

There has been a reassessment of livestock strategy in less than desirable conditions within riparian zones and the effects of management practices on big game. The cover-to-forage ratio method previously used to estimate potential elk habitat has been replaced by a Habitat Effectiveness Index (HEI).

Five alternatives presented in the draft EIS have been dropped in this FEIS. Due to the lack of public interest following release of the draft EIS, Alternatives D, E, F, G, and H are not brought forward in FEIS chapter discussions. In response to public comments, Alternatives B and C are modified and Alternative I has been added to this FEIS, as newly-developed alternatives. In addition, the baseline 10-year period used to gauge outputs and effects between all alternatives has been updated to the 1980-1989 time period. Consequently, past timber sales, harvests, and experienced costs are now presented at recently-experienced levels.

Lastly, a new cumulative effects analysis is discussed along with a summary of qualitative rankings of alternatives for several key resource indicators. These rankings are tied to both direct and indirect effects on resources, over a 50-year planning horizon, and the potential risk to the specific Forest resource.

C. How This Chapter is Organized

This chapter is organized by affected resources. The environmental consequences (effects) that do not vary between alternatives are discussed first. Then, the effects of the alternatives on the various resources of the Forest are discussed.

D. Effects That Do Not Differ Between Alternatives

1. Prime Farmlands, Rangelands, and Forest Land

There are no prime farmlands within or adjacent to the Forest. All alternatives are in keeping with the intent of Secretary of Agriculture Memorandum 1827 for prime rangeland, farmland, and forest land.

2. Wetlands and Floodplains

Wetlands and floodplains comprise approximately 5 percent of the Forest land. Executive Orders 11990 and 11988 require protection of wetlands and floodplains. Timber harvesting, grazing, and road construction are activities that have the greatest potential for affecting them in all alternatives. No significant adverse effects are anticipated, as adherence to standards and mitigation measures should prevent all but minor and temporary impacts on these areas. Because of the small area involved, differences between alternatives may not be measurable. The effects on specific wetlands and floodplains will be evaluated during the analysis of site-specific projects. (See Forest Plan, Chapter IV, Section F.)

3. Urban Environments

Situated in rural eastern Oregon, more than 100 miles from the nearest urban area, none of the alternatives would have a direct effect on any urban area. The existence of the Forest for urban dwellers' enjoyment may be an indirect effect. Management of the Forest also contributes to the national economy which indirectly affects urban dwellers as well.

4. Threatened and Endangered Species

There are no Threatened or Endangered plant species on the Forest. Sensitive plant and animal species habitats are protected through Standards (Forest Plan, Chapter IV, Section E). The only Threatened or Endangered wildlife species on the Forest are the bald eagle and the American peregrine falcon. The USDI Fish and Wildlife Service concurs with this finding (USDI, FWS, 1988). Bald eagles roost in specific areas along the southern edge of the Forest during the winter only. These areas will be managed under Management Area 5 in each alternative. (See the Forest Plan for a complete

description or the Final Environmental Impact Statement, Chapter II for an overview of this management strategy) This strategy is consistent with implementation of the Pacific States Bald Eagle Recovery Plan There are no known nesting occurrences of American peregrine falcons on the Forest, however, potential American peregrine falcon aeries have been identified within the Strawberry Mountain Wilderness None of the alternatives would impact these sites A survey will be made for the American peregrine falcon in the Strawberry Mountain Wilderness Area, and if no birds are found, the species will be introduced, as per Recovery Plan objectives None of the alternatives should cause loss of habitat for Threatened, Endangered or Sensitive species The USDI Fish and Wildlife Service has reviewed the biological evaluations and concurs with the determination of no effect on the bald eagle and the American peregrine falcon (USDI, FWS, 1988)

5 Human Resource Programs

The human resource programs of the Malheur National Forest are funded independently of the Forest Plan They are unrelated to Forest Plan management alternatives and would not be likely to vary by alternative

E Effects That Vary by Alternative

1 Effects on Soils

Most forest management activities impact the soil resource to some extent The degree to which the soil is impacted is generally related to the total amount of the activity planned An example is timber harvesting The greatest potential for adverse impact exists with alternatives that have the highest harvest rates

It is important to note that not all soil disturbance is undesirable Many of the tree species that occur on the Forest require bare mineral soil to germinate Disturbance (site prep) is typically required to expose mineral soil The disturbance that is critical to forest managers is one reduces the long-term productivity of the site Detrimental soil conditions that are known to reduce site productivity and for which the Forest Service has developed standards are compaction, displacement, puddling, severe burning, and erosion in terms of effective ground cover (see Glossary for definitions) Other site factors that can impact productivity but for which no specific standards have been developed are soil nutrient levels, organic debris (limbs, down logs, etc) and fire intensities.

Intensive soil monitoring has been used effectively on the Malheur National Forest to ensure that soil protection standards have been met Results from samples of 24 tractor harvest units revealed excessive compaction where units had been logged more than once Changes in management have been made to ensure compliance with soil protection standards.

More specific comments on effects will be made by resource area As previously noted, the units with the greatest amount of outputs and activity will be the units with the greatest impact to the soil Overall, Alternatives NC, B-Modified, and F will have the greatest adverse impact due to the high level of output in those areas Alternatives A, and I will have moderate resource impacts, and Alternative C-Modified will have the least amount of impact

a Timber Management Effects on Soils

Timber management activities affect a large portion of the Forest Although the specific amounts vary by alternative, an average of about 900 thousand acres (plus or minus 10 percent) is available for timber harvesting on the Malheur National Forest (amount of acres available for scheduled timber harvest within the FORPLAN model for all viable alternatives) Of that, approximately 80 percent have slopes less than 35 percent that are subject to tractor logging While cable logging can result in detrimental impacts, most cable units stay well within the standards as routine mitigation measures are applied