

What Are Fuel Breaks and Why Are We Doing Them - Webinar Q&A

25 March 2021

Video at: <https://youtu.be/Ry3ieGKbdz0>

Question	Answer(s) (Most of these questions were also answered live.)
Any general stats on costs per acre or costs per mile of a fuel break (appreciating varied costs in light or heavier fuels)?	<p>Duncan Leao: highly variable on costs/ac or per mile from us, many occasions you are looking at multiple entries or a sequence of treatments, eg mowing, seeding, herbicide, in no particular order. Contracting mowing, mastication, thinning, etc has generally been less expensive. \$15-200/ac</p> <p>Jeff Rose: Hate to give numbers because of so many variables. However, things to think about when developing costs is to determine if you are going to contract all the work compared to renting or purchasing equipment. <i>Jolie Pollet</i>: Costs are very variable. Some fuel breaks that require multiple treatments are about \$500/acre.</p> <p>Justin Boeck: In the Great Basin, many of the transportation corridors with favorable ingress/egress for fire suppression resources have varied vegetation communities. The impetus for investing dollars in fuel break establishment along these corridors are tied to stakeholder and local community needs. The cost of a strategic fuel break system varies based on the ecosystem (vegetation communities present, including invasives) and the needs of the stakeholders. A good estimate for areas with a high invasive/weed component could be upwards of \$500 per acre. These areas typically require a mowing, chemical, and seeding component which require multiple entries and annual monitoring. More resilient/intact vegetation communities would require fewer treatments/interventions resulting in costs upwards of \$150 per acre annually for a mowing treatment every 3-7 years with annual monitoring. Per mile costs vary based on the width of the fuel break and various treatments over the landscape. Cost per acre is the most appropriate metric for accounting purposes.</p>

<p>In rangelands, will fuel break design include looking at proposed fuel break locations relative to level of invasion in the area and whether the fuel break will be connecting invaded to uninvaded areas and discuss ecological and management tradeoffs with invasive species land managers and partners for the area?</p>	<p>Jeff Rose: This is a tough situation. This is definitely a consideration and part of the tradeoffs that Jolie is talking about. This can be mitigated to some degree, but those actions need to be planned and carried out.</p> <p>Duncan Leao: in some considerations we have to realize that roadsides will already have presence of invasive annuals or other weeds. Is it better to work within a highly impacted zone (the road corridor) in order to promote some level of resistance or resiliency across a larger landscape?</p> <p>Justin Boeck: The level of invasive grasses are typically a result of the ongoing fire frequencies and large fires experienced within rangelands and the Great Basin vegetation communities. A strategic fuel break system would analyze the varied levels of invasives and the appropriate treatments, or degree of intervention, needed to address wildfire risk within a given landscape.</p>
<p>Does anyone have thoughts on topographic locations of fuel breaks and what works best from a fire fighting perspective? I'm thinking ridgelines versus behind ridgelines.</p>	<p>Duncan Leao: modelling to validate problem areas and design location and extent of fuel break accordingly. Some times we may plan fuel breaks in conjunction with larger area type treatments.</p> <p>Jeff Rose: Like everything it depends. Mid-slope is the toughest spot. Ridgelines do provide a good spot, but not always practical. Modeling fire behavior could help "game" the location and help with the design (size and type of treatment).</p>
<p>In sagebrush/bitterbrush the only time we have a major fire is when there is strong winds, with embers sometimes spotting a mile or more ahead. How wide does a fuel break need to be to be effective?</p>	<p>Jolie Pollet: It depends. As Duncan says, fuel breaks aren't designed for the worst case fire behavior / fire weather scenario. But, consider "typical challenging" fire behavior when designing fuel breaks. Typically, managers will seek the most narrow, but effective width. Don't want to spend more than what you need to put in the fuel break, but also need to consider values at risk, resources impacted by the fuel break, etc.</p> <p>Jeff Rose: There used to be a term used in fire planning called the "average worse day". Base width on objectives, firefighting capability (how quick you can get people/equipment on site, what equipment) what is to be protected (housing development vs. Sage-grouse lek, vs Crested wheatgrass seeding), topography (flat vs slope). 100 to 300 feet is the number being tossed around, but the exact size needs to be based on those and other site-specific factors and social issue. One size does not fill all.</p> <p>Justin Boeck: Fuel breaks are desinged for firefighters, by the wildland fire community and with input from local community stakeholders. The width of a vegetation treatment along a raod corridor depends on multiple factors (i.e. topography and vegetation type) which is why a maximum area is typically analyzed . The "Ideal" fuel break reduces flames lenghts and fire intensities to a level which is safe for firefighters to engage in suppression activities.</p>

<p>Question for Duncan: You said there are many examples of fuelbreaks working in Nevada. Where are summaries and/or data about these examples located?</p>	<p>Duncan and Génie: We'll collect these and get them to you. There is also a webinar toward the end of the series on fuel break successes: https://us02web.zoom.us/webinar/register/WN_MpnE9AdCQWao7KwL6OWcZw.</p> <p>Jolie Pollet: All DOI fire agencies (BLM, FWS, NPS, BIA) and USFS use the Fuel Treatment Effectiveness Monitoring system to track data about fuel treatment and wildfire intersections.</p>
<p>Sounded like that big west-wide project has already established an optimal network of breaks, but Jolie mentioned we still need ongoing science effort in siting them. Could you clarify to what extent this an open question?</p>	<p>Jolie Pollet: We don't have broad areas of fuel breaks across the west. We have areas (tens to hundreds of thousands of acres) where we have established fuel break networks. The PEIS analyzed areas for fuel breaks, but will require a site-specific review prior to implementing new fuel breaks. Fuel breaks in rangelands don't have a lot of science - but they do have a lot of anecdotal evidence that they work. BLM is always looking to be adaptive and apply new science. Justin Boeck: The mentioned programmatic EIS for fuel breaks within the Great Basin does encompass much of the rangelands in the west at risk from catastrophic wildfire. The degree and extent of federal action require to manage vegetation within the transportation corridors analyzed in dependent on local stakeholder and community needs.</p>
<p>Question for all panelists: Some speakers said fuelbreaks will only be installed along existing roads and disturbances, while others said they are not always along roads. Curious if different agencies or states have different strategies on this? Thanks!</p>	<p>Duncan Leao: Depends on the combination of modelling, professional experience, resource considerations, NEPA analysis/decision, and potential to work across jurisdictions with partners to make these fuelbreaks make sense. Not all fuel breaks need complete vegetation clearing, could include thinning, pruning, livestock grazing, or other methods to break up continuity of fuels with the goal of changing fire behavior (ROS, flame length, fire type, etc).</p> <p>Jolie Pollet: To clarify, <i>linear</i> fuel breaks (like those analyzed in the PEIS) implemented by BLM are often installed along existing roads for a variety of reasons -- the area is already impacted by the road (and road width increases the width of the fuel break), it's an area of access for firefighters, and it's usually less expensive to install and maintain if it's adjacent to a road. We do plenty of fuel treatments, a lot of which could broadly be called "fuel breaks," away from linear features.</p>
<p>What efforts have been made to co-locate/coordinate planned and existing fuel breaks with powerline corridors and ROWs?</p>	<p>Jolie Pollet: We look for opportunities for the operators of these ROW to maintain the vegetation (and minimize fire risk) in and adjacent to their ROW. We don't typically think of these areas as "fuel breaks" or as safe areas for fire suppression activities (powerlines are problematic to firefighters and aircraft).</p>

<p>Is there any weather/climate/wind/fire modeling that is being used to help design the location and orientation of FB's?</p>	<p>Génie MontBlanc: Yes! Please see our April 8th webinar that includes a talk on modeling: https://youtu.be/QVTY2nhOo1E</p>
<p>If a fire burns over/past a FB, how will the FB be used or managed over the future years? Will that still be maintained even though everything has burned on both sides of it and won't recover for decades?</p>	<p>Jolie Pollet: Sometimes fuel breaks do become abandoned -- e.g., access is difficult and maintenance becomes too costly, etc. A burned fuel break will be re-evaluated, and the managers will decide how (or if) to maintain it into the future. Fuel breaks are a great way to protect post-fire recovery investments (multi-entry seeding, etc.) - so managers may want to maintain a fuel break to protect those investments. In some areas, fires have burned so frequently that the area can burn again before the previous post-fire recovery actions have been successful. Justin Boeck: Fuel breaks within rangelands are typically established along road corridors for the safety and strategic advantage of fire suppression resourceswith (ingress and egress purposes).</p>
<p>For Jolie: If BLM is creating ~800 miles of fuel breaks/year, and only maintaining 3-400 miles/year, does the agency plan to increase funding for monitoring and maintenance?</p>	<p>Jolie Pollet: Many fuel types and fuel breaks don't need maintenance every year. We do support fuel break maintenance work, and we do monitor the fuel break treatments. Funding has been increasing the past few years, so we have been able to do more.</p>
<p>What kind of increasing response time analysis has been conducted to evaluate effectiveness of fuel breaks pre and post implementation?</p>	<p>Jolie Pollet: I'm not aware of any studies that have evaluated fire response time pre and post fuel break implementation. We just don't have a lot of networks of fuel breaks in many areas, and because they become established over a long time frame, it would be difficult to find the exact date that a fuel break network was "established" and then compare response times prior and post establishing of the fuel break. We do have data about the effectiveness (or lack of, in some cases) of fuel breaks when they are intersected by a wildfire.</p> <p>Justin Boeck: Fuel breaks are typically designed to incorporate existing road corridors. Some areas across the Great Basin may require upgrading/improving access for fire suppression operations.</p>