Middle East Fork Project
Summary of Objection Issues and Suggested Remedies

Project Name: Middle East Fork Hazardous Fuels Reduction Project
Objector: Diana L. Six, PhD
Objection Number: 0011

Issue 1. (DFB) "In epidemic situations, such as the area affected by the project, thinning is ineffective an (sic) may exacerbate mortality in the remaining trees."

Suggested remedy: "Such efforts and expense would be better placed into areas on the Bitterroot Forest where beetles are not yet active but where conditions would support increases in their population and where the treatments can do some good and are appropriate."

Regional Review and Response: The fact that thinning in advance of a Douglas-fir bark beetle (DFB) outbreak can improve the probability of reduced future DFB mortality is not disputed. However, the Healthy Forests Restoration Act (HFRA) stipulates treatment to improve forest health be done in areas experiencing an epidemic (Section 102(a)(4) and HFRA Guidebook, Decision Diagram 2, p. 13). Thinning in advance of a potential outbreak for the purpose of prevention of DFB is not possible in the Middle East Fork (MEF) project area given the existing epidemic.

Also refer to the response given in Public Concern ID 3607, Final Environmental Impact Statement (FEIS), Volume 2, Appendix H, page 39 of 193 and Public Concern ID 3614, page 48-51 of 193.

As disclosed in the FEIS (p. 3.2-31), scientific evidence and examination of the best available science support the idea that silvicultural thinnings will reduce susceptibility to Douglas-fir bark beetle (Negron, 2005: SILV-061, SILV-068). Numerous studies with *Dendroctonus* bark beetles have shown that thinning can dramatically reduce bark beetle mortality through increases in tree vigor or changes in microclimate or both (Amman, et al. 1988, 1988b; Cole, et al. 1983; McGregor, et al. 1987; Schmid and Malta, 1992; Amman and Logan, 1988; Bartos, 1988; Bartos and Amman, 1989) (FEIS, p. 3.2-31). Amman (1989) concluded that beetles are attracted to large, dark silhouettes and vertical cylinders. If stand conditions are altered to open up stands, still retaining the larger diameter trees, the sun is able to penetrate through the forest canopy and create subtle changes in incident radiation, temperature, light, and wind speed that can reduce losses to bark beetles before increases in tree vigor are realized (Amman, 1989) (FEIS, p. 3.2-30). These immediate changes will likely reduce susceptibility to DFB (Negron, 2005: SILV-068). Still, silvicultural thinning treatments in Alternative 2 are intended to enhance the vigor of trees and stands to make them less susceptible to insect attack. This approach provides long-term benefits in reducing beetle depredations; it is not a "quick fix" (FEIS, p.3.2-29).

Please see the FEIS, Volume 2, Appendix D for the full citations of the references cited above.

Issue 2. (GENETICS) "It is well known, and has been for some time, that replanting with trees not native (same species) to the site can be devastating to the long term health and function of a forest."

Suggested remedy: "Forest geneticists have recommended that replanting should be done using seed sources from the site as this assures replacement of dead trees with site-adapted trees and less of a potential for losses in genetic diversity if seed is properly collected."

Regional Review and Response: This issue was addressed in Public Concern ID 3608, FEIS Vol. 2, p. 40 of 193. Additional reference information is contained within the project file (SILV-059). In summary, proposed treatment prescriptions include several provisions for conservation of genetic diversity. They are 1) retention of the largest healthiest trees which have shown to be well-adapted to the site in the past (Zobel and Talbert, 1984; Fins, 1993; Dewald and Mahalovich, 1997), 2) reforesting with seedlings grown from local seed collected from similar sites and with a broad genetic base (USDA Forest Service Seed Handbook 2409.26f, Reihfedlt 1989, Linhart and Davis, 1990), and 3) managing for genetic variation by retaining a mix of trees from the "parent" stand, natural regeneration, and planting. Environmental conditions in the future will invariably select those trees best adapted to the site during stand development (Freidman, 1997).

Where planting is recommended, a variety of species will be planted and managed along with the naturally regenerating understory of trees, shrubs, and grasses. Additional information on reforestation is included in the final FEIS in section 3.2.8. Planting of ponderosa pine is highlighted in the DEIS because this species is in decline (described in the DEIS in several sections including 3.2.1, 3.2.6, and 3.2.8). The genetic base of this species has already been significantly altered, in part, through past harvesting. Not only were the biggest and best trees selectively removed and the less desirable trees left, but the overall reduction in number of ponderosa pine trees left often resulted in an insufficient number of trees to provide adequate genetic diversity (DeWald and Mahalovich, 1997; Mahalovich, 1993; and Zobel and Talbert, 1984). Without planting, ponderosa pine regeneration would be scarce and the genetic diversity limited. Region 1 has very sophisticated seed transfer guidelines for all conifer species (USDA Forest Service, Forest Service Manual 2475 and Forest Service Seed Handbook 2409.26f). They are based on extensive genetic testing and are designed to capture both patterns of natural variability and adaptability.