Bark Fire Policy

"Wildfire is a key ecological process in many natural communities. But it is also much more. Symbolically, fire epitomizes change and transformation, the unpredictable and uncontrollable essence of nature. Fire is wildness in motion. Human attempts to suppress fire threaten the spirit of wildness in nature, and the spirit of wildness in ourselves. ***At stake is nothing less than the connection of our own essential nature to that of Earth."***

–Mollie Matteson (wildlife biologist and writer)

For tens of thousands of years, fire has graced the forests that now make up the Mt. Hood National Forest. From regular underburning and the occasional big fire in the eastside pines, to large westside blazes spanning thousands of acres, fire has played an essential role in maintaining ecosystem health. Over the past hundred years, the character of the forests has been vastly changed due to logging, grazing, development, and fire exclusion. As an organization committed to the protection of Mt. Hood National Forest, Bark advocates for public lands management using scientific principles to protect and restore ecological health. As regards fire, Bark advocates for a land management practices that recognize wildlands fire as a positive agent of ecological change.

What would fire-positive land management on Mt. Hood National Forest include?

1) A Fire Management Plan that encourages wildland fire use, and does not default to full suppression for every ignition outside of designated wilderness
2) A policy shift away from the "blank check" approach to fire suppression efforts
3) Fuels-reduction projects that focus on ecological restoration, not commercial extraction
4) Management decisions to minimize the adverse ecological impacts of both fuels reduction projects and fire suppression techniques
5) Fire-impacted landscapes allowed to naturally regenerate

While this fire-positive approach challenges existing cultural assumptions about the value of wildlands fire, it is rooted in core principles of forest ecology and fire science. Now is the time for federal land managers to catch up with science and begin to work with – not fight – wildlands fire.

Underlying Assumptions and Resources guiding Bark's fire-positive approach:

The purpose of this document is to unpack many common assumptions about Fires and Fuels Management that federal agencies currently rely on to inform actions and responses to wildlands fire. By reviewing these assumptions, and discussing pertinent fire science and policy, Bark's intention is for the public to have the information necessary to understand the scientific bases for Bark's Fire Policy.

These assumptions cover issues related to: 1) fuels reduction: 2) fire suppression; and 3) post-fire salvage logging.

Assumptions:

1) The forest ecosystem is out of balance due to past management actions, including fire suppression and clearcuts, which lead to overstocked forests that burn hotter and are outside of the natural range of variability
2) Active management is needed to restore the forest back to fire resiliency
3) The threat of catastrophic fire, and its adverse impact on wildlife habitat and drinking watersheds, outweighs the environmental impacts of active management
4) Wildland fire must always be controlled, if not suppressed
5) The most important place to focus fuels reduction and fire suppression is in the Wildlands Urban Interface, and municipal drinking watersheds
6) Salvage logging is necessary to recoup the economic benefit of trees that burn in the Matrix, and outweighs ecological impacts
7) Because of climate change, forest fires need to be suppressed so that they don't add additional carbon into the atmosphere

Assumption #1: The forest ecosystem is out of balance due to past management actions, including fire suppression and clearcuts, which lead to overstocked forests that burn hotter and are outside of the natural range of variability

"Contrary to popular misconception, areas that have missed the greatest number of natural fire cycles, due to fire suppression, are burning mostly at low- and moderate-intensity and are not burning more intensely than areas that have missed fewer fire cycles."

-Chad Hanson, Ph.D (Fire Ecologist, with the John Muir Project)

While a century of fire suppression has left specific ecosystems in conditions that are outside their natural range, this does not automatically mean that a fire will burn with more intensity. The intensity of the fire is based both on the fire regime of the area, and the specifics of each particular fire. Fire regimes are created by the intersection of the following factors: 1) frequency and extent of fire; 2) intensity and severity of fire; and 3) temporal and special patterns.

Oregon has just about every possible fire regime, from stands that typically have low intensity burns every 20 years, to stands that have stand replacing fires every 300 years, For the former, there has been significant disruption of the fire regime, and for the latter, not so much. Fire is a very site specific issue, so the first question to ask about a fuels-reduction project is "what is the historic fire regime" and to not assume that a fire will necessarily burn bigger or hotter even if the area has been suppressed.

Assumption #2: Active management is needed to restore the forest back to fire resiliency

"Evidence of fuel treatment efficacy for reducing wildfire damages is largely restricted to anecdotal observations and simulations, and easily dismissed by skeptics. The lack of empirical assessment of fuel treatment performance has become conspicuous."

– Omi & Martinson (Fire scientists)

"Even if we assume that thinning will reduce potential fire intensity, a recent study found that, due to post-thinning vegetation regrowth as well as the extremely low rate of occurrence of high-intensity fire, an area would have to be mechanically thinned every 20 years for about 720 years to have a mere 50% chance of encountering high-intensity fire and reducing its intensity."

-Chad Hanson (citing Rhodes & Baker, 2008)

The current agency approach assumes that by controlling the amount of fuel in the forest, they can control the fire behavior. In actuality, forest fires result from and are driven by a multitude of factors; topography, fuel loads, the fire history of the environment in question and most importantly, weather. Because weather is often the greatest driving factor of a forest fire, and because the strength and direction of the wildfire is often determined by topography, fuels reduction projects cannot guarantee fires of less severity.

Some research suggests that fuel reduction may exacerbate fire severity in some cases as such projects leaves behind combustible slash, open the forest canopy to create more ground plant-biomass, and increase solar radiation which dries out understory plant biomass. Higher wind speeds through thinned stands may also be a consequence of thinning and fuel management, as could the increased amount of available nutrients in the production of fine forest fuels. Indeed, a US. Forest Service report on the Fourmile Canyon Fire found that "[i]n some cases, treated stands appeared to burn more intensely than adjacent untreated stands, perhaps because of additional surface fuels present as a result of the thinning."

Fire- and fuel-management programs require repeated treatments and should be viewed as a continuing process and commitment rather than a single management event. A single fuel treatment such as prescribed burning and thinning cannot resolve fuel and fire issues over the long run and may actually lead to an increase in fuels that require prompt follow-up treatments. The repeated, long-term nature of these programs needs to be recognized in policy and budgets. At a fundamental level, fire and fuels management cannot simply be about lowering fuel loads; it must contribute to the long-term restoration of sustainable, dynamic ecosystems within the context of approaches to restoring ecological integrity.

Assumption #3: The threat of catastrophic fire outweighs the environmental impacts of active management for fuels reduction

"We have this cultural aversion, this cultural prejudice that goes back to Smokey Bear and Bambi. We've been taught in our culture to think this is destroyed. But ecologically speaking, nothing could be further from the truth."

-Chad Hanson (Fire Ecologist)

"People think a burned forest is devastation, destruction, horror and all the words that go with it. But that is because most of the public past and present doesn't have a clue about all the interesting stuff in there — things that occur in these burned forests that don't occur anywhere else."

-Richard Hutto (director of the Avian Science Center at the University of Montana in Helena)

Big fires are as ecologically important to functioning and healthy ecosystems as large predators are to wildlife populations. Fires provide a vast array of ecosystem services that help maintain healthy forest ecosystems.

Higher-severity fire benefits watersheds and aquatic ecosystems in several ways, including providing a bonanza of recruitment of large wood and pulsed sediment supply that can rejuvenate aquatic habitats and increase their productivity. High severity fire is also a key process for the restoration of structural heterogeneity in forests, which is important for biodiversity.

There are myriad ecosystem functions performed by fire – from creating unique wildlife habitat, to changing the nutrient flow of the forest, to killing forest pathogens, to opening knobcone pinecones . . . which are not replicated by logging or possible to achieve in any other way.

Assumption #4: Wildland fire must always be controlled, if not suppressed

“Wildfires are more like coyotes than grizzly bears or wolves. The more we hunt them, the harder they are to exterminate. Wildfires will gnaw off their own legs to get out of our traps. They have learned to feed on the detritus of mangled ecosystems.”

–Joe Fox (former wildland firefighter and smokejumper, with a Ph.D. in forest etymology)

"Right now we're spending billions of dollars to prevent something that is going to happen sooner or later, whether we try to stop it or not, and something that can assist us in sound land management.”

-John Bailey (associate professor in the Department of Forest Engineering, Resources and Management at Oregon State University).

The future of fire in this region is difficult to predict, will always be variable, and undoubtedly a part of the future landscape. People should understand, however, that fire is not only inevitable but also a valuable part of forest ecosystems and their management. Burning is a natural ecosystem process and generally helps restore forest ecosystems. It's ironic that we spend so much money to stop fire, because we should learn to see fire as more of a partner and not always an enemy.

Frequent fire in Pacific Northwest forests will promote forest composition, structure and function that's more consistent with how these forests grew historically. Prior to European settlement, fires were significantly more frequent, sometimes were started on purpose and rarely suppressed.

Under a policy adopted after the 1988 Yellowstone fires, federal land managers must suppress all fires, until they have a fire management plan. However, many National Forests still lack such a plan – many claiming lack of appropriations. Yet, there is a virtual "blank check" approach to spending money on fire suppression. Even if a fire qualifies for "wildland fire use" (the FS term for letting fires burn) it requires much more paperwork than for suppressing it. A common phrase in the fire world is that: "[t]he Forest Service tries to put fires out by dumping money on them." For example, the final cost of fighting the Biscuit Fire was $153 million and included the construction of many miles of fire lines and extensive high-intensity backburning. Fighting the 2011 5,000 acre Dollar Lake fire in the Mt. Hood National Forest cost $15.8 million dollars.

Assumption #5: The most important place to focus fuels reduction and fire suppression is in municipal drinking watersheds and the Wildlands Urban Interface.

"The chronic watershed impacts from repeated treatments may be more deleterious to native fish than pulsed disturbance of wildfire. If fire does not affect treated areas while fuels are reduced, treatment impacts on watersheds are not counterbalanced by benefits from reduction in fire impacts."

- John Rhodes & William Baker (forest hydrologist & fire ecologist)

"Forest fires cannot burn homes that are not built in fire prone forests."
– Thomas Michael Power (Prof. of Economics, University of Montana)

Drinking watersheds:

The impact of a forest fire on drinking water utilities depends on two major factors.

• A reservoir located upstream of a Water Treatment Plant (WTP), which can minimize the effects of increased turbidity and ash flows after a forest fire;

• The proximity of the forest fire to the surface water source. A fire that burns the area surrounding the drinking water source will have more pronounced effects than a fire burning the tributaries of the drinking water source. The runoff from a fire that burned tributaries will be intercepted by natural obstacles such as plants and algae within the stream and be deposited on the stream bed. However, runoff from a fire located at the drinking water source will not be intercepted.

If treatments reduce the watershed impacts of severe fire, they may provide benefits that outweigh treatment impacts because high-severity fire can sometimes trigger short-term, severe erosion and runoff that can negatively affect soils, water quality, and aquatic populations. However, fuel treatments can also have impacts on aquatic systems. The magnitude and persistence of these treatment impacts vary with treatment methods, location, extent and frequency.

Although some fuel-treatment methods could have lower impacts, ground-based mechanical treatments are often employed because other methods generate activity fuels and are more costly. Ground-based methods and associated machine piling, burning of activity fuels, construction and increased use of roads and landings can increase soil erosion, compact soils, and elevate surface runoff. Although the effects of prescribed fire on watersheds are typically limited and fleeting, it can increase soil erosion and sediment delivery, sometimes significantly and persistently, especially if fires escape and burn larger and more severely than planned. When impacts are extensive, proximate to streams, or in terrain with erosion hazards, treatments can increase runoff and sediment delivery to streams. Road activities that increase sediment production, such as elevated road traffic, often affect stream crossings where sediment delivery is typically efficient and difficult to control. Elevated sediment delivery to streams contributes to water quality degradation that impairs aquatic ecosystems.

Wildlands-Urban Interface:

The risk of fire to homes made of fuel built among forest fuels has appropriately been compared to the risk of flood damage to houses built on flood plains.

In focusing efforts on the WUI, the following points should be kept in mind:

1) homes and communities cannot be protected by thinning distant forests. If forests are thinned but homeowners do not manage their home sites and homes to reduce the chance of ignition, the homes will still be at risk.

2) public policy should encourage homeowners to take responsibility for their own location decisions, similar to building code requirements for houses in floodplains.

Intensive fuel reduction treatments within a narrow band (1/4 to ½ mile wide) surrounding homes should be a priority, including creating defensible space. Build homes out of fire resistant materials. Slow the encroachment of residences into the WUI.

Assumption #6: Salvage logging is necessary to recoup the economic benefit of trees that burn in the Matrix, and outweighs ecological impacts

"Conventional salvage logging epitomizes exploitive forestry, which is the myopic, economic exploitation of trees at the supreme cost of the biophysical health of the forest as a living ecosystem."

-Chris Maser (forest ecologist)

There is no scientific evidence supporting the position that salvage logging benefits forest ecosystem health or promotes late-successional forest characteristics. While the number of experimental studies on the effects of salvage logging is quite limited, an abundant scientific literature reports negative impacts from salvage logging and associated management activities on a wide range of biological elements and ecological processes. This supports a very cautious approach to postfire management and clearly refutes the claim that intensive postfire management is necessary to restore health and vitality to our forestlands.

Economic studies have shown that there are costs associated with any kind of logging (including salvage) and these costs are frequently greater than the perceived economic gain. Burned forests are presented as a great wasteland of loss that have no remaining value – so why not log them? This perception does not capture all the ecological benefits of fire, and the deep ecological value of burned forest ecosystems (see assumption #3, above).

Salvage logging often leads to changes in species composition, as down logs and snags are important to a wide variety of vertebrate and invertebrate species. It also can increase soil erosion, from the infrastructure (roads, skid roads, landings, etc.) needed to facilitate commercial logging. Post fire ecosystems are unique and fragile, and should be allowed to provide much needed post fire habitat, and regenerate naturally.

Assumption #7: Because of climate change, forest fires need to be suppressed so that they don't add additional carbon into the atmosphere

"Researchers recently found that the highest carbon sequestration levels were in forests that had previously experienced considerable occurrence of high-intensity fire."

-Chad Hanson, Ph.D (fire ecologist)

In terms of preserving forests' natural carbon sequestration ability, it doesn't make sense to remove large volumes of biomass (especially overstory biomass) from a forest to prevent the severity of wildfires, as most of the carbon remains in a forest after a fire. In fact, even the most severe fires only remove about 15% of the carbon of the forest, the rest is returned to the soil or released via the respiration of decomposition in a natural cycle that replenishes the forest with nutrients and feeds new growth.

In the continental United States, CO_2 emissions from wildland fire are only about 5% of the amount resulting from human fossil fuel consumption. In addition, emissions from fires are more than offset by post-fire growth and carbon uptake, as carbon sequestration from forest growth is about 25 times larger than emissions from fire. On the other hand, fuel treatments are temporary and may even result in a net loss of carbon between fires.

In conclusion:

"Unless we change the language we use to describe wildfire, we may never get away from the perception that it is harmful and undesirable. Talking about wildfire in nonjudgmental language is probably not possible, but if we must err, let us err on the side of ecological health."

–Conrad Smith (prof. of Journalism, University of Wyoming)

Bark recognizes that shifting our cultural relationship with fire and recognizing it as an ecological ally necessarily means re-writing our stories. Bark advocates for stories based on forest science, not fear, and fire policy based on science, not propaganda. These forests are born of fire, and fire will always return.

Resources:

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