Middle East Fork Project
Summary of Objection Issues and Suggested Remedies

Project Name: Middle East Fork Hazardous Fuels Reduction Project
Objector: Carnefix, Gary (Lead)
Objection Number: 0022

Issue 1. (LANDSCAPE) "Objection: inadequate scientific justification of proposed project elements outside the WUI…"

Suggested remedy: "…we propose that a panel of independent (e.g. academic) scientists be convened. We propose that these experts should focus in particular on:

1) appropriateness of the models used for their application in these analyses
2) adequacy of disclosure to the public of model appropriateness, reliability, constraints and limitations
3) whether modeling methods/procedures were correctly followed
4) accuracy and appropriateness of interpretations of modeling results
5) adequacy of disclosure of caveats, qualifications, and limitations when citing scientific literature generally in support of project elements, and assessment of the overall appropriateness and accuracy of such citations

We would expect to have input regarding the composition of such a panel, including right of review of relevant expertise and qualifications."

Regional Review and Response: The Region appreciates the objector's recommendation for further review of the science behind the proposed treatments outside the Wildland Urban Interface (WUI); however, the analysis in the Final Environmental Impact Statement (FEIS) fully discloses the different opinions and the science on the subject (3.2-28 through 3.2-34). Please keep in mind that the analysis of fire behavior effects in the FEIS is limited to the WUI (measurement criteria of flame length, rate of spread and crowning potential). The treatments outside the WUI are to manage stands infested by the Douglas-fir bark beetle. Fire Regime Condition Class (FRCC) is assessed for the entire analysis area. The FRCC modeling was completed as required by the Healthy Forest Restoration Act (HFRA). Certified personnel performed the modeling using the FRCC landscape protocol.

Responses to Public Concerns 3614 and 63004 address this issue. The Project File contains additional information on the modeling assumptions and limitations in the document titled, *Methods for Fire Behavior Modeling* by Tonja Opperman (PF_FIRE_023).

Issue 2. (SOIL) "…inappropriate, cursory, subjective "peer review" process performed by soils scientists with no direct experience with local soils."

Suggested remedy: "We request, at a minimum:
1) that this incident be independently investigated, including

2) that the criteria used by the peer review panel for classification of soil disturbance as "detrimental" be fully disclosed and scientifically justified from peer-reviewed literature
3) that the Forest Soil Scientist's assertion that the original "detrimental" standard he applied is specified in official Forest Service direction, which the reviewing team ignored
4) that the strength and extent of consensus within the reviewing team on the conclusions as presented in the "peer review" report and in revisions to the soils section of the FEIS be fully disclosed
5) what, if any, professional appeal/defense opportunity was afforded to the Forest Soil Scientist?
6) unless and until such an investigation validates the "peer review" finding, that the Forest Soil Scientist's results and conclusions be reinstated and fully govern all final comparison analyses and decisions.

Regional Review and Response: (1 and 2) Information related to the peer review is found in the FEIS, page 3.5-3 and PF-SOIL-090. The peer review was initiated by the Forest based on public comments received following the draft environmental impact statement (DEIS). The peer review used "Howes" method with soil pits and penetrometer readings (PF-SOIL-089). The peer review team included members from the Research community who have projects on the Bitterroot National Forest; so are familiar with the soils of the area. Peer review of all soil quality determination methods is now occurring at the Regional and national level.

3) The soil quality definitions as found in the Region 1 soil quality standard (SQS) are broad and rely to a certain extent on professional judgment. This judgment was used by both the original soil scientist and those of the 10 peer soil scientists during the Regional review.

4) "the strength and extent of consensus" is unknown as this is an individual judgment, however, as stated on page 3.5-3, during the peer review the soil scientists were within about 10 percent of each other using the "Howes" survey method.

5) The original soil scientist was asked to participate in the peer review but declined.

6) If DEIS Table 3.5-1 is compared to FEIS Table 3.5-2, the reader will find that the original soil scientist's numbers have been carried throughout the planning phase of the project. These numbers are also used for the analysis. Comparing the DEIS and FEIS, the reader will note that the conclusions as to unit harvest methods and mitigations are similar. The mitigations have been re-written to conform to contract language and to be implementable. As stated on FEIS page 3.5-3, the peer review merely pointed out that the numbers in DEIS Table 3.5-1 and FEIS Table 3.5-2 may be of a conservative nature. The peer review did not provide detailed information by which to change the DEIS Table 3.5-1 numbers.

Issue 3: (LANDSCAPE) "…provide an analysis that credibly acknowledges and accounts for the large uncertainties in, limitations of and constraints on its modeling and analyses presented in support the elements of this proposal outside the WUI, and how these affect analyses of the costs and benefits, …such an assessment must disclose the low likelihood that fire will occur under severe burning conditions at any particular treatment location

within the window of any purported effectiveness of the treatment …also disclose that such a project must… be followed
by regular re-treatment with all the associated ecological and economic costs…further disclose that it does not have resources for and is not committing itself to such a program."

Suggested remedy: "… require a Supplemental FEIS that credibly corrects them if the Forest elects to proceed with proposing the activities outside the WUI."

Regional Review and Response: The objector does not acknowledge that there are three objectives for the Middle East Fork Project. The treatments outside the WUI are authorized under Section 102(a)(4) due to the presence of the Douglas-fir bark beetle epidemic. Part of the Purpose and Need of the Middle East Fork (MEF) proposal is to restore fire-adapted ecosystems and restore stands affected by the Douglas-fir bark beetle to promote ecosystem function, composition and structure (FEIS, Section 1.2). The purpose of treatments outside the WUI is to improve FRCC, restore fire-adapted ecosystems and forest health (FEIS, Section 1.2); however, there is an associated benefit in that strategically-placed fuel treatments (SPLATs) in the non-WUI landscape will reduce the risk of loss due to wildfire in the WUI by improving controllability (Finney, 2002) and by reducing fire severity. Pollet and Omi (2002) found that more open stands experienced lower fire severity than more densely stocked stands. Also see the FEIS, Section 3.1.6.A. To quantify this benefit from non-WUI treatments, we added FARSITE modeling to the FEIS (pp. 3.1-40 through 3.1-46).

On page 3.1-27 and 28 of the FEIS it states, "Middle East Fork Hazardous Fuel Reduction Final EIS 3.1-27. The actions being proposed are effective in changing the key indicators for varying amounts of time. Landscape level changes in FRCC are in affect until an historic fire cycle is missed or vegetative ingrowth causes structural change. Therefore, the duration of effectiveness ranges 0-100 years. Two examples of the potential effectiveness duration are grasslands and lodgepole pine forest. The fire frequency of the grasslands is 0-10 years and the FRCC may revert from Class 1 to Class 2 after one or two missed fire cycles. The fire frequency of lodgepole is 60-100 years, and the FRCC may remain in an improved class for 100 years.

With the addition of follow-up treatments, e.g. prescribed fire at the historic return interval, it is possible to maintain post treatment levels of effectiveness. For example, a 2-foot flame length resulted following the typical mechanical and prescribed fire treatments, within 10-15 years the flame length increases to 4 feet. By simulating another prescribed fire treatment, without mechanical treatment, the flame length was returned to 2 feet. Planning for follow-up treatments is not covered in this analysis."

In terms of costs and benefits of doing the work outside of the WUI, these treatments will also generate Knutson-Vandenberg (KV) funds, Brush Disposal Funds and Stewardship funds, which can be used for non-commercial fuel treatments, pre-commercial thinning, activity fuel treatment, TMDL improvements, and other mitigations. This is explained in Appendix G (pp. G-2 and G-3). On page 3.12-4 project feasibility is discussed, showing Alternative 2 is economically feasible and Alternative 3 is not economically feasible, based on base rates and estimated selling costs. The benefits and costs depicted do not include anticipated future costs associated with failure to reduce risk. This type of analysis was conducted in 2004 by Mason,

Lippke, and Zobrist (PF-FIRE-0017) for two western National Forests and the results show a positive net benefit from fuel reduction in high risk (fire interval of 30 years) of $1,483 per acre. The authors state these conservative estimate "clearly show that the future risk of catastrophic (defined earlier by the authors as a crown fire) on the National Forests of the inland west is far costlier to the public than investments made today to protect against such eventuality."

Douglas-fir Beetle (DFB) Hazard Assessment: The DFB hazard rating is explained in the FEIS on pages 3.2-21 to 23. It is an index for the degree of potential for DFB activity. It is based on scientific studies and expert opinion. It would not be appropriate to assign statistic measures to an indexed rating system. Vegetation data (stand exams, mortality modeling, etc.) does have statistical analysis, which is disclosed in the FEIS and included in the project file. This information shows the accuracy, standard deviation, standard errors and confidence intervals of the estimates (SILV-042, SILV-45, SILV-69, SILV-52, and SILV-6).

Risk: The possibility of meeting danger or suffering harm, Websters Dictionary.
When used relative to wildland fires it refers to the probability of escape resulting in financial and ecological loss. Alternative management scenarios generate different degrees of risk and ultimately a different set of economic outcomes (Hesslin and Rideout, 1999).

MEF Fire analysis identifies the susceptibility of a project/planning area to wildfire in terms of risk and hazard to determine effects of proposed vegetation and fuels altering projects.

1. **Fire Risk** applies to the probability of an ignition occurring as determined from historical fire record data.

   The fire ignitions history of the MEF area is documented in the FEIS on pages 3.1-15 and 16 and in the cumulative effects section, Appendix B. It is based on actual fire reports and scientific studies (Arno, 1976). Potential fire size, without suppression action, is estimated for the MEF area using FARSITE, and documented on pages 3.1-26 and 40-46. A local fire risk analysis using PROBACRE, which includes suppression actions, is cited in the references (Boyd, 2002). The results show that the probability of having a fire that exceeds the suppression capabilities of firefighting handcrews is 37 percent in 1 year. On average, one of those fires will result in a large fire (180-15,000 acres) every 6.5 years (5-7 year range). Boyd's report also corroborates the MEF finding that crown fires in this area are fuel driven and generally will escape initial attack suppression.

2. **Fire Hazard** identifies the availability of fuels to sustain a fire and using fire-modeling results in varied intensity levels of fire behavior prediction. Where high risk coincides with high hazard, the probability of fire with undesirable effects is more likely.

   The hazard portion of the MEF analysis correlates directly to predicted fire behavior that is a function of fuels, weather and topography. The fuels and topography portion of the fire behavior triangle were analyzed through use of Forest Vegetation Simulator-Fire & Fuels Extension (FVS-FFE), FlamMap and FARSITE. Changes in Flame Length, Rate of Spread, and Crowning Index **for the WUI** are reported in the FEIS on pages 3.1-27 to 51.

The fuels relates directly to standing vegetation, as well as dead and down surface fuels. MEF field data (stands exams and Brown' transects) was collected for the analysis. Representative weather data was used from Weather Information Management System (WIMS) archives for local weather stations (FEIS p. 3.1-10 and 11). Fire behavior predictions are based on 90th percentile conditions.

3. **Values At Risk** -- include critical watersheds/viewsheds, erosive soils, threatened and endangered species habitat, commercial timber, communities at risk and other infrastructure (communications sites, campgrounds, summer home groups, etc). The values help establish priorities and quantify the effects of the action and no action alternatives.

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With the addition of follow-up treatments, e.g. prescribed fire at the historic return interval, it is possible to maintain post treatment levels of effectiveness. For example a 2-foot flame length resulted following the typical mechanical and prescribed fire treatments, within 10-15 years the flame length increases to 4 feet. By simulating another prescribed fire treatment, without mechanical treatment, the flame length was returned to 2 feet. Planning for follow-up treatments is not covered in this analysis."

Issue 4: (LANDSCAPE) "We suggest that if the Forest cannot perform a reasonable retrospective analysis relating its past management to fire behavior in 2000, even if not precisely analogous to the analyses in this EIS, then it has no business suggesting to the public that it knows how to manipulate vegetation to control/influence fire behavior."

Suggested remedy: "…independent scientists with relevant expertise, or Forest personnel with input and oversight from independent scientists, should perform a retrospective analysis of the fires of 2000, as described above, to test/validate the modeling assumptions and results underlying justifications of the proposed treatments outside the WUI."

Regional Review and Response: The Region appreciates the objector's recommendation for further review of the fire behavior modeling. Please keep in mind that the treatments outside the WUI are to manage stands infested by the Douglas-fir bark beetle epidemic to promote healthy ecosystem function, composition, and structure. The analysis of fire behavior effects (flame length, rate of spread and crowning potential) is limited to the WUI and would be excluded from the review the objector suggested. Furthermore the "retrospective" but "not precisely analogous" analysis would be viewed by the scientific community as an "apples-to-oranges impacts comparison," which is the objector's concern in Issue 5.

A somewhat subjective analysis of the impacts of past timber management on the fire effects, which occurred with the 2000 wildfires, was documented by Arno and Fiedler in their book Mimicking Fire: Restoring Fire-Prone Forests in the West (2005). Arno performed a scientific fire history in the Tolan Creek sub-watershed adjacent to the MEF project area (FEIS pp. 3.1-15). In their book, Arno and Fiedler uses the example of the Tolan Creek management project (Tolan Creek FEIS, 1993) to show how the Bitterroot National Forest has applied silvicultural tools to mimic some of the effects of wildfire and likely prevented unacceptable losses from the 2000 wildfires.

Issue 5: (COMM) "…"apples-to-oranges" impacts comparison of alternatives under implied assumption that only low-moderate severity fire occurs under Alternative 2 and only high-severity fire occurs under Alternatives 1 and 3 is fatally biased."

Suggested remedy: "…replace the current slanted comparison with a credible comparison that models impacts of alternatives across the same range of fire severity scenarios."

Regional Review and Response: It appears the objector is defining crown fire as high severity and ground fire as low severity. If that is the case, than a quick way to view the differences in fire type between alternatives is to review the FlamMap figures in the FEIS, pages 3.1-48 through 50. Note that both types of fire are evident with all alternatives. The FEIS states that the models are for comparison and are not to be used for absolute numeric values (p. 3.1-12). Also, it seems the objector may have misinterpreted the methods. Identical burning conditions were used for the comparisons. Public Concern 63040 lists numerous citations used in this analysis, which further address your concern that there is not a creditable comparison.

The FEIS analysis shows (p. 3.1-37) that crown fire potential increases on 794 acres within the WUI with Alternative 1 (No Action), and decreases by 472 acres in the WUI with Alternative 2. Again, these numbers should be considered relatively – not as absolute numbers.

Issue 6: (PROCESS) "…bundling of non-controversial WUI treatments with highly controversial treatments"

Suggested remedy: "…proceed within the WUI; eliminate the logging of old-growth stands" (defined by the Objector as any stands outside the WUI).

Regional Review and Response: The Region appreciates the support of all treatments except those stands outside the WUI. The objector's suggestion to eliminate those stands outside the WUI was considered by the Forest during the analysis. The Forest determined that the purpose and need for the project would not be met by that action.

Issue 7: (PROCESS) "we object to the proposed Forest Plan amendment "to allow harvest of green trees on unsuitable lands" except within the WUI …"

Suggested remedy: "This proposal should be dropped outside the WUI…"

Regional Review and Response: The Region again appreciates the objector's support of all treatments except those stands outside the WUI. As previously stated in Issue 6, the objector's suggestion to eliminate those stands was considered by the Forest during the analysis. The Forest determined that the purpose and need for the project would not be met by that action.