31 May, 2016

Board of Forestry and Fire Protection
ATTN: Edith Hannigan, Board Analyst
VTP Draft PEIR Comments
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I have reviewed much of the new VTP-EIR and am submitting comments in my capacity as a fire scientist and published author on numerous scientific studies and reviews pertaining to fire regimes, management and ecology in California.

I reviewed and commented previous versions of the VTP-EIR and am broadly familiar with it's evolution over the past several years.

As with the 2013 version, this latest draft suffers from poor scientific documentation. There are numerous papers cited in the document that are not in the reference list and conversely there are papers listed in the reference list that are not referred to in the document. In many cases citations often don't support (and sometimes contradict) the statement to which they are attached. In other cases, the citation reference a book or large report with no indication of page number on which the supporting information is found. All these issues render the citation invalid and removes any veneer scientific credibility. Some of these errors are documented in the attached table. The table is not exhaustive list of the documentation issues in the VTP-EIR but illustrates the type of short-comings.

Other parts of the document state assumptions without any apparent effort to scientifically support these assumption. One of the most problematic issues, from my point of view as a fire scientist, is the dogged and oft repeated assumption than treatment of wildland vegetation will always have a beneficial (reducing) affect on fire size. The document either does not cite any studies, or cites studies with limited applicability, to support this claim. Vegetation treatments can be effective in reducing fire size if 1) it is a fuel and topography (not wind) driven fire, 2) the fire intersects the treated area, and 3) suppression crews have safe access (although fires will stop on their on at fuel breaks this is uncommon) (Syphard et al, 2011).

There are a number of studies conducted in areas of California where large, very expensive fires (in terms of both suppression and asset loss) occur periodically which directly contradict the assumption fuel treatments universally decrease fire size (e.g., Moritz 1997; Moritz et al. 2004; Keeley and Zedler 2009 and citations therein).

Under wind-driven fires, prior fuel treatments can also have a negative impact (increase) on fire spread rate and fire size when fuel-bed ignitability is altered. This is potentially most critical when fires are wind-driven and rate of spread is determined by fire-brands igniting receptive fuel beds far ahead of the fire front. Altering the landscape fuels in a manner that leads to a mosaic of highly flammable flash fuels (e.g. grass and herbaceous species) may increase rate of spread and endanger resources adjacent to these fuels. A configuration of intermixed fuels allows “leapfrogging” of ignitions in patches of flashy fuels which then ignite adjacent heavier fuels creating a shotgun-scatter of fire fronts that out-strips suppression resources, often within the first hour in the largest recorded fires.

It has been said that California has two types of fires; the ones we plan for (fuel and topography driven) and the ones that actually do the vast majority of the damage (wind and fire brand driven). As the

largest and most costly fires are wind driven, particularly in southern California, the affect of fuel manipulation needs to be addressed within the wind-driven fire scenario when justifying of the VTP. It is not. Fire brands are mentioned but the potential of the of interaction with treated fuel breaks under wind driven fires is not acknowledged much less addressed and weighed in the design of the plan. This impact of fuel treatments must be addressed if Cal-Fires goal is to reduce losses from fire rather than just increasing acres treated. This impact of fuel treatments must be addressed if Cal-Fires goal is to reduce losses from fire rather than just increasing acres treated.

The VTP also does not address an important factor in mitigating large fires which is limiting initial ignition. The majority of fires at lower elevations in California are anthropomorphic in origin and a significant number are ignited accidentally along road ways by car fires, catalytic converter failure, discarding of burning material from vehicles, etc. Cal-fire misses an opportunity to prevent large fires from starting by not considering the potential in this area. Isolating flammable vegetation from road shoulders either by actual manipulation of vegetation in this area or the construction of barriers such as sound walls. While this latter is initially expensive it is a more permanent solutions, causes fewer environmental impacts (and potentially some benefits) and requires lower future maintenance.

There is a large and growing body of literature addressing issues of fire brands and fuel beds that Cal-Fire needs to review and discuss if the VTP-EIR is going to be considered based on current science. I list a number of studies and documents below that would offer an initial introduction to this area of research.

The authors of the VTP-EIR also conflate the terms fire intensity, fire severity and burn severity and they fail to include any definition for these terms in the glossary. This has been problematic in the literature and has been addressed in the literature (Keeley, 2009; Jain et al. , 2004). Hazard and risk are also not defined and are used interchangeably in varying contexts.

California suppression crews and managers are some of the best in the world and frequently put their lives on the line to protect others, Cal-fire should respect these heroes by producing a scientifically supported plan that will ease their burden and make their work safer.

Sincerely,

CJ Fotheringham, BA, Msc, PhD.