

## Greater Caution Needed Before Supporting Thinning, Biomass Projects

By George Wuerthner, 2-08-10

### INTRODUCTION

The rush to formulate new forest legislation that advocates thinning forests, use of biomass for energy production, and the presumption that our forests are “unhealthy” and/or that large fires and beetle outbreaks are undesirable may soon create a new threat to our forests. There are a host of different bills before Congress including legislation introduced by Mark Udall of Colorado, Jon Tester of Montana, Ron Wyden of Oregon, among others that are all predicated upon a number of flawed or exaggerated assumptions.

Some of this legislation is better than others, and some of it even has some very good things in the language and policies that are an improvement over present policies. Nevertheless, there are many underlying assumptions that are troubling.

### THE FIRE SUPPRESSION CONUNDRUM

There is a circular logic going on around the issue of fuel buildup and fire suppression. Currently the major federal agencies including the Forest Service and BLM generally attempt to suppress fires, except in a few special locations like designated wilderness. Despite the fact that most agencies now recognize that wildfires have a very important ecological role to play, we are told by managing agencies that they must continue to suppress fires or face “catastrophic” blazes—which they consider to be “uncharacteristic”.

The problem is that thinning won’t solve the “problem” of large blazes because the problem isn’t fuels. By allowing the timber industry to define the problem and propose a solution we have a circular situation whereby the land management agencies continue to suppress fires, thereby presumably permitting fuels to build up, which they assert thus drives large blazes, creating a need for more logging and fire suppression. This cycle of fire suppression, logging, grazing, and more fire suppression has no end.

In addition, since thinning reduces completion, opens up the forest floor to more light, thus new plant growth, thinning can often lead to creation of even more of the flashy fine fuels that sustain forest fires. Unless these thinned stands are repeatedly treated, they can actually acerbate fire hazard by increasing the overall abundance of the very fuels which are most problematic—the smaller shrubs, grasses, and small trees that sustain fire spread.

In addition, thinning can increase solar penetration leading to more rapid drying and greater penetration of wind—both factors that aid fire spread.

This is not unlike the approach taken with predator control, whereby agencies for years have shot, poisoned, and trapped coyotes in the belief that they were reducing coyote numbers. But since coyotes respond to such persecution with greater fecundity, predator control becomes a self fulfilling activity whereby predator control begets more predator control.

While fire suppression (and logging, grazing, and so forth) may be a contributing factor in fire spread in some forest types (primarily ponderosa pine), they are not ultimately what is driving most large fires. Large blazes are almost universally associated with climatic features like severe drought, wind, and ultimately by shift in oceanic currents such as the Pacific Decadal Oscillation. Therefore fuel reductions will not substantively change the occurrence of large blazes.

Even if one wanted to buy into the fuels-is-driving- large blazes story, it would behoove us to rethink the range of solutions. The National Park Service, the only agency that does not have a commercial logging mandate, has effectively dealt with fuel reductions through wildlands fire and prescribed burning. At the very least, any fuel reduction that may be needed should be done by prescribed burning.

## QUESTIONING FIRE SUPPRESSION

One of the underlying assumptions of all these pieces of legislation is the idea that our forests are unhealthy and possess unnatural fuel loads due to fire suppression or fire exclusion. There is, of course, a bit of truth to the generalization that some forest types may have had some fuel build ups as a consequence of fire exclusion, but whether these fuel build ups are outside of the historic range of variability is increasingly under scrutiny.

It's also very important to note that the majority of all forests/plant types in the West like lodgepole pine, subalpine fir, aspen, juniper, red fir, silver fir, Engelmann spruce, western red cedar, Douglas fir in west coast ecosystems, and many others have such naturally long fire intervals, that suppression, even if it were as effective as some might suggest, has not affected the historic fire frequency.

Indeed, the majority of acreage of forest types burned annually tend to be characterized by moderate to severe fire, and are not the forest types where fuel build up is presumed to be a major problem—namely ponderosa pine forest type. Yet most people apply the ponderosa pine model of less intense frequent fires to all other forest types and thus assume that fire suppression has created unnatural fuel levels.

In particular the timber industry has adopted the convenient theme that fire suppression has created a presumed “fuel build-up” responsible for large wildfires. (Never mind that there were always large wildfires long before there was any effective fire suppression—for instance, the 1910 Burn which charred more than 3 million acres of northern Idaho and western Montana)

Thus logging proponents have created a “problem” namely fuel build up, and then by happy coincidence, have a solution that just happens to benefit them-- logging the forest.

Fire suppression may have influenced some low elevation dry forests like those dominated by pure ponderosa pine, but perhaps not nearly to the degree or over the large geographical area that timber interest and logging proponents try to suggest. Those who want to justify logging try to conflate low elevation forests with all forest types—many of which such as lodgepole pine—are very likely not affected by fire suppression due to the naturally long intervals between fires in these forests.

## CLIMATIC DRIVERS OF LARGE BLAZES

The emphasis on fuel reductions has obscured the fact that nearly all large blazes are climate/weather driven events. Evidence is building that wet, cool climatic conditions may be more responsible for dense forest stands and/or lack of fires than anything to do with fire suppression. In other words, fire suppression may not be as effective as some suggest and any fuel build up may be within natural or expected range.

In addition, there is also a growing body of scientific analysis that calls into question the very methods and conclusions used to construct fire histories. These analyses suggest that historic fire intervals, even in lower elevation dry forests like ponderosa pine, are biased. Fire intervals may be far longer than previously assumed. Because of this longer fire interval, dense forest stands may be natural, and/or no different than what existed in the past. There is also new evidence for mixed “severity” (i.e. moderate change) fires as well as crown fires in these dry forests. The implications of these findings is that many forests, even low elevation forests, may well be within the historic range of variability.

## LARGE BLAZES NECESSARY

One of the issues missed by thinning proponents is that the vast majority of all ecological work occurs in a very small number of fires—the big so-called “catastrophic” fires. Even though most agencies and environmental groups now profess to believe that wildfire is important to healthy forest ecosystems, they are not willing to let fires do the work.

For example, in the years between 1980 and 2003, there were more than 56,350 fires in the Rockies. These fires burned 3.6 million hectares (8.64 million acres) Most of these fires were small—despite all the fuels that has supposedly made conditions in forests ready to “explode”. Out of these 56,350 fires, the vast majority of blazes totaling 55,228 fires or 98% of all blazes only charred 4% of the acreage.

On the other hand, a handful of fires—1,222 or less than 2% of the fires accounted for 96% of the acreage burned. Even more astounding is that 0.1% of the fires or about 50 fires charred more than 50% of the acreage burned.

This suggests four things to me. First, fuels are not driving large blazes. There is plenty of fuel throughout the Rockies, but most fires never burn more than a few acres—despite all the fuels that is sitting around. Fire suppression if it was responsible for a fuels build up doesn't appear to be creating a lot of big fires.

The few very large fires that everyone is concerned about occur during very special conditions of drought, combined with low humidity, high temperatures and wind. And these conditions simply do not occur very often. When they do line up in the same place at the same time than you get a large fire—no matter what the fuel loading may be. My conclusion is that large blazes are climate driven events, not fuels driven.

Finally, the take home message for me is that even if we were successful at stopping big blazes through thinning and/or fire suppression, we would be in effect eliminating fire from the landscape. Since almost everyone today at least professes to the goal of restoring fire, than we have to tolerate the few large blazes—not try to stop them. Of course, it appears that despite our best efforts with logging, thinning, and all the rest, we have not had that much influence on eliminating the large blazes.

## FRAMING THE ISSUE

One of the other major problems I have with the way many organizations have chosen to work on these issues is the way they “frame” the issues. When words like “working landscapes”, “restoration”, “unhealthy forests” “catastrophic blazes” “beetle outbreaks” are used in any discussion related to forests, they solidify in the public's mind that there is a major problem with our forests, and more importantly that the “cure” is some kind of major invasive manipulation of forest ecosystems.

One must be careful about how you frame this issue. Even though most environmentalists do not support large scale commercial logging of our national forests, and have a lot of sidebars on how any logging should be done to address ecological concerns, when environmental groups say things like “we need to maintain our timber industry to restore the forests” the public just hears that our forests are a mess and the ONLY solution is more logging. I maintain that is not a message environmentalists want to be conveying. The public does not hear the sidebars, nor the cautionary words, rather they hear that we need to log our forests, and do so in a big way or ecological Armageddon is about to befall the West.

## WHAT IS PRUDENT BEHAVIOR?

There is an important lesson in science called the precautionary principle. In the absence of full understanding of a problem, it is usually best to prescribe the least invasive and least manipulative actions. Conservation groups would be wise to apply this principle to forest policy.

That doesn't mean I don't support some “restoration” activities. To make an analogy, let's look at the issue of wolf restoration. Putting wolves back on the land restores predation influences, but this is a very different thing than allowing hunters to kill elk. Especially because it allows the wolves, and natural conditions like drought, etc. to determine what is the “right” number of elk and deer, not some agency with an agenda to sell licenses. Hunters influence elk differently than wolves and logging is different than say fires. Just as an elk killed by a wolf leaves behind carrion that other animals can use, a forest with fire leaves behind a lot of biomass that helps to sustain many other functions in the forest.

Logging short circuits those ecosystems functions. As with hunting whenever you have a commercial enterprise involved in natural resource policy, it distorts the conclusions and it's convenient to ignore anything that suggests the activity—whether hunting or logging is creating problems.

## NEW PARADIGM

There is a growing challenge to many of the assumptions about fires and its influence on forests. These challenges to assumptions about constitutes forest “health” and the historic role of large blazes and beetle influences is not unlike the challenges to common assumptions about predators

that began with people like Adolph Murie, George Wright, and other scientists back in the 1930s and 1940s who started to question predator policy. These early ecologists were not only challenging politicians and citizens, but many other scientists who were advocates of killing predators to create “healthy” populations of deer and elk.

I need not remind many conservationists that there are still plenty of scientists around that will support killing predators like wolves, despite decades of research about the ecological need for top down predators. So assurances that any logging on public lands will use the “best” science are not reassuring to me. When there is a commercial/economic aspect to any management, that tends to distort and often compromise the science and scientists that are consulted. It would naïve for anyone to believe that this is any difference when dealing with fire and forest policy issues, especially when there’s an economic benefit to some industry and/or individuals for the policy.

## QUESTIONING SUPPRESSION

There is a growing scientific body of work that is challenging the notion that fire suppression is responsible for dense forests and/or that crown fires, even in low elevation forests consisting of ponderosa pine and/or Douglas fir. The implications of this for forest policy are significant for if this is correct, our current conditions are not outside of the historical normal range of variability, especially when you consider past climatic conditions that are similar to the current dry, warm conditions.

One can find plenty of scientists who think our forests are out of whack, and prescribe logging to reduce fuels and so forth, however, if one is monitoring the scientific literature one would find enough evidence here and there to question the current assumptions about “forest health” and the presumed need for logging.

At the very least, it would seem a prudent approach to avoid endorsing logging when there is at least some evidence to suggest that our forests are not as out of whack as previously assumed, and/or that logging cannot do what advocates suggest—like restore the ecosystem or prevent large blazes.

## PROBABILITY OF FIRES

Another unchallenged assumption of those prescribing thinning to protect say old growth ponderosa pine is the idea that somehow without thinning, we would lose all the old growth to fires. However, that ignores the low probability that any particular acre of land will burn in a fire. For one thing, most fires are small as mentioned earlier. They do not burn more than a few acres and go out. The few fires that do grow into large blazes occur under very special climatic/weather conditions of extreme drought, high wind, low humidity and high temperatures. These conditions do not occur that frequently, and to this you must provide an ignition. So even if you have drought, wind, low humidity, etc. you may not get a blaze.

In addition, even big blazes do not consume all the forest. Most large fires burn in a mosaic pattern for a host of reasons, the likelihood that any particular acre of old growth will burn is extremely small.

Finally, since thinning effectiveness even under the best circumstances rapidly declines over time, in order to protect old growth stands, thinning of that particular location in a forest must be very recent otherwise new growth generated by the opening of the forest, reduced competition, etc. often negates any advantage created by forest manipulation (logging).

## LOGGING IS NOT BENIGN

Even if one disagreed with these new insights and interpretation of forest an ecosystem, and the presumed effectiveness of thinning projects, that doesn’t necessarily lead to logging as the “cure”. It wasn’t that long ago we heard many groups outlining the many ways that logging created ecological outcomes that were undesirable—the spread of weeds, changes in the abundance of snags, and down wood, that human activity in the woods disturbs and displaces sensitive wildlife, that disturbance of the land and use of logging roads (even temporarily logging roads) adds sediments to our streams, and so forth. Most of those critiques are still valid today, but we don’t hear that kind of criticism coming from many environmental groups anymore. This silence and unwillingness to continuously remind the public that logging has many, many negative impacts on forest ecosystems has compromised the environmental effectiveness as defenders of our public forests. After all who is going to assume that role if environmental groups do not continuously

remind the public that logging has many unexamined and ignored externalities.

#### LESS MANIPULATE ALTERNATIVES EXIST

Even if one did not want to challenge the common perception that we have an “emergency” as Senators Wyden, Udall, Tester and others proclaims, logging isn’t necessarily the only or the best way to address this presumed emergency.

The National Park Service does fuels reductions and ecosystem restoration without logging. They have a long track record demonstrating that one can modify fuels and restore the ecological value of wildfire to the landscape without logging, and without jeopardizing communities. Yosemite NP, for instance, does prescribed burning in the crowded Yosemite Valley as does Muir Woods adjacent to Muir Woods, as well as many other national parks. That is not to suggest that prescribed burning will alleviate all concerns, but at the very least, it should be the approach that environmentalists advocate. Prescribed burning combined with natural wildfire can “restore” forest resilience as well as reduce fuels. Such an approach avoids many of the negatives associated with commercial logging, including the need for roads, the disturbance of water drainage by roading, soil compaction, removal of biomass, and so forth.

#### REDUCE HOME FLAMMABILITY AS FIRST DEFENSE AGAINST FIRE

There is an abundance of evidence to suggest that if community security is a concern, the best way to achieve that is through reduction of flammability of homes and the area immediately around the community, not wholesale logging for the forest ecosystem. Jack Cohen’s research at the Missoula Fire had demonstrated that thinning the forest is not the best way to protect homes.

Advocating for logging as the “cure” is like suggesting that the best way to reduce elk herds is by hunting, instead of being an advocate of wolf restoration. Any time you get an economic activity involved in natural processes you compromise the integrity of the goals and measures.

#### ADVOCATE FOR NATURAL PROCESSES

Even if the majority of you believe our forests are out of whack and are unwilling to accept the critiques from those who suggest that our understanding of forest ecosystems may be incorrect, that doesn’t mean one has to be a hand maiden for the timber industry. Nature does the best management—that is why we all are advocates for wilderness—we believe that allowing wild places to determine what is right for the landscape is the best way to preserve “healthy ecosystems”. If the forests are overstocked as some may want to conclude, than let natural processes select which trees should survive and do any thinning that is necessary using insects, disease, drought, fire, wind storms, and all the other mechanisms that regulate plant communities—and Nature will do a far better job of determining which trees should survive than any forester.

Our role as humans is to get out of the way as much as possible, not to intrude and advocate for invasive solutions like logging. The only role for logging on public lands that I see is to strategic as listed below.

#### WHEN TO SUPPORT LOGGING/THINNING

If you must support logging, make sure it is very limited, and framed not in terms of forest health, but as a useful way to reduce human anxiety. Logging around houses and communities to reduce public anxiety over fires may be a political necessity. A fire break of significant size around the perimeter of a community may reduce public fears about large fires; however, as has been shown in numerous cases around the West fuel breaks alone will not ensure that homes are safe. Flammability of individual homes must be addressed.

**[End of article]**

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#### **Comment By Mickey Garcia, 2-08-10**

Wow, George, I just glanced at the title and knew it was you.

#### **Comment By MTDude, 2-08-10**

George, is there nothing you can write about going on in your own state?

### **Comment By Martin B. Jones, 2-08-10**

thinning can often lead to creation of even more of the flashy fine fuels that sustain forest fires.

Don't prescribed burns have the same effect?

### **Comment By Geo, 2-08-10**

Martin

Very good question about creating of flashy fuels. The answer is sometimes fires can create new growth of shrubs, grass, regrowth of small trees that are "flashy" fuels.

In fact, there is some research that suggests that in lodgepole pine forests about 15-30 years after a blaze, fire hazard goes up for this very reason, but then subsides as the canopy begins to close and understory vegetation is shut out.

But the probability of any particular acreage burning is low as I stated earlier. So if the goal is to protect a community or home, thinning might create more fire hazard near a home. A fire far away from communities may create flashy fuels, but so what. We want fires on the landscape, we just don't want it burning down homes.

The problem with thinning is that it can create those flashy fuels, and unless you do "maintenance" i.e. continue to periodically thin or prescribe burn the site, you can have a situation that is worse than what you started with.

But the same thing might be said about fires near homes. Unless you maintain the low fuel loadings after a blaze, you might have a flashy fuel issue. In any case, safeguarding homes doesn't require a lot of thinning, logging, brushing, etc. as 100-150 feet is typically effective at preventing fires from reaching a house--so long as the house itself is not flammable--and that is where the real effort towards home safety should be promoted.

### **Comment By Fotoware, 2-09-10**

I see no mention at all of unnaturally-high tree densities, incursions of flammable species into otherwise naturally-fire-resistant stands of p. pines. No mention of all the ladder fuels that didn't exist in the past. No mention of the fact that today's humans start many more fires than are "natural". No mention of the government's destructive and illegal Let-Burn program. No mention of the fires in northern California that burned for months, spewing carbon, GHG's and particulates into the air and drifting for a 1000 miles. No mention of catastrophic erosion, impacting both salmon and human being, alike. No mention of the health effects of weeks of wildfire smoke over very large areas of human residence.

Sorry, George, but you want a blanket policy that limits scientific responses to massive problems in our public forests. I don't want to trade 500 year old p. pine forests for thickets of 80 year old lodgepole or knobcone stands. I don't want to trade endangered species habitat for a carpet of lodgepole pines. Active management doesn't have to be limited to commercial logging. What our forests need is site-specific, scientifically-sound forest management. Just letting forests burn at high-intensity and seeing what the hell grows back is not following the "Precautionary Principle", George.

### **Comment By Fotoware, 2-09-10**

Also, National Parks are NOT the paragon of virtue in fire management. I saw two separate incidents in Yosemite alone, last summer.

Most everyone knows about the Big Meadow Fire and how it turned a 90 acre brush burnoff into a 17,000 acre boondoggle that cost 15+ million dollars to deal with while, at the same time, tying up fire suppression resources that were dearly needed in other parts of the state. Did I mention that the Park Service chose to do this burn during near-record high temperatures? Did I mention the tourist dollars that were lost during the middle of the tourist season? Did I mention all the local people who were sick from the thick smoke? Did I mention the official health alerts affecting hundreds of thousands of people?