural realignment exercises is imperative to restore blood flow to the brain and prevent early degeneration of the spine.

While exercise, in general, has proven to be an essential component of neuroplasticity and brain health,

research shows that strength training explicitly provides additional health benefits.

A study published by the International Journal of Experimental, Clinical, Behavioral and Technological Gerontology (Karger) shows that increasing leg strength, the most massive muscles in the body, is linked to improved brain function because it improves the flow of blood into the brain. The study also shows that increasing leg power improved cognitive aging over the following ten years by increasing brain volume and brain activation, as shown in functional MRI studies after 12 years.

Grounding the physical body and strengthening it through exercises that strengthen the nervous system is like upgrading the electrical panel wiring of your house, providing a sense of calm, relieving stress, and restoring a state of balance in the body.

I leave you with a question: Could strength training be the answer to the fountain of youth?

Through postural realignment exercises it is imperative to restore blood flow to the brain and prevent early degeneration of the spine. While exercise, in general, has



proven to be an essential component of neuroplasticity and brain health, research shows that strength training explicitly provides additional health benefits.

*Image by Anna Shvets from Pexels  
Batista Gremaud, author of **Feminine Body Design: Empowering Fitness for Pain-free Life** is co-founder of [www.DrFitnessInt.com](http://www.DrFitnessInt.com).*

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# Improve Your Health With Nature Sounds

By Mary Guiden CSU

Take a nature walk through Rocky Mountain National Park: [http://bit.ly/sounds\\_RMNP](http://bit.ly/sounds_RMNP)

Coyotes howling, birds singing, rain falling – natural sounds inspire us and connect us to nature. New research by a team of scientists shows that natural sounds are also good for our health.

Researchers from Colorado State University, Carleton University, Michigan State University and the National Park Service analyzed studies on the outcomes of listening to natural sounds and found striking human health benefits. The team found people experienced decreased pain, lower stress, improved mood and enhanced cognitive performance. The sounds of water were most effective at

improving positive emotions and health outcomes, while bird sounds combat stress and annoyance.

The study, “A synthesis of health benefits of natural sounds and their distribution in national and state parks,” is published March 22nd in Proceedings of the National Academy of Sciences.

The team scrutinized sound recordings from 251 sites in 66 national parks across the United States as part of the study. Dozens of CSU students identified different types of sounds in recordings, the result of over a decade of collaboration between the University and the National Park Service.

“In so many ways, the COVID-19 pandemic has emphasized the importance of nature for human health,” said Rachel Buxton, one of the lead authors and post-doctoral researcher in Carleton’s Department of Biology. She was previously a postdoctoral research fellow at CSU, where her research used large-scale acoustic recordings to tackle soundscape conservation issues, working with the Sound and Light Ecology Team.


“As traffic has declined during quarantine, many people have connected with soundscapes in a whole new way – noticing the relaxing sounds of birds singing just outside their window,” she said. “How remarkable that these sounds are also good for our health.”

Amber Pearson, one of the lead authors and an associate professor at Michigan State University, said the findings highlight that, in contrast to the harmful health effects of noise, natural sounds may actually bolster mental health.

“Most of the existing evidence we found is from lab or hospital settings,” she said. “There is a clear need for more research on natural sounds in our everyday lives and how these soundscapes affect health.”

Pristine soundscapes located across the country in National and state parks have some of the most pristine soundscapes in the U. S., and the National Park Service increasingly recognizes natural sounds in policy. Although the research team found that health-bolstering sites in parks – those with abundant natural sounds and little interference from noise – do exist, parks that are more heavily visited are more likely to be inundated with noise. That means that many park visitors are not reaping the health benefits found in more quiet spaces.

“Park sites near urban areas with



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higher levels of visitation represent important targets for soundscape conservation to bolster health for visitors,” said Kurt Fristrup, a coauthor on the study and bio-acoustical scientist at the National Park Service.

“Nature-based health interventions are increasingly common in parks, and incorporating explicit consideration of the acoustic environment is an opportunity to enhance health outcomes for people.”

Many innovative programs exist to increase people’s appreciation of acoustic environments, from sound walks and excursions where the main purpose is listening, to quiet zones, where soundscapes are enhanced by asking visitors to appreciate a park quietly. Paired with noise management, these methods allow visitors more exposure to natural sounds and their health benefits.

“Our results contribute to the growing conversation about the conservation and accessibility of parks and other outdoors environments,” said Claudia Allou, a coauthor on the study and recent graduate of Michigan State University.

**Benefits of nature not fully appreciated**

George Wittemyer, a coauthor on the study and professor at CSU, said the research highlights an under-recognized benefit nature and its conservation bestow upon the public.

“The positive health impacts and stress reduction benefits of nature are more salient than ever to help offset the concerning increase in anxiety and mental health issues,” he said.

Wittemyer and Fristrup are among the leaders of CSU’s Sound and Light Ecology Team, which works to better understand the effects of noise and light pollution on ecological processes and organisms.

Buxton suggests people close their eyes, and be mindful of the sounds they hear when visiting a favorite park. “These sounds are beautiful and good for our health – they deserve our protection,” she added.

**Editor’s Note:** These studies highlight the natural settings of forests, even in bedroom mountain communities and how the people that opt to live in these places also benefit healthwise from the choice to buy homes or live in forests outside the hustle and bustle of cities and urban areas.

All the more evidence that the proposed project of expanding Gross Reservoir with its multi-year promise of large scale noise pollution from tree removal to concrete production will most certainly harm the residents nearest to the noise, along with all the wildlife.

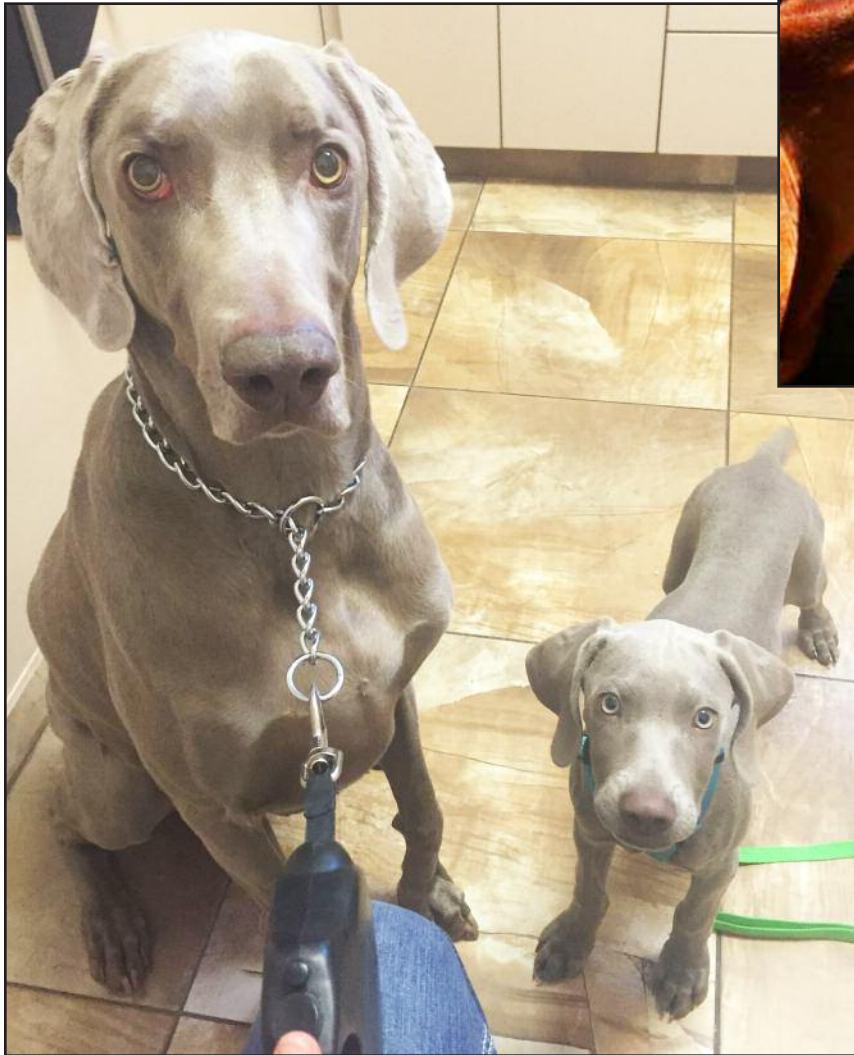
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Previous page top left: *Amanda's Dogs.*

Top right: *Lovely horse heads from Loretta.*

Middle right: *Two Wolf heads.*

Bottom left: *Three Donkey heads.*

This page Top: *Charlie the donkey with friends, from Emma.*

Middle right: *Fluffy Frenchie.*

Middle left: *Dog hugs Donkey.*

Bottom left: *Exmoor Pony in snow.*

# A Work From Home Checklist

From Jim Plane – State Farm Insurance

**From finance must-dos to productivity hacks, a few helpful tips can help you manage your own work-from-home setup.**

There are plenty of advantages to working at home, from increased flexibility to zero commute time. And more and more people, whether they work for themselves or work for a company, are pursuing some sort of work-from-home arrangement. According to a Gallup poll, over 43 percent of Americans who are employed work remotely at least some of the time. Follow these tips to set up a work-from-home arrangement that works for you and offers financial protection, too.

**Make a plan for your work-from-home financial needs.**

Consider a tax professional for help. Especially for self-employed individuals, a tax pro can help establish good record-keeping routines and explain any home-based business tax deductions, expenses and financial considerations.

Establish an expense-tracking system. If you're employed by a company, you may have certain expenses they've

agreed to reimburse you for. If you're self-employed, it helps to understand what expenses you'll incur and how you'll monitor them. You may want to consider a home office deduction worksheet, a mobile app and a dedicated business credit card, too.

**Block off paperwork time.**

Include a weekly appointment on your calendar that you dedicate to invoicing, contracts and other clerical work, including timesheets if you are not self-employed.

**Protect yourself.**

If you have a home-based business, you may need liability coverage as well as protection for any assets (computers, etc.) that you use.

**Create an appropriate work-from-home area.**

Create a dedicated workspace. It's difficult to work and to share space, such as the dining room table, with others in your household. And your job may require you to have a closed-off space to take phone calls or concentrate. If you have space, consider a small room (with a door); if not, at least carve out a nook for a desk devoted solely to your job needs.

**Invest in necessary equipment and software.**

Requirements for your job — printer, scanner, security updates — may differ depending on what you do and whether you're self-employed or employed by a company.

**Monitor your work-from-home productivity.**

Establish a schedule. The risk of working from home is that there's no one that serves as a check-in. No receptionist monitors your comings and goings and no co-workers are around to share meeting times and camaraderie. To counteract that, establish regular working hours so that you maintain a clear delineation between work and non-work time and align those hours with your co-workers.

**Give yourself a break when you need it.**

Perhaps one day a week you choose to work at a coffee shop or library. It's a great way to break up what can be a monotonous schedule at home. (Just be sure that the internet access meets security protocols.)

**Take care of your well-being.**

Follow regular mealtimes, just as you would if you worked in a typical office.

Apps can help remind you to get up from your desk and move, even if it's just a walk around the block.

**Get out and see people.**

If you telecommute, set up (or join) office meetings, if possible, every once in a while. Establish a cadence of lunch meetings with clients, co-workers or potential clients.

**Editor's Note:** A home office needs to be a separate room with a door to be tax deductible. A good way to make sure you get up from your desk enough is to drink a lot of water.



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# Rocky Mountain National Park 2021

Article & photographs by Diane Bergstrom

If the last year has taught us anything, it is to stay updated, flexible, safely aware, and patiently persistent. This pertains to your day hike intentions and vacation plans too. If you're still under the previously posted information that Rocky would not have a timed permit reservation system this year, hit that reset button. It will, and it is a bit different. As 2020 went, and 2021 goes, everything is a work on progress.

The park is recovering from the worst wildfires in Colorado's history. The Cameron Peak fire and East Troublesome fire burned over 10% of RMNP in 2020. The impact of fires and need for safety assessment have temporarily closed some trails. The need for social distancing due to COVID-19 has closed some campgrounds. Many animals have been displaced, if they survived, such as the lynx, which lost over 80,000 acres of habitat, along with the Snowshoe hares they fed on, and the boreal forest where the hares thrive. Migration patterns also changed due to the loss of habitat and food resources. As the snowmelt runoff washes ash and debris into the lakes and streams, the aquatic life will be affected. Several park buildings were also lost and plans to rebuild are under consideration. We're all trying to recover from something and move forward on a path.

Park protocol and procedures are continually being tweaked to protect the public, the federal workforce and those interacting with the federal workforce, the wildlife, and the land. The protection includes President Biden's Executive Order for masking on federal properties. The RMNP website states, "Face masks are required on NPS-administered lands where physical distancing cannot be maintained and in all NPS buildings and facilities." Let's run through park scenarios for illustration, and remember, parameters could be subject to change. You pull your car up to the fee station to present your pass and entry permit to

the employee (mask up). You drive to Deer Junction and hit the trail with your partner and no other hikers are around (mask down). You stop at Many Parks curve for photos, where 15 people are doing the same (mask up). You drive to Park & Ride, park your car, use the restroom, walk to the



pavilion and stand in line with visitors waiting for the shuttle (mask up). You ride the shuttle to the Bear Lake pavilion (mask up). You offload at the pavilion where 40 other visitors are discussing their trail options (mask up); you pause to ask trail advice of a volunteer or employee (mask up), and you head toward Flattop spotting a few hikers 20 yards ahead of you (mask down). Or you choose an easier hike and depart Bear Lake Trailhead for Emerald Lake. No one is on the 4' wide trail as you start toward Nymph Lake (mask down) but once you get to Dream Lake, you see 30 hikers in single file coming down the trail towards you (mask up). You enjoy your lunch at the lake on a rock 20' off the trail (mask down). After your day of hiking, you stop at the Fall River Visitor Center to purchase souvenirs (mask up). Basically, if you're inside a building, wear a mask. If you are within 6' of others outside, wear a mask. If you read my previous article, "The Power of a Good Lecture," you know that the breath from a teacher speaking in a normal tone can

*(Continued next page.)*

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## Highlander Nature

carry droplets 30' across a classroom. It's not rocket science it's simple science. These are doable strategies anchored in consideration. Personally, this a lot easier for me to do than to send another sympathy card for a COVID-19 related loss or anxiously make daily calls to check on treasured ones with positive diagnoses.

On to getting you in and through the park. First, let's get our vocabulary straight. The permit gets you through the gate the pass gets you through the park. You will need both from May 28th to October 11th. Any form involving the word "pass" is the document that allows you through the park, i.e. day pass, RMNP annual pass, senior pass, etc. Any form involving the terms "permit," or "timed entry reservation," or "timed entry permit reservation" refers to what you need to enter the park at specific times, daily. The terms vary on the park recordings, pages and websites. For efficiency and clarity, I'll use TER (timed entry reservation). At the time of this writing, RMNP is still working on the registration system to make it more user-friendly than the original pilot format. Now it's in the Pilot 2.0 stage. TIP: Kyle Patterson, RMNP Public Affairs Officer, encourages visitors to consult park resources for information and updates using the website, [www.nps.gov/romo](http://www.nps.gov/romo), or social media, @RockyNPS, or by contacting the Information Office for informative recordings (on numerous subjects from fees to shuttles) or for a live chat, (970)586-1206. She also wrote that the website will include a section, "FAQ on all things timed entry." TIP: TERs are NOT sold within the park. You must make and pay for the reservation before arriving at the park.



The new and improved reservation system will now offer two TER options and after some pondering, it makes good sense. You now will choose between two different area passes depending on your targeted park areas: Bear Lake Corridor or the Rest Of The Park. Because Rocky has become the third busiest park of the NPS properties, with the majority of visitors heading down the Bear Lake corridor, the choices make access more tailored to your visit and offer greater flexibility for those using the Rest Of The Park. The Bear Lake corridor TER (which includes access to the Rest Of The Park) will offer two-hour entry increments from 5 am to 6 pm. If your intention is to drive

up and over Trail Ridge Road to Grand Lake, or hike anywhere other than the Bear Lake corridor, the Rest Of The Park TER is sold in two-hour increments from 9 am to 3 pm. The majority of visitors head down Bear Lake Road, including Moraine Park and Fern Lake Roads, so separate TERs spread out the volume in one congested area while making it easier for visitors to get to less-populated areas of the park. Either reservation costs \$2 a day and can be made at [www.recreation.gov](http://www.recreation.gov). Click on "Rocky Mountain National Park," scroll to the picture with box titled, "Rocky Mountain National Park Timed Entry." To make a reservation, you'll need to sign up for an account and can do so by the prompt you'll get when you choose your date or use the "Sign Up" tab in the upper right corner. You will

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Here are my final tips. To check the conditions and closure status of Trail Ridge Road, call the recorded line (970)586-1222. Leave your dogs, drones and pot at home. Marijuana is still illegal on federal properties. Camping sites are limited this year so if you have difficulty reserving one, check the Estes Park website at [www.visitestes-park.com](http://www.visitestes-park.com) for availability at 10 campgrounds outside the park. No ranger programs are scheduled for the summer so if your kids want to participate in the Junior Ranger program, pick up free age-specific activity booklets (English or Spanish) and badges for them at a Visitor Center or the Bear Lake kiosk. Your fourth grader can print a free family pass at [www.everykidina-park.com](http://www.everykidina-park.com) after answering a few questions.

need to establish a password that is then sent to your email, before making a reservation. Sign up for the logon access first. TIP: If you want to avoid the whole TER permit procedure, go before 5 am or after 6 pm if you want to use the Bear Lake corridor. Go before 9 am or after 3 pm for the Rest Of The Park. On May 1st, reservations will be sold for May 28th to June 30th. On June 1st, the remaining days in June and the month of July will go on sale. This continues through September 1st when the October dates will go on sale. TIP: Do NOT buy your park pass from the reservation system site while making your TER. Park passes bought through this site will be mailed and it could be delayed up to a month or more. Purchase your park pass at an entry fee station at the park when you present your TER. TIP: print out the emailed entry permit confirming your TER, or take a screen shot of your email on your phone. (Don't rely on a connection within the park. They're sketchy.) You will need to show this at the entry station. TIP: Visitors with campground, camping, and backcountry wilderness reservations do NOT need a TER to get through the gates. TIP: Possibly 25% of timed entry reservation permits will be held for purchase at 5 pm one day in advance. They will sell fast but if you're willing to gamble on a spontaneous trip, try it. Otherwise, plan ahead.

Backcountry wilderness camping reservations have changed a bit this year too. You simply need to go directly to [www.nps.gov/romo](http://www.nps.gov/romo) and click on the Wilderness Camping picture to request a date and a site. The application is accessed from the same page. Reservations can only be made online or in person at the Wilderness Office. You cannot call for a reservation but may ask questions of the staff at (970)586-1242. TIP: Check availability first from the "Availability List" tab. Remember to securely keep your camping permit in an easily accessible place such as clothing pocket or outer pocket of your pack. Staff will ask to see them. Also, it's strictly BYO Bear canister. They can't stress this enough.

Normally I'd end a park article with an inspiring insightful quote but it's 2021, and all I can say is,

"Go outside. You'll feel better." Some days, that's enough. Some days, that can be everything. Happy healthy trails!

I hope this helps. Normally I would spend more space advising about road alerts, animal viewing, trails, and maintaining safe distances between you and wildlife, i.e. safety before selfies.

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## *Air Purifiers*

*By Jennifer Dimas - CSU*

### **Study uncovers safety concerns with some air purifiers marketed for COVID-19**

The market for air purifiers is booming, but a new study has found that some air cleaning technologies marketed for COVID-19 may be ineffective and have unintended health consequences.

The study, co-led by Colorado State University chemist Delphine Farmer, found that cleaning up one harmful air pollutant can create a suite of others. Farmer's co-authors are from Illinois Institute of Technology and Portland State University.

Both chamber and field tests found that an ionizing device led to a decrease in some volatile organic compounds (VOCs) xylenes, but an increase in others, most prominently oxygenated VOCs (e.g., acetone, ethanol) and toluene, substances commonly found in paints, paint strippers, aerosol sprays and pesticides. According to the EPA, exposure to VOCs has been linked to a range of health effects from eye, nose and throat irritation, headaches, loss of coordination and nausea, to damage to liver, kidney and central nervous system, and some organics can cause cancer in animals, some are suspected or known to cause cancer in humans.

The study, published in Building and Environment, mimicked real-world operating conditions for these ionization devices to test the effectiveness and potential to form chemical byproducts in environments similar to where we all live, work, and learn.

"We should have a much better understanding of these effects before widespread use of these types of devices," said Farmer, associate professor in the Department of Chemistry and an expert in outdoor and indoor atmospheric chemistry.

#### **Popular air purifiers**

One of the most popular types of air purifiers on the market right now are ion-generating systems, including "bipolar ionization" devices that electrically charge particles so they settle out of the air faster, and are generally marketed to kill bacteria, fungi, and viruses. Understandably, the "virus-killing" capability has drawn attention and been heavily featured in advertising over the past year and led to a flood of new and revamped products on the market.

However, the study finds that the air purifier marketplace is fraught with inadequate test standards, confusing terminology, and a lack of peer-reviewed studies of their effectiveness and safety. Unlike air filtration (where air is pushed through a filter to remove airborne pollutants), there has been very little research on the effectiveness and



side effects of “additive” air cleaning methods like ionizing devices.

“Manufacturers and third-party test labs commonly demonstrate their product’s effectiveness using chamber tests, but these test reports often don’t use experimental conditions that could show how the device actually performs in real-world conditions,” said Brent Stephens, chair of the Department of Civil, Architectural, and Environmental Engineering at Illinois Tech. “To the extent that there are testing standards for ionization and other devices, those are largely industry-led standards that remain underdeveloped at this point, focused mostly on ensuring just one pollutant, ozone, is not generated during operation.”

In everyday operating conditions, ions added to occupied environments such as a school or office building can react with other compounds present in indoor air, which can potentially lead to the formation of harmful byproducts such as formaldehyde and ozone. Ions can also rapidly bind to other gases and spur the formation of new ‘ultrafine’ particles, which are known air pollutants. But little independent data exists on these mechanisms.

**Chamber experiments**

The research team conducted a series of experiments on the operation of a commercially available in-duct bipolar ionization device. Lab tests were conducted with air sampling of particulate matter and gases in a large semi-furnished chamber and in a field test with an ionizer device installed in an air handling unit serving an occupied office building. The research also found that despite small changes in particle concentrations, there was very little net effect on the overall concentration of PM2.5 in the air. According to the EPA, particulate matter contains microscopic solids or liquid droplets that are so small that they can be inhaled and cause serious health problems. Particles less than 2.5 micrometers in diameter, also known as fine particles or PM2.5, pose the greatest risk to health as they can get deep into your lungs and some may even get into your bloodstream. Numerous scientific studies have linked fine particle pollution exposure to a range of

health impacts, including premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, irritation of the airways, coughing or difficulty breathing. Health impacts of air ionizers are largely unknown, although a small number of recent studies give cause for concern. In August 2020, a study concluded that exposure to negative ions was associated with increased systemic oxidative stress levels (a marker of cardiovascular health), and despite reduced indoor particulate matter concentrations, there were no beneficial changes to respiratory health.

Another recent study of air ionizers in school classrooms reduced particulate matter concentrations led to some improvements in respiratory health among 11-14 year old children, the ionizers had an adverse effect on heart rate variability (a measure of cardiovascular health), meaning that any benefit to the lungs came at a cost to the heart. “Without peer-reviewed research into the health impacts of these devices, we risk substituting one harmful agent for another,” said Stephens. “We urge others to follow guidance from organizations like the U.S. EPA and ASHRAE, which generally recommend the use of established, evidence-based measures to clean indoor air, including high efficiency particle filtration and enhanced ventilation, in addition to face coverings and physical distancing, to help reduce airborne transmissions.



*(c) Alexa Boyes*

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# Update: [BuffaloFieldCampaign.org](http://BuffaloFieldCampaign.org)

## Migration is Upon Us

After a winter of anticipation, migration is finally underway in the Hebgen Basin! Moving with determination and purpose, family groups led by pregnant mothers are making their way to spring calving grounds in Gallatin National Forest. Horse Butte, their destination and calving grounds have two prized resources for the buffalo: large patches of snow-free earth and nutritious green grass. The excitement among migrating buffalo is evident as yearlings prance, play and graze on their way back to their birth place. It is a joyous time for the buffalo and all of us that love these sacred animals. It is only a matter of days before we see the first buffalo calves born.... We can't wait!

Every year we are so thankful that Horse Butte was designated as year round buffalo habitat in 2015. After years of advocacy and hard work, local villagers, along with our campaign members pushed former Governor Bullock to recognize the need for permanent habitat protecting calving grounds on Horse Butte. Designating year-round habitat protects them from harassment and hazing at the hands of the Montana Department of Livestock. For the last 6 years, new buffalo calves enjoyed their first months of life without disturbance from the State of Montana, and that is certainly something to celebrate!



During spring calving season, our field patrols have the important job of ensuring that the buffalo can safely cross the highways. With two sets of daytime patrols and a night patrol, we deploy our "Buffalo on Road" signs wherever there are buffalo present near the road to give drivers time to slow down and exercise caution, for their own safety and the safety of the herd.

Spring is one of the most important and rewarding times to be out in the field standing with the buffalo. After a long winter, it is refreshing to see our friends, the buffalo, return like they always do. Calving season gives us the opportunity to re-connect with locals and travelers to West Yellowstone, because everyone appreciates the roads are safe for both buffalo and people.

Oftentimes on patrol we will get stopped by a local or a traveler who want to share how much they love when the buffalo find their way to spring calving grounds on the National Forest and privilege us with their presence. People here and afar love buffalo, let them roam!

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# What's The Value Of Tracking Recreation?

By Robyn Vincent April 16, 2021 High Country News

*This story was originally published by KUNC and is republished here by permission.*

Visitors have flocked to Western communities during the pandemic to soak in the region's public lands. But how many visitors? While the National Park Service closely monitors visitation, national forests and the Bureau of Land Management lack an efficient and cost-effective way to measure foot traffic.

Yet that kind of information, along with data on state and local lands, is crucial for Western communities trying to balance the good and the bad of increased visitation, said Megan Lawson, an economist at Headwaters Economics. The nonpartisan research group that studies community development recently released a report recommending digital tools to collect such data. Without accurate information on trail usage, Lawson said communities in the Mountain West face big economic roadblocks.

"Communities with a lot of public lands that are trying to develop economies around outdoor recreation have a really difficult time justifying investments that go along with that when you don't have a great sense for how much recreation is actually occurring on public lands near these communities," Lawson said. Trail managers, the report says, often resort to some rather unscientific methods to monitor how many people are using trails, such as counting the number of toilet paper rolls replaced at pit toilets or the number of dog waste bags used at trailheads.

The report points to the paradox confronting fast-growing Western communities adjacent to public lands. These communities benefit from outdoor recreation in a number of ways, Lawson said. For example, people visit areas with wild open spaces, fall in love with those places, decide to move there and then help to diversify local economies when they bring their businesses with them.

At the same time, it means small Western towns are constantly struggling to keep up with the rise in population and visitors. Lawson points to impacts on roads that lack the carrying capacity to accommodate motorists driving to trailheads. The growth strains water and sewer systems. Even search and rescue teams, which are often publicly funded, are stretched thin as they respond to a heightened number of incidents, she said.

The report highlights the tools that could anchor a uniform federal system to monitor land use. Lawson says the toolbox should include social media

tags, fitness tracking apps, cell phone data, and internet searches for trails.

"Academic researchers, along with our research, have demonstrated the success of these methods," she said. Monitoring which trails people are searching for online can also offer "pretty accurate predictions of what's going to happen in the future" when it comes to trail use, Lawson said.

"There's a real potential for land managers to be able to mitigate some of the impacts of those really big spikes in recreation." "

Still, Lawson acknowledges that using social media tools and cell phone data to build a uniform system presents privacy issues.

To address those concerns, all companies that provide data do some form of "de-identifying" so analysts cannot track individual users, Lawson said. Some strategies include reporting only aggregated measures, like if a trail exceeds, say, 75% of normal usage.

Lawson said concerns around privacy "point to the strength of using multiple novel data sources when modeling recreational use as yet another way to avoid privacy encroachment."

Researchers at Headwaters and other organizations have also recommended improving the federal Payments in Lieu of Taxes program, which provides funding to communities with federal lands, so that Western towns can obtain more financial support to offset strains to infrastructure. Collecting more accurate data on the use of public lands should inform how that funding is distributed, the report says.

*Robyn Vincent is a reporter for KUNC's Mountain West News Bureau.*

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# Climate Feminism

**EarthTalk:** What exactly is “climate feminism?”

—Jim M., Lorton, VA

Climate change impacts the everyday lives of all citizens around the globe, but certain communities are disproportionately affected. Women, in particular, shoulder a disproportionate burden as they are most reliant on natural resources for their livelihoods but lack the needed resources to properly respond to climate disasters. With women representing over 70% of the total global population living in poverty, the United Nations estimates that 80% of those displaced by climate change are women.

At the very core of female climate change vulnerability is the pervasiveness of patriarchy and gender hierarchies. Throughout history, women have been suppressed in politics, economics and labor, and many are forced to remain in the domestic sphere with the primary duties of raising children. Flooding, drought and other effects of climate change, such as increased heat and air pollution, can disproportionately impact women, particularly pregnant women, causing premature births, stillbirths and other problems.

“*[The climate crisis]* grows out of a patriarchal system that is also entangled with racism, white supremacy and extractive capitalism,” says author and climate activist Katharine K. Wilkinson. And while women may be the

most impacted by climate disasters, they have limited opportunities to participate in decision-making processes. Wilkinson, co-editor of a recent book of essays on climate feminism called *All We Can Save*, adds that the unequal impacts of climate change make it harder to achieve a “gender-equal world.”

Despite historical setbacks, climate feminists have made much progress in recent years, with increased female representation in government roles and leadership positions. Today, many of our climate justice leaders are women.

Climate feminists believe women should be leaders in the environmental movement because their experiences with institutional sexism and other inequalities resulting from the way our society is structured engender a deeper commitment to fighting for justice and equality.

That said, how can we help advance climate feminism? Men in positions of power can certainly change the face of climate leadership by listening to the ideas of women from diverse backgrounds—and stepping back for women to make the decisions and set the vision. Most important, women need more leadership positions in local sustainable management and development in addition to increased representation in the federal government.

*EarthTalk® is produced by Roddy Scheer & Doug Moss for the 501(c)3*

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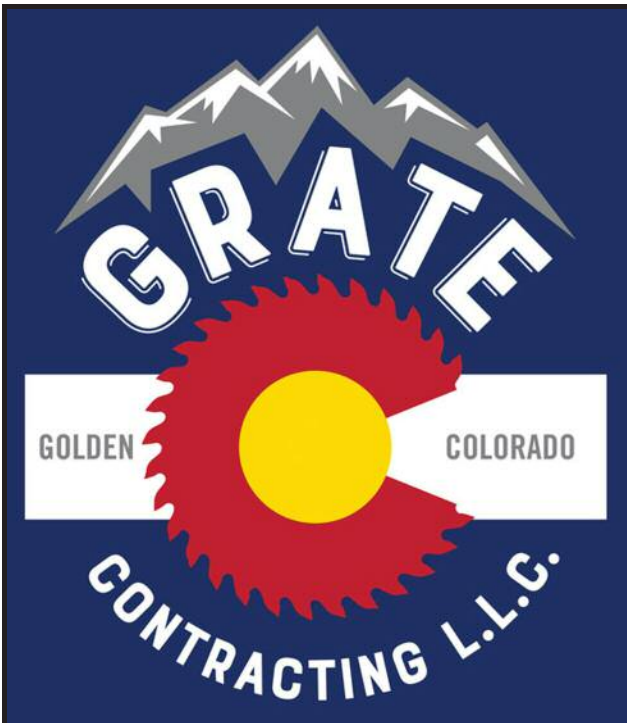
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# States Consider Weather Modification

By Oliver Milman March 24, 2021 High Country News

*This story was originally published by the Guardian as part of their two-year series, This Land is Your Land, examining the threats facing America's public lands, with support from the Society of Environmental Journalists, and is republished by permission.*

With three-quarters of the West gripped by a seemingly ceaseless drought, several states are increasingly embracing a drastic intervention – the modification of the weather to spur more rainfall.

The latest reports from the US Drought Monitor have provided sobering reading, with 40% of the U.S. west of the continental divide classed as being in “exceptional drought,” the most severe of four levels of drought. This is down only marginally from 47% in January, a record in the monitor’s 20-year history, and barring the arrival of a barrage of late winter storms will almost guarantee a severely parched year for Western states.

“I believe that there will be no choice in the future but to look at weather modification.”

“We haven’t had much in the way of winter rain or snow, which is concerning, as we would hope to put a big dent in the drought,” said Brian Fuchs, a climatologist at the National Drought Mitigation Center. “It looks like it’s going to be a very tough year. We are probably looking at increased fire dangers, water restrictions and also impacts to ecosystems, such as small rivers and streams and the wildlife living there.”

The stresses of drought, upon water supplies for drinking and to supply the West’s vast agricultural systems, have prompted eight states to look to a form of weather modification called cloud seeding to stave off the worst. Cloud seeding involves using aircraft or drones to add small particles of silver iodide, which have a structure similar to ice, to clouds. Water droplets cluster around the particles, modifying the structure of the clouds and increasing the chance of precipitation.

“With drought still a major concern, cloud seeding is an encouraged technology for Wyoming to use based on our drought contingency plan,” said Julie Gondzar, project manager for the state’s water development office. “It is an inexpensive way to help add water to our basins, in small,

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incremental amounts over long periods of time.”

Cloud seeding experiments have taken place since the 1940s but until recently there was little certainty the method had any positive impact. But research last year managed to pinpoint snowfall that “unambiguously” came from cloud seeding and Gondzar said officials in Wyoming and elsewhere have “concluded that cloud seeding works, and is an effective way to aid in drought-stricken areas, with no negative environmental impacts.”

Others are now looking to join in, including the Four Corners states – Utah, Arizona, Colorado and New Mexico – that have been ravaged by the most extreme version of the latest drought. “We are very hopeful for significant funding this year with an eye towards enough to do the entire state in the future,” said Rick Ledbetter, a supervisor for the Roosevelt soil and water district in New Mexico who has run a pilot scheme for cloud seeding. “I believe that there will be no choice in the future but to look at weather modification.”

Experts who have studied cloud seeding point out that it is no panacea, given it doesn’t solve the systemic causes of drought and can be tricky to implement – only certain clouds in certain weather conditions can be seeded with nascent rain, and there’s no guarantee it will break a drought even if successful.

“It needs to be part of a broader water plan that involves conserving water efficiently, we can’t just focus on one thing.”

“I don’t think cloud seeding will solve the problem but it can help,” said Katja Friedrich, a University of Colorado researcher who has studied the issue.

Also there is a question whether you will be able to do it in a changing climate – you need cold temperatures and once it gets too warm you aren’t able to do the cloud seeding.”

While states attempt to formulate a response to the growing threat of drought, advocates warn that poorer people, and people of color, are most likely to suffer from a water-constrained future.

Miguel Hernandez, from the non-profit Comit  Civico de Valle group in Imperial Valley, southern California, said the drought has brought ongoing issues for Latino agricultural workers, some of whom have to resort to using irrigation canals for cooking water or for brushing their teeth.

“Getting them good drinkable water is a priority,” he said. “We have issues with water diverted away to metropolitan areas too, leaving us with little to no water in our region. The drought causes a lot of different issues here.”

The current drought has been building since an exceptionally hot summer last year but the past 20 years can be seen collectively as a “megadrought” in the West, Fuchs said. Scientists have pointed to the climate crisis as a key cause.

“There has been very little relief and this could well be a precursor to what can be expected for the West in the future,” Fuchs said. “It’s kind of scary to think that way.”

*Oliver Milman is an environment reporter for The Guardian.*

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# Elephants Habitat

By Mary Guiden - CSU

Many wildlife species are threatened by shrinking habitat. But according to new research, the potential range of African elephants could be more than five times larger than its current extent. Due to 2,000 years of human pressure, African elephants have suffered dramatic population declines, and their range has shrunk to just 17% of what it could be, say researchers who led the new study published April 1 in *Current Biology*.

The work was coordinated by Save the Elephants and included researchers from Colorado State University, Mara Elephant Project, the University of British Columbia, Oxford University, the Wildlife Conservation Society, the University of Stirling and Elephants Alive. George Wittemyer, professor at CSU, serves as chair of the scientific board of Save the Elephants.

The dramatic reduction in range is due to poachers who kill elephants for their ivory and humans encroaching into elephant habitat. Evidence for elephants being drastically reduced in certain regions by the trade in tusks goes back to ancient Rome but reached new levels from the 17th century with the arrival of European traders and colonizers in Africa who fed the demand for ivory. Ivory poaching remains a critical threat to elephants, driving declines

across Africa over the past decade. If released from the threat, elephants still have great potential for recovery into areas where the human footprint is minimal. “If we can turn the corner and stem the continued declines of elephants in Africa, this work highlights the enormous potential to expand elephant distribution and numbers in their natural habitats across Africa,” said Wittemyer. “It is conceivable that we will be undertaking ambitious efforts to rewind elephants to suitable habitats identified in this work in the near future.”

The study found that 62% of Africa, an area of over 18 million square kilometers – larger than Russia – still has suitable habitat for elephants. This huge zone includes areas where there is still room for peaceful coexistence between humans and elephants, and where they could potentially live but where conflict with people may make it unrealistic. Satellite, GPS devices helped researchers track elephants’ movements. The team used data from GPS tracking collars and satellite imagery to investigate where elephants roam and why. By looking at the extremes of where modern-day elephants live, they learned where elephants had the potential to live today. “We looked at every square kilometer of the continent,” said Jake Wall, the study’s lead author and director of research and conservation at the Mara Elephant Project in Kenya. “We found 62% of those 29.2 million square kilometers is suitable habitat.”

To analyze how acceptable the habitats might be over the entire continent at a kilometer-level scale, Wall and his colleagues drew on data from GPS tracking collars fitted to 229 elephants across Africa by Save the Elephants and its partners over a 15-year period. Using Google Earth Engine, a satellite-imagery computing platform, the researchers examined the vegetation, tree cover, surface temperature, rainfall, water, slope, aggregate human influence and protected areas in the areas the elephants traversed. This allowed them to determine which habitats can support elephants and the extreme conditions that they currently can tolerate.

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In the future, the research team aims to further refine the model with regard to the density of human impact that is viable for coexistence between people and elephants and to include the connectivity of habitat to other areas of elephant range.

The large swaths of potential habitat include the Central African Republic and the Democratic Republic of Congo, whose forests recently held hundreds of thousands of elephants but today hold only an estimated 10,000 animals at most.

The study also highlighted the extreme habitats that African elephants do not visit.

“The major no-go areas include the Sahara, Danakil and Kalahari deserts, as well as urban centers and high mountaintops,” said Iain Douglas-Hamilton, the founder of Save the Elephants. “That gives us an idea of what the former range of elephants might have been. However, there’s a dearth of information about the status of African elephants between the end of Roman times and the arrival of the first European colonizers.”

Adult elephants’ main predator in the wild are people and

elephants avoid humans by staying as far from human activity and influence as possible, which is usually in protected areas.

“Elephants are quick to recognize danger and find safer areas,” said Douglas-Hamilton.

The tracking data reveals that elephants living in protected areas tend to have smaller home ranges, probably because they feel unsafe ranging into unprotected lands. The study found that 57% of current elephant range is outside of protected areas, highlighting the limited space presently reserved for their



safety. To secure the long-term survival of elephants, habitat protection, protection of elephants themselves from illegal killing and an ethic of human-elephant coexistence will be essential.

“Elephants are generalist mega-herbivores that can occupy fringe habitats,” Wall said. “Their range may have shrunk, but if we gave them the chance, they could spread back to former parts of it.”

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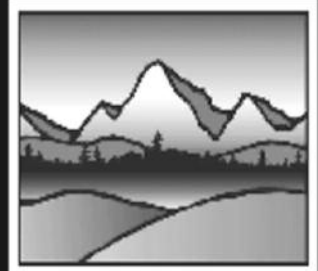
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Byers-Sellers Mtn Properties pg 8 303.642.7951  
Mock Realty-Kathy Keating -Back cov 303.642.1133

## RETAIL

ACE Indian Peaks Hardware pg 23 303.258.3132  
B & F Moutain Market pg 13 303.258.3105  
Meyer Hardware pg 3 303.279.3393  
The Silver Horse - pg 11 303.279.6313  
The Rustic Moose - pg 11 303.258.3225

## REVERSE MORTGAGES

Universal Lending Corp. pg 6 303.791.4786

## ROOFING

Independence Roofing pg 3 720.399.0355

## STEEL STRUCTURES

Steel Structures America ins cov 970.420.7100

## TAXES

Karen Schwimmer, CPA pg 9 303.642.0628

## WATER & WELL

Arrow Drilling pg 24 303.421.8766  
Clarity Water Services pg 7 303.717.9110

# Power Update

May  
2021

## 2021 Annual Meeting Recap New Directors Seated in South & Mountain Districts

United Power hosted its second consecutive virtual Annual Meeting on April 14 as lingering pandemic concerns prevented the cooperative from safely gathering with its members. More than 560 members participated in the meeting via phone or livestream, demonstrating how effective the virtual format can be in allowing the cooperative to share and celebrate its accomplishments over the past year.

The Annual Meeting highlighted United Power's member-first response to COVID-19 over the course of the year, efforts the cooperative has taken to continue building a system that prioritizes wildfire mitigation and its ongoing battle with its wholesale power provider, Tri-State Generation & Transmission, to offer more competitive and affordable rates to members. Despite all the challenges and obstacles, 2020 was one of the most successful years in United Power's 82-year history.

"We are entering one of the most exciting times in the electric utility industry with a rare alignment of technological, societal and political momentum," said Mark Gabriel, United Power's new President and Chief Executive Officer, who was introduced at the meeting. "The electrification of everything will be the norm for the next decade, and I believe the cooperative business model is the best suited to support the needs of members in our communities."

This year's Director Election was conducted via mail-in ballot only. After tabulating nearly 5,800 votes cast in the election, United Power has new representation in two of its director districts. Brad Case, South District, and Stephen Whiteside, Mountain District, were elected to fill the seats of two retiring board members, Susan Petrocco and Rick Newman. Incumbents Tim Erickson, East District, and Brian McCormick, West District, were also re-elected to serve another term on the cooperative's Board of Directors.

Complete Annual Meeting details, full election results and video presentations can be found online at [www.unitedpower.com/annual-meeting](http://www.unitedpower.com/annual-meeting).



**BRAD CASE**  
South District



**BRIAN MCCORMICK**  
West District



**TIM ERICKSON**  
East District



**STEPHEN WHITESIDE**  
Mountain District

United Power residential members have reported receiving calls demanding payment for "past due" amounts on electric bills. In an effort to protect your money and personal information, United Power warns all members of the potential for this scam.

United Power does not collect payments at homes or businesses, never calls members in person to collect overdue bills and will never demand prepaid methods as the only form of accepted payment.



To keep up with the status of your account, check your account via SmartHub, our free online portal. If you are ever in doubt about a potential scam call, hang up and call United Power at 303-637-1300.



## Capital Credits Coming in May

Members can expect to see capital credits a little early again this year. United Power retired capital credits in May a year ago due to the financial burden of COVID-19, and this year the Board of Directors decided to make the change permanent.

Anyone who had service in 2020 or earlier is eligible to receive a check or bill credit as part of their retirement.

### How Much Is My Refund?

Refund amounts are based on your length of membership with the co-op and the amount of power used during the period retired.

Members receiving \$50 or less will see their retirement as a credit on their billing statement. Those who receive more than \$50 will be mailed a check.

**For more information, go to [www.unitedpower.com](http://www.unitedpower.com).**

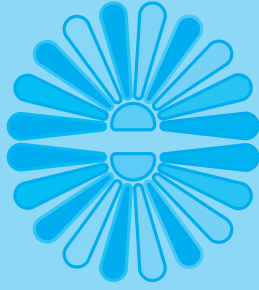
**United Power Coal Creek Office**  
5 Gross Dam Road | Golden, CO 80403

**Member Services:** 303-637-1300  
**Coal Creek Office:** 303-642-7921

Payment Kiosk & EV Charging Station Available



Your Touchstone Energy® Cooperative



# Mother's Day Pancake Breakfast

Sat. May 8th, 7-11am Drive-Thru Style

CCCIA Hall 31528 Hwy 72



**29319 Spruce Canyon Drive**  
Amazing Mountain Home  
3 BD/ 3 BA 2,744 sq.ft. **\$705,000**



**Coal Creek Canyon**  
Gorgeous Updated Log Home - 1.82 Acres  
4 BD/ 4 BA 3,817 sq.ft. **\$1,100,000**



**Lower Coal Creek**  
Private Mtn Home w/Walk-out 8+ Acres  
3 BD/ 2 BA 2,496 sq.ft. **\$679,000**



**723 Boxwood, Longmont**  
Light and Bright  
3 BD/ 2 BA 1,508 sq.ft.. **\$419,000**



**11628 Ranch Elsie**  
Log Home w/Outdoor Entertaining  
4 BD/ 3 BA 3,284 sq.ft. **\$924,000**



**Coal Creek Canyon**  
Fabulous Luxury Home, Views  
4 BD/ 4 BA 4,697 sq.ft. **\$950,000**



**3497 Coal Creek Canyon #18**  
Adorable Summer Cabin  
3 BD/ 1 BA 1,184 sq.ft. **\$249,000**



**11470 Ranch Elsie Road**  
Horse Property! 3.8 Acres  
2 BD/ 1 BA 1,948 sq.ft. **\$470,000**



**11851 Spruce Canyon Circle**  
Amazingly Remodeled Log Home  
4 BD/ 3 BA 2,616 sq.ft. **\$704,000**



**208 Pine Road**  
Excellent 1.2 Acres next to conservation  
easement. **\$99,000**



**1257 / 1316 Chute Road**  
Secluded 5+ acres, Divide, City,  
and Gross Dam Views **\$139,000**



**11440 Inspiration Road**  
Amazing Views at Road's End  
3 BD/2 BA 2,341 sq.ft. 1.5 Ac. **\$572,000**



**Coal Creek Canyon**  
Luxury Mountain Living 59.4 Acres  
4 BD/ 5 BA 3,661 sq.ft. **\$1,744,750**



**Coal Creek Canyon**  
Custom Log Home - 4.2 Acres  
3 BD/ 4 BA 3,300 sq.ft. **\$900,000**



**85 Valley View Drive**  
Breathtaking Divide & Lake Views  
4 BD/ 4 BA 3623 sq.ft. 1+Ac. **\$775,000**

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**Kathy Keating**  
CRS, ABR, GRI  
EcoBroker  
Broker Associate  
303.642.1133



**Janet Ingvaldsen**  
Broker Associate  
Realtor  
720.600.9006

