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Comments:

Thank you for the opportunity to comment on the proposed Hyalite Cottonwood Hazardous Fuel Reduction Project, a logging project, in the northern Gallatin Range, in the Custer Gallatin National Forest.

As residents who enjoy watching birds, we Bozeman Birders appreciate the natural resources provided by the public lands south of Bozeman, particularly the habitat for migrating, seasonal, and residential birds. Given the global, continental, national, and state crashes in bird populations, safe harbors are increasingly important in stabilizing and recovering populations of different species of birds.

What's good for the birds is also good for other wildlife and people because what's good for the birds is a clean and healthy environment. Rosenberg et al. (2019) provided the classic study of the decline of bird populations in North America, an average decline of about 30% but up to 90% crash for some species, since 1970. This continental decline is visible in the decline of birds - and birdsong - locally. The World Wildlife Fund's Living Planet Report 2024 documented a whopping 39% decline in the average size of wildlife populations in North America in just fifty years.

The Montana State Constitution and Montana Supreme Court have expressed explicit support of our right to a clean and healthy environment.

Clichés apply to this proposal: There is no right way to do the wrong thing. Running faster in the wrong direction is not a solution. When the status quo practices and policies contributed to a problem, do not think the status quo is the solution to that problem.

In other words, why in the world would a land steward want to log such a fragile ecosystem, such a rich habitat for native wildlife, such a clean watershed, such a wonderful hiking area?

We agree that logging (even prescribed burns) have a place in forest management to hardened the urban-wildland interface. That is not the purpose of the "hazardous fuels reduction project" proposed for the Hyalite Cottonwood, including South Cottonwood, area.

Yes, removing a forest removes fuel, but it leaves flammable litter, it exposes the ground and waters to warming by exposure to the sun, and it exposes surface to the drying effects of sun and wind.

Removing - logging - a forest does not protect the forest, the watershed, the wildlife, the native flora, the recreational uses, the wonderful public resource that the Hyalite Cottonwood area.

Decades ago while opposing logging in Cottonwood Canyon south of Bozeman, Norm Strung asked: Would the profit made from the lumber offset the money recreation would generate over the hundred years necessary for a new forest to replace the cleared timber? That is still a valid question - particularly given the public subsidizes usually involved in logging public lands.

Furthermore, wildfire-burned area recovers quicker naturally than a logged area chopped up with compacted roads, unnatural runoff, sediment-clogged water.

Please reconsider.

Logging increases the risk of wildfires.

What does the science say?

So I looked at some science, and it overwhelmingly suggests that the assumptions underlying the proposal are wrong. Community hardening, from the home and community outward, is the scientific consensus on how to deal with wildfire, at least the consensus beyond scientists funded by the Forest Service. Suppressing fires in the wild is not supported by the science. That includes fuel reduction. Fuel reduction is simply logging in this proposal, and logging actually increases the risk of wildfire.

The Forest Service clearly defined the agency's policy in its 2022 strategy published as *Confronting the Wildfire Crisis*: "the U.S. Department of Agriculture, Forest Service is establishing a strategy for working with partners to dramatically increase fuels and forest health treatments by up to four times current treatment levels in the West." This is wrong for the Forest Service. It is wrong for the Hyalite Cottonwood / South Cottonwood area.

The Forest Service's proposed Hyalite Cottonwood Hazardous Fuels Reduction Project is consistent with existing misguided policy; for example, the Forest Service (2022) says, "Much of the 2.9-million-acre Forest is at risk of wildfire and other disturbances that are larger and more intense than they were historically. Current dense forests across many areas create conditions that make forests susceptible to high levels of mortality. This makes it challenging to support persistence of important habitats and poses a heightened risk to communities in and around central Montana."

Bevington (2021) compiled articles on wildfires in California. The solution, the policy, should be to fight fires from the home and community outward rather than in wildlands. The proposed Hyalite Cottonwood logging includes proposed wilderness lands! Resources should be reassigned to protecting homes and communities rather than continue the proven fruitless fire suppression in the forests.

In Bevington (2021), Ingalsbee reported the 20th-century fire suppression policy and practices that are not appropriate for the 21st-century climate. He concluded:

"Wildland fires are ecologically necessary and inevitable, but losses of life and property in urban fire disasters need not be inevitable if we adopt new fire management policies and practices suitable for 21st century climate conditions. We need to move away from 20th century mechanized fire suppression strategies, tactics, and tools (e.g., large airtankers) that are inappropriate and increasingly ineffective in the current climate. Suppression resources should be redirected away from fighting fires in remote wildlands where fire is ecologically necessary and instead focused on directly protecting communities."

Also in Bevington (2021), Cohen explained that "disastrous community wildfire destruction (greater than 100 homes destroyed) has only occurred during extreme wildfire conditions when high wind speeds, low relative humidity and continuous flammable vegetation result in rapid fire growth rates and numerous spot ignitions from showers of burning embers (firebrands); that is, the conditions when wildfire control fails (Cohen 2010, Calkin et al. 2014)."

Altering forests releases carbon into the atmosphere. That is contrary to efforts to reduce greenhouse gases in the atmosphere and thereby mitigate climate change. DellaSala discussed that in his article in Bevington (2021). According to DellaSala:

"Most of the carbon in a forest remains on site after a wildfire (Campbell et al. 2007, Meigs et al. 2009, Mitchell 2015). Total annual emissions from wildfires over large regions are generally much less (~10% in active fire seasons) than total annual emissions from logging in the same region (Meigs et al. 2009, Campbell et al. 2012, Law et al. 2018, Oregon Global Warming Commission 2018). Some prior estimates of wildfire emissions have

grossly exaggerated combustion of carbon during a wildfire. In reality, however; only a small portion of a trees' biomass (mainly twigs and leaves) is actually combusted. Moreover, about half the carbon in burned forests remains bound to the soils for nearly a century, the rest of the soil carbon builds over millennia (Singh et al. 2012). After fires, growth of surviving trees and new vegetation sequester carbon, offsetting emissions within about 5-50 years (depending on site factors; Meigs et al. 2009, Mitchell 2015)."

DellaSala provides citations to studies on the release of carbon by logging and by thinning, as well as by wildfire. This is important. Morgan and Apt (2024) put it bluntly in their editorial in the journal Science: "Stop arguing and cut emissions." Rather than argue over what is the perfect solution to climate change, recognize that reducing greenhouse gas emissions is a key tactic. Adopt policies that reduce carbon emissions!

Even logging for biomass burning is not good for the environment or in the public interest. Wolf and Nowicki dismiss burning biomass to generate electricity as polluting , ineffective, and expensive; that is, biomass burning is not environmentally appropriate. Their article and sources are in Bevington (2021).

Cheatgrass is not an excuse for prescribed fire, chaining, or logging, according to the science on cheatgrass as summarized in a literature review by Molvar et al. (2024). Cheatgrass is a problem, "arguably the most problematic, invasive weed in North America," according to Molvar et al. But, the authors add, "The relationship between cheatgrass and fire can most accurately be described as a livestock-cheatgrass-fire cycle," and, "Ultimately, livestock grazing drives the cheatgrass-fire cycle." Reducing or totally removing livestock and letting nature heal over decades is more effective than prescribed fire for controlling cheatgrass. Prescribed fire has proven ineffective, or in some regimes effective only in the short term, and repeated burning to decrease cheatgrass abundance increases erosion and other noxious weeds. Molvar et al. concluded, "Applying prescribed fire in cheagrass-infested areas poses a strong risk of exacerbating the infestation."

Greenstripping is also not recommended by Molvar et al., who noted that "there is little evidence that the extensive and previously constructed system of greenstrips and fuel breaks that has existed for the past sixty years has made a decisive difference in fire size or spread."

Wildlife need more consideration. How would the logging, thinning, prescribed burns, fuel breaks, shrub and forest (vegetative) treatments affect, for example, lizards? Forests provide cooling shade to lizards in hot weather. Remove or reduce these sanctuaries and what happens to tree-dwelling lizards? Zlotnick et al. (2024) concluded in a recent study that most lizards in North America will be negatively affected by the combination of deforestation and climate change.

Logging is not jobs.

Historically, there were many jobs in the woods: timber faller (both first faller and second faller or a buckner on a team), buckner, hooktender, rigging slinger, high climber, log scaler, saw filer, choke setter, chaser (who unhooks the chokers), whistle punk, donkey engineer, donkey fireman, cat skinner, boom man, loader operator, blacksmith, locomotive engineer, locomotive fireman, brakeman, section hand, watchman, foreman, timekeeper, road worker, general laborer, camp cook, and cookhouse servants ("cookees" or "flunkies") who helped the cook and served the meals. The cookhouse and the camp school were the two places women found employment at a logging camp, though men too often worked at a cookhouse. The generic job title "woodsman," "lumber jack," "logger" masked the number of jobs in the woods, jobs that contributed to the economy of nearby communities. But that's all history.

The entire industry has changed. Technological advances, including mechanization and automation, had led to over production relative to the existing markets. Product substitutes such as waferboard, strandboard, and other engineered woods lessened demand for the trees. Paper and pulp mills proved more profitable than hardwood sawmills so the domestic industry shifted toward milling paper and pulp and exporting logs for processing in Asia.

Furthermore, competition came from logging the southeastern forests where nonunion labor and new ways to use southern pine provided economic opportunities for the companies and lessened demand for the West's trees. The falling number of lumber jobs weakened the unions. The Reagan Administration's policy of slowing inflation by making money more expensive also hurt the lumber industry, which relied heavily upon borrowed capital. The policy dampened the export market and the domestic pulp and paper market as well as raised the cost of money. Another factor was the inefficiency of American mills compared with the more competitive Scandinavian and Canadian mills; mechanization and automation to catch up reduced the number of mill workers.

The collapse of the lumber industry was so complex that it remains easier in logging country to blame the spotted owl and environmentalists, despite the collapse happening in the 1980s before the listing of the spotted owl as an endangered species and closure of the owl's habitat on public lands to logging. The owl was merely another factor in the economic dislocation already well underway and extending well beyond the range of the owl.

An example of the mechanization that replaced loggers with machines is the feller buncher, a harvester that grabs each tree, fells the tree, bucks each log, and bunches the logs together. Modern logging is mechanized. It's not jobs in the woods.

Erosion causes sedimentation.

Perhaps the biggest problem for South Cottonwood Creek would be the sedimentation caused by logging operations, starting with the construction of logging roads, continuing through the compaction of those roads during logging operations, including the ground surface exposed by cutting trees to erosive effects of sunlight, rain, and winds; and never ending as the compacted roads continue to funnel sediment long after the logging operation cut the trees and cut town.

Make no mistake: Soil as sediment pollutes water!

Furthermore, our activities affect sediment production, transport, and storage. Logging-caused erosion strips fertile topsoil, clogs waterways with sediments, carries nitrates and other pollutants into our streams, and weakens the soil's ability to retain moisture and sequester carbon.

According to a new study in the journal *Geology* (Penprase, 2025), the magnitude of erosion caused by our land uses "vastly exceeds erosion rates driven by the largest climate transitions that naturally occur on Earth." Logging is a major cause of the human-caused erosion, according to that study.

Aridification is an on-going process.

Montana Fish, Wildlife and Parks (2015) designated South Cottonwood Creek as a dewatered stream, dewatered defined as "significantly dewatered by man-caused flow depletions." Exposing the waters of the South Cottonwood to sunshine and winds - to increased evaporation would only worsen the dewatered state of the creek. That's a problem for the creek and for the also designated dewatered Gallatin River into which creek flows. And, as already noted, exposing the waters to sunlight would warm the water. That's a problem too.

Supposedly the biggest threat to Bozeman's municipal water system, development in the region, and farming in the Gallatin Valley is not all the old leaky pipes, backlogged maintenance, granting water rights exceeding the availability of water, but the possibility of a wildfire. The solution, we are told, is to log and burn the forest in the Bozeman Creek and Hyalite Creek watersheds. But logging causes aridification of cleared lands, sedimentation from the logging roads as well as from the cleared lands, introduction of flammable invasive plants, etc.

Aridification of North America is a fact, an on-going process. Here in Montana, look at the activities that contribute to aridification - removal of beavers and riparian shade plants, logging that exposes soil to sunlight and

evaporation and adds sedimentation to runoff and streams, excessing extraction of water from the aquifers, and grazing livestock

Aridification cannot be dismissed as scientific theory. The Earth's soil moisture is steadily declining as the atmospheric and water temperatures rise (Seo, 2025). The drying out of the North American continent, particular in the West, is more than a matter of episodic droughts, more than lack of precipitation. Hotter climate extremes increase the drying, as does logging. The current trend is "progressively lower river flows, drier landscapes, higher forest mortality, and more severe and widespread wildfires-not year on year, but instead a clear longer-term trend toward greater aridification," according to an article in the Proceedings of the National Academy of Sciences (June 2, 2020).

A recent study on Missouri River's vast watershed confirms that there has been "a general drying of the basin" in the late 20th and early 21st century, drying resulting in lower flows in the river (a fact not negated by seasonal floods, the damage of which often comes from human activity on and near the river). That article is also in Proceedings of the National Academy of Sciences (May 26, 2020). Now, in fact, scientists are addressing the "ice-free future" when most of the planet's water will be in higher seas, the land drier, and the evaporation rate higher (He, 2025).

The Gallatin River - the Cottonwood watershed is part of the larger Gallatin River watershed, which in turn is part of the larger Missouri River watershed. And the State of Montana has long listed the Gallatin River as "dewatered," as degraded by low water levels due to human activity. The proposed logging would worsen the situation. Low water, dry soil, exposing land to sun and high winds - there are prescriptions FOR fire, NOT for reducing fire danger.

Extreme weather already happens. Russell et al. (2024) documented the extreme weather event of September 2020, when dry easterly winds fanned wildfires, killed nine people, and destroyed over 5,000 homes and businesses in Oregon. And the harmful wildfire smoke spread the harm far from the wildfires themselves. The same weather system brought early snowfall to parts of the Rocky Mountains. Furthermore, fuel reduction did not stop any of the California fires in recent events of hot, dry, windy weather!

Wildfire is natural.

Wildfire is natural. It is a key driver of the Earth's biodiversity. He et al. (2019) concluded that based on extensive, scientific evidence, "fire is a major ecological and evolutionary force that promotes and maintains biodiversity at local, regional and global scales." Fire consumes biomass, creates environmental heterogeneity that drives biodiversity, and, they add, "promotes and maintains biodiversity by serving as an agent of natural selection in evolution and speciation, and by regulating nutrient cycles and biotic interactions."

Furthermore, prescribed burns are no substitution for wildfires. Baker and Bevington, in Bevington (2021), identified five myths about prescribed fire. Rather than reduce fire and smoke overall, prescribed fire increases fire and smoke. That's their first point. Second, prescribed fire is inefficient for public safety compared to home and community hardening. Third, prescribed fire is less efficient wildfire for ecological restoration because fire is necessary to the ecosystems of wildlands. Additionally, forests where fire has been suppressed do not now burn up for lack of prescribed fire or fuel treatments. Baker and Bevington recommend "managed wildfire" over fire suppression. The fourth myth is that prescribed fire is "good fire." The fact is, prescribed fire can be good, but it can also cause ecological damage and harm public health. Therefore: "projects involving prescribed fire should not be exempted from proper environmental review." Finally, Baker and Bevington point out, cultural burning is not prescribed fire as practiced by the Forest Service. Even the traditional burning practiced by indigenous peoples (cultural burning) for centuries around the world, and the historical burning for agriculture and development have been small, local burns. They did not clear entire forests, except the occasionally accident of a local burn getting out of control.

Conclusion: Don't log it.

The lumber industry captured the Forest Service at the beginning of its history, just as the livestock industry captured BLM. But such industry control of public agencies should be history, not present practice. The people of the nation own the public lands, not any industry privatizing profit from the public resources, be it timber or grass.

The Forest Service should protect the public interests in national forests through conservation. Forests protect watersheds! They also protect wildlife, wildlife habitat and corridors, native flora, and nature's carbon storage capability on those watersheds. Please conserve forests and thereby help to conserve our increasingly valuable watersheds, our quantity and quality of water.

We the Bozeman Birders recommend a full environmental assessment at the very least. The science we see does not support the current proposal. The Hyalite Cottonwood watershed should not be logged! That's the scientific consensus. Protecting these public lands from logging contributes to a clean and healthy environment locally and beyond the immediate locale. That is in the public interest.

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