

15 result from past mining activity, and high DSD in the other units are stated to result from past skid trails and landings (page 509).

Units 14, 59 and 65 would be hand thinned, and unit 1 would be harvested during winter on snow or frozen ground (Table 9). It is stated that HNF soil monitoring has shown that for traditional summer-based harvest activities in dry conditions, there is a 11.5 percent increase in DSD (9 percent from skid trails, 2.5 percent from landings); for winter-based harvest, there is a 5 percent increase in DSD (3 percent from skid trails, 2 percent from landings); for skyline harvest (page 503). It is not clear to us why harvest units 12 and 15 with existing high DSD would not also be harvested during winter on snow or frozen ground or via skyline cable to reduce the increase in DSD.

Also Table 129 (pages 520-522) shows DSD for harvest units before and after treatments and after soil restoration. This table shows unit 1 to go from 19% DSD currently to 27.1% DSD after treatments and then to 17% DSD after restoration; unit 12 goes from 18% DSD currently to 25.5 % DSD after treatments and 15.8% DSD after restoration; unit 14 remains at 30 % DSD even after restoration; unit 15 remains at 22% DSD even after restoration; unit 59 remains at 27% DSD after hand treatments; and unit 65 remains at 25% DSD after hand treatment (no restoration is shown for units 59 and 65). It is not clear how the high DSD (>15%) remaining the same before and after treatments for units 14, 15, 59 and 65 is considered to promote a move toward a net improvement in soil quality.

The DEIS indicates that for units 14 and 15 there is an ample amount of area previously disturbed that would be redisturbed by the proposed project, and then restored to show a net decrease in detrimental disturbance (page 524). However this net reduction in DSD is not shown in Table 129 for those units or for units 59 and 65. It would appear that additional active soil restoration (subsoiling or tilling) may be needed to effect an improvement in soil quality for units 14, 15, 59, and 65 to promote a reduction in DSD to show an improved trend in soil quality.

We recommend that additional information and/or discussion be provided in the FEIS to show how units exceeding 15% DSD, with no decrease in DSD after the project, including after restoration, would show a net improvement in soil quality, and thus, be consistent with the Regional Soil Quality Standard. It may be that consideration should be given to dropping harvest units with existing high DSD levels unless improved soil quality can be demonstrated (i.e., net reduction in DSD).

Comment N- 14. We are pleased that Table 9 shows that 5 to 20 tons per acre of coarse woody material (greater than 3-inch diameter) would be retained in harvest units for warm, dry types, and 10 to 20 tons per acre for other types following vegetation treatments. We fully support retaining adequate amounts of woody debris on-site following vegetative treatments to maintain soil productivity and for nutrient cycling.

Comment N- 15. While there is discussion of prior soil quality monitoring in the DEIS we did not see much discussion or disclosure relating to proposed monitoring of soils during and after the Stonewall Vegetation Project. Will HNF staff conduct soil monitoring before and after the project to verify

compliance with soil quality standards? How many sites will be monitored and evaluated for soil disturbance and compliance with soil quality standards? If no soil monitoring is proposed for the project how will compliance with soil quality standards be verified?

Monitoring

Comment 0-16. We consider monitoring to be an integral part of land management. The EPA endorses the concept of adaptive management whereby effects of implementation activities are determined through monitoring (i.e., ecological and environmental effects). It is through the iterative process of setting goals and objectives, planning and carrying out projects, monitoring impacts of projects, and feeding back monitoring results to managers so they can make needed adjustments, that adaptive management works. In situations where impacts are uncertain, monitoring programs allow identification of actual impacts, so that adverse impacts may be identified and appropriately mitigated. Monitoring also allows verification and documentation of environmental effects predicted during NEPA evaluation.

EPA particularly believes that water quality/aquatics monitoring is a necessary and crucial element in identifying and understanding the consequences of one's actions, and for determining effectiveness in BMPs in protecting water quality. The achievement of water quality standards for non-point source activities occurs through the implementation of BMPs. Although BMPs are designed to protect water quality, they need to be monitored to verify their effectiveness. If found ineffective, BMPs need to be revised, and impacts mitigated. We encourage adequate monitoring budgets for conduct of aquatic monitoring to document BMP effectiveness and long-term water quality improvements associated with road BMP work and road decommissioning.

Project monitoring is discussed in DEIS Chapter 2 where it is stated that BMP monitoring will be performed periodically by the sale administrator, focusing on BMP effectiveness and on whether BMPs were applied (page 60). It is also states that the Stonewall Project area is within the Southwestern Crown Collaborative (SWCC), one of the original 10 Collaborative Forest Landscape Restoration Projects (CFLR) selected for funding where 10 percent of the CFLR funds would be allocated to monitoring. A Long-term Monitoring Plan for the SWCC is being prepared, but details of specific SWCC monitoring plans for the Stonewall project are not yet available. Soil and water are stated to be among the goals of SWCC monitoring.

We recommend that the FEIS include more detail regarding monitoring, particularly regarding water quality or aquatic monitoring to verify that the BMPs are effective as implemented to meet State water quality standards, or to validate DEIS predictions of minimal water quality impacts (e.g., if, where and when such monitoring may occur). We encourage adequate monitoring budgets for conduct of monitoring to document BMP effectiveness and effects of road construction and timber harvests, although we recognize that funding for monitoring is limited. We encourage conduct of some aquatic monitoring to document and measure water quality impacts of the activities that are implemented. We generally recommend that some aquatic monitoring be included in projects, using aquatic monitoring parameters such as channel cross-sections, bank stability, width/depth ratios,

riffle stability index, pools, large woody debris, fine sediment, pebble counts, macroinvertebrates, etc.. Biological monitoring can be particularly helpful, since monitoring of the aquatic biological community integrates the effects of pollutant stressors over time and, thus, provides a more holistic measure of impacts than grab samples.

We note that there may be PACFISH/INFISH Biological Opinion (PIBO) monitoring sites in the project area that could be used to help evaluate actual project effects (<http://www.fs.fed.us/biology/fishecology/emp/index.html>). If there are PIBO monitoring sites in the area, perhaps they may be considered for their potential to evaluate project effects.

Air Quality

- Comment P-17. The Stonewall Vegetation Project action alternatives include 8,041 or 6,155 total acres of burning for Alternatives 2 and 3, respectively (page 34), including pile burning, jackpot burning, broadcast burning, and underburning. Although we note that slightly different acreage burn totals are shown in Table 51 (page 211), and on page 172 it states that prescribed burning treatment are proposed on approximately 8,560 acres. We recommend that consistent burn acreage information be presented in the FEIS, or at least clearer explanation of the various burn acreages that are disclosed. Burning would take place over a 5 to 10 year period (page 214).

The EPA supports judicious and well planned use of prescribed fire to reduce hazardous fuels and restore fire to forest ecosystems. We support the national goal reduce the risk of uncontrolled wildfire in wildland-urban interface areas. Although as is well known, smoke from fire contains air pollutants, including tiny particulates (PM₁₀ and PM_{2.5}) which can cause health problems, especially for people suffering from respiratory illnesses such as asthma or emphysema, or heart problems. PM₁₀ and PM_{2.5} particles are both of concern, although PM_{2.5} is greater concern because it can penetrate into the lungs whereas larger particles (included in the coarse fraction of PM₁₀) deposit in the upper respiratory tract. Particulate concentrations that exceed health standards have been measured downwind from prescribed burns.

In addition to health-based standards to protect ambient air quality, the Clean Air Act requires special protection of visibility in the nation's large National Parks and Wilderness Areas (identified as mandatory Class I Federal areas) and establishes a national goal for "the prevention of any future, and the remedying of any existing, impairment of visibility in mandatory Class I federal areas which impairment results from man-made air pollution." EPA's Clean Air Act implementing regulations require states to submit State Implementation Plans that, among other things, demonstrate attainment of the National Ambient Air Quality Standards (NAAQS), as well as reasonable progress toward the national visibility goal. Actions by Federal Land Managers that lack adequate mitigation of air quality impacts could impede a state's ability to meet Clean Air Act requirements. It is important that Project activities, when combined with air quality impacts from external sources, do not adversely impact the NAAQS or air quality related values (AQRVs) such as visibility. Although we also recognize and agree that wildfires often result in high levels of particulate emissions and the worst visibility (page 67).

The Stonewall Vegetation Project area is located in Montana/Idaho Airsheds 3B and 6 (page 205). The nearest Class I air quality areas are the Scapegoat Wilderness, 1 air mile north; the Bob Marshall Wilderness approximately 18 air miles northwest; Mission Mountain Wilderness 48 air miles northwest; Gates of the Mountains 36 air miles southeast; and the Flathead Reservation 40 air miles west of the project area (page 206). The only nonattainment areas reported in the vicinity are Lewis and Clark County for sulfur dioxide and lead. Sensitive receptors for particulates are shown in Table 49 along with their distances from the Stonewall Project area (page 209).

We appreciate the inclusion of Figure 49 (page 207) showing the locations of the Class I areas, and Figure 50 (page 213) showing the potential smoke impact area for the Stonewall Project; and Tables 52 and 53 (pages 211, 212) showing estimated PM_{2.5} concentrations at various distances from burning activities.

We are pleased that all prescribed burning would be implemented in full compliance with the MDEQ air program and in coordination with the Montana/Idaho Airshed Group and reported to the Airshed Coordinator on a daily basis, with burning dependent upon site conditions and weather conditions (page 214). We suggest that the website for the Montana/Idaho State Airshed Group, <http://www.smokemu.org/> be displayed in the FEIS, since it may be of interest to the public.

We are also pleased that notice of the pile and prescribed burning timeframes, or burn windows, would be shared with the public through paper notices and announcements on the Forest website (page 214). This is important for residents downwind of burn areas, since even though burns will be scheduled during periods of favorable meteorological conditions for smoke dispersal, the weather can change causing smoke not to disperse as intended. This can be especially problematic for smoldering pile burns when a period of poor ventilation follows a good ventilation day.

We encourage consideration of additional disclosures when air pollutants are projected to be emitted in substantial amounts (e.g., see pages 24 - 27 of the 2010 Montana/Idaho Airshed guide found at, <http://www.smokemu.org/docs/20100601OpsGuide.pdf>); and consideration of disclosure of mitigation measures such as fugitive dust control requirements/road surfacing requirements, or use of combustion technology such as air curtain destructors, <http://www.airburners.com/principle.html>, etc.). It would be of interest to identify and discuss these other methods and their cost in comparison to pile burning.

We also recommend that the FEIS include: (1) discussion of appropriate smoke monitoring techniques and mitigation to minimize effects to nearby residents downwind of prescribed burns (including meteorological conditions favorable for mitigated prescribed fire smoke and alternatives to prescribed fire such as mechanical fuel reduction methods); (2) requirements for the incorporation of the Interagency Prescribed Fire Planning and Implementation Procedures Guide (July 2008, <http://www.nwcg.gov/pms/RxFire/rxfireguide.pdf>) into the site-specific burn plans designed for each prescribed burn conducted under this project.

The EPA also supports the beneficial use of biomass for energy recovery, or other uses that would not release biomass carbon into the atmosphere. It would be beneficial for the EIS to disclose any opportunities that might exist to utilize logging slash as a fuel for heat, electricity (or both), as well as any saleable markets for the material other than as a combustion fuel (such as novel construction materials like concrete reinforced with chipped slash, http://www.materia.nl/575.0.html?&user_material%5Bmaterial_uid%5D=2145&cHash=b3a6a6a500). There are efforts to promote the use of available biomass waste streams such as those that will be available from projects like the Stonewall Vegetation Project, and it is therefore important for forest management decisions to be informed of all available beneficial uses for wastes generated by the project. The presentation of such information in the FEIS would also better align with national goals for increasing the availability and use of biomass as a fuel, while maintaining ecological balances necessary for the responsible use of biomass as a fuel source.

Forest Vegetation

Comment Q- 18. We appreciate the presentation and discussion of the treatment descriptions and effects in the 8 treatment groups. The Chapter 3 DEIS discussion of forest vegetation (pages 89-162) provides helpful information to better understand project effects on forest habitat types, stand structure and species composition, and insects and disease impacts to forest vegetation. We also appreciate the discussion of fire/fuels, fire regimes, fire behavior and fire ecology in Chapter 3 (pages 172–203). We support the need to restore fire as a natural disturbance process, and to help address competing and unwanted vegetation and fuel loads, fire risk and forest health.

While we do not oppose regeneration harvests to improve forest health and address other aspects of the project purpose and need, we often favor understory thinning from below, slashing and prescribed fire to address fuels build-up with reduced ecological impacts. We also favor retention of the larger more vigorous trees, particularly trees of desirable tree species whose overall composition may be in decline (e.g., Ponderosa pine, aspen, whitebark pine, western larch). Larger trees are generally long-lived and fire resistant, and provide important wildlife habitat. Harvest of many live mature trees could potentially increase fire risk, as well as reduce wildlife habitat. If the forest canopy is opened too much by removal of large fire resistant trees it may promote more vigorous growth of underbrush and small diameter trees that would increase fuels and fire risk in subsequent years, contrary to the fire risk reduction purpose and need. We encourage consideration for retaining the best trees (i.e., insect and disease free, growing, full crowned trees) and most desirable tree species.

We note that the DEIS indicates that both action alternatives would increase resistance to insects and diseases by increasing tree species diversity and age class diversity, reducing stocking and so increasing individual tree resistance, and modifying structures; but that Alternative 2 would reduce susceptibility to a greater degree than Alternative 3, largely because a greater area is being treated (page 161).

Comment Q-19. EPA supports protection of old growth habitats and maintenance or restoration of native, late-seral overstory trees and forest composition and structure within ranges of historic natural variability. Old growth stands are ecologically diverse and provide good breeding and feeding habitat for many bird and animal species, which have a preference or dependence on old growth (e.g., barred owl, great gray owl, pileated woodpecker). Much old growth habitat has already been lost, and it is important to prevent continued loss of old growth habitat and promote long-term sustainability of old growth stands, and restore where possible the geographic extent and connectivity of old growth (e.g., using passive and active management-such as avoiding harvest of old growth trees, leaving healthy larger and older seral species trees, thinning and underburning to reduce fuel loads and ladder fuels in old growth while enhancing old growth characteristics). Often lands outside the forest boundary have not been managed for the late-seral or old growth component, so National Forest lands may need to contribute more to the late-seral component to compensate for the loss of this component on other land ownerships within an ecoregion.

The DEIS states that no activities are proposed in old growth in 3rd order drainages, and all old growth would continue to develop successional under all alternatives (page 68). About 49 percent of the Stonewall project area is stated to be within 3rd-order drainages, and 51 percent outside of these drainages (page 219). In the long term, dense forest conditions with multiple-layer stands and increasing surface fuels would support increasingly intense fire behavior and severe fire effects (page 69), and stand replacement fire would become more likely on the landscape and old growth stands more susceptible to the impacts. Some thinning and prescribed burning is proposed in old growth outside of the 3rd-order drainages in Alternatives 2 and 3 (pages 69, 236, 240), but it is stated that potential and verified old growth stands would still qualify as old growth following the proposed treatments outside 3rd order drainages, and Forest Plan requirements for old growth would be met.

For your information, we generally do not object to treatments in old growth that are intended to protect old growth characteristics, such as thinning of understory or under burning to reduce fuel loads and ladder fuels in old growth. Such treatments may lessen the threat of stand removal by a wildfire and reduce competition with other vegetation to promote more resilient, larger diameter old growth trees. Careful prescribed burning in old growth stands can reduce fuel loads and fire risk in such stands, and thus, may promote longer-term protection and sustainability of old growth stands.

Noxious Weeds

Comment R-20. Weeds are a great threat to biodiversity and can often out-compete native plants and produce a monoculture that has little or no plant species diversity or benefit to wildlife. Noxious weeds tend to gain a foothold where there is disturbance in the ecosystem, such as road building, logging, livestock grazing or fire activities. We are pleased that the DEIS includes a section addressing noxious weeds (pages 493 to 502); the HNF has a program to control noxious weeds (2006 HNF Noxious Weed Treatment Project); and design features to manage weed infestations are shown in Table 9 (pages 46, 47, NOX-1, NOX-2, NOX -3, NOX-4 NOX-5, NOX-6 and NOX-7).

EPA supports integrated weed management, and we encourage use of weed control measures at the earliest stage of invasion to reduce impacts to native plant communities. Weed prevention is the most cost-effective way to manage and control weeds by avoiding new infestations and spread of weeds, and thus, avoiding the need for subsequent weed treatments. We encourage tracking of weed infestations, control actions, and effectiveness of control actions in a Forest-level weed database. We note with the large amount of prescribed fire that is proposed it will be important to monitor burned areas for weed infestation. We encourage seeding of burned areas after burning to reduce risk of weed spread.

It is stated that there are approximately 564 acres of weeds mapped on National Forest System land within the Stonewall Project boundary (page 493), with the general distribution of noxious weeds in the area shown in Figure 82 (page 494). It is also stated that the HNF treats approximately one-third of its mapped weeds on an annual basis under its normal weed treatment program; therefore for this analysis it is assumed that one-third of the acres of weeds, would be treated annually (page 495), or approximately 188 acres of the 564 acres of weeds mapped in the Stonewall Project area.

While we support weed control, it is also important to recognize that herbicide use for weed control has the potential to cause adverse effects to water quality and fisheries. Herbicide drift into streams and wetlands could adversely affect aquatic life and wetland functions such as food chain support and habitat for wetland species. Montana's Water Quality Standards include a general narrative standard requiring surface waters to be free from substances that create concentrations which are toxic or harmful to aquatic life. We recommend that herbicide weed treatments be coordinated with the Forest botanist to assure protection to sensitive plants, and coordinated with fisheries biologists and wildlife biologists to assure that sensitive fisheries and wildlife habitat areas are protected.

Some suggestions to reduce potential water quality and fisheries effects from herbicide spraying that we didn't see listed among these weed management measures are: 1) streams and wetlands in any area to be sprayed be identified and flagged on the ground to assure that herbicide applicators are aware of the location of wetlands, and thus, can avoid spraying in or near wetlands; 2) use treatment methods that target individual noxious weed plants in riparian and wetland areas (depending on the targeted weed species, manual control or hand pulling may be one of the best options for weed control within riparian/wetland areas or close to water). We also recommend that use of picloram based herbicides (e.g., tordon) be avoided near aquatic areas, and that potentially toxic herbicides be applied at the lowest rate effective in meeting weed control objectives and according to guidelines for protecting public health and the environment.

Please also note that there may be additional pesticide use limitations that set forth geographically specific requirements for the protection of endangered or threatened species and their designated critical habitat. This information can be found at <http://www.epa.gov/espp/bulletins.htm>. You may also want to consider use of a more selective herbicide (clopyralid) in conifer associated communities to reduce impacts on non-target vegetation. We also note that spotted knapweed, which

is a prevalent noxious weed species in western Montana, is non-rhizomatous and should be relatively easy to control with lower rates of the most selective low toxicity herbicides.

For your information, the website for EPA information regarding pesticides and herbicides is <http://www.epa.gov/pesticides/>. The National Pesticide Telecommunication Network (NPTN) website at <http://nptn.orst.edu/tech.htm> which operates under a cooperative agreement with EPA and Oregon State University and has a wealth of information on toxicity, mobility, environmental fate on pesticides that may be helpful (phone number 800-858-7378).

Comment R-21. Weed seeds are often transported by wind and water, animal fur, feathers and feces, but primarily by people. The greatest vector for spread of weeds is through motorized vehicles-cars, trucks, ATVs, motorcycles, and even snowmobiles. Weed seeds are often caught on the vehicle undercarriage in mud and released on the Forest. A single vehicle driven several feet through a knapweed site can acquire up to 2,000 seeds, 200 of which may still be attached after 10 miles of driving (Montana Knapweeds: Identification, Biology and Management, MSU Extension Service).

We believe an effective noxious weed control program should consider restrictions on motorized uses, particularly off-road uses, where necessary. Off-road vehicles travel off-trail, disturbing soil, creating weed seedbeds, and dispersing seeds widely. Restrictions on motorized uses may also be needed after burning and harvest activities until native vegetation is reestablished in the disturbed areas to reduce potential for weed infestation of the disturbed sites. Weed seed dispersal from non-motorized travel is of lesser concern because of fewer places to collect/transport seed, and the dispersal rate and distances along trails are less with non-motorized travel.

Wildlife/T&E Species

Comment S-22. The Stonewall Project area is rich in wildlife resources. The DEIS indicates that several threatened endangered (T&E) species occur in the Stonewall Project area (i.e., grizzly bear, Canada lynx and wolverine (a proposed species)), as well as several sensitive and federal candidate species and management indicator species (MIS) (pages 70, 240-475). In regard to effects of both action alternatives on T&E species it is stated that alternatives, “*may affect, but are not likely to adversely affect*” the threatened grizzly bear, Canada lynx and its critical habitat, and “*would not jeopardize*” the wolverine (pages 72-73). It is also stated that both action alternatives, “*may affect, but are not likely to adversely affect*” the threatened bull trout (page 566).

If it is found that the finally selected project alternative may adversely affect any T&E species, we recommend that the final EIS include the associated USFWS Biological Opinion or formal concurrence for the following reasons:

(a) NEPA requires public involvement and full disclosure of all issues upon which a decision is to be made;

(b) The CEQ Regulations for Implementing the Procedural Provisions of NEPA strongly

encourage the integration of NEPA requirements with other environmental review and consultation requirements so that all such procedures run concurrently rather than consecutively (40 CFR 1500.2(c) and 1502.25); and

(c) The Endangered Species Act (ESA) consultation process can result in the identification of reasonable and prudent alternatives to preclude jeopardy, and mandated reasonable and prudent measures to reduce incidental take. These can affect project implementation.

Since the Biological Assessment and EIS must evaluate the potential impacts on listed species, they can jointly assist in analyzing the effectiveness of alternatives and mitigation measures. If T&E species are subsequently identified in the project area, EPA recommends that the final EIS and Record of Decision not be completed prior to the completion of ESA consultation. If the consultation process is treated as a separate process, the Agencies risk USFWS identification of additional significant impacts, new mitigation measures, or changes to the preferred alternative.

Comment S- 23. The DEIS includes helpful discussion regarding availability of snags for cavity nesting species such as pileated and black-backed woodpeckers and flammulated owls (page 68, 215-240). It is stated that snag numbers are currently very high (i.e., ~40 snags per acre, page 220), and snag numbers would remain high over the short-term due to insect related tree mortality, but in the long-term snag numbers would decline greatly as snags fall down. It further states that Alternative 2 treatments would reduce snag levels to the Forest Plan requirements within the treatment units, and prescribed burns would increase snag levels within the burn units. After the treatments snag levels would slightly increase in the project area, and would exceed 19 times the Forest Plan requirements. Under Alternative 3, treatments would reduce snag levels to the Forest Plan requirements within treatment units, and prescribed burns would increase snag levels with burn units. Project design features shown in Table 9 identify protections to retain adequate snag habitat (e.g., WL-4, WL-6, WL-7, WL-15).

We are pleased that after the treatments snag levels would slightly increase in the project area, and would exceed 20 times the Forest Plan requirements (pages 236, 240), and that the DEIS concludes that both action alternatives “*may impact individuals, but are not likely to result in a trend towards federal listing*” for sensitive cavity nesting species (black-backed woodpeckers and flammulated owls) (page 74-75), and would “*not likely to cause a local or regional change in habitat quality or population status*” for pileated or hairy woodpeckers (page 76).

Comment S- 24. Biodiversity may be an important consideration for new projects or when special habitats (i.e., wetlands, threatened and endangered species habitat) will be affected. The state of the art for this issue is changing rapidly. We are pleased that biodiversity of plants and animals is one of the monitoring priorities for the Southwestern Crown Collaborative (page 61). We recommend that potential project impacts on biodiversity be at least briefly evaluated and discussed in the FEIS. CEQ prepared guidance entitled, “Incorporating Biodiversity Considerations Into Environmental Impact Analysis Under the National Environmental Policy Act,” http://ceq.hss.doe.gov/publications/incorporating_biodiversity.html.

Climate Change

Comment T-25. The DEIS includes some discussion regarding climate change effects (pages 90, 216, 245, 483). We encourage inclusion of climate change information in NEPA documents, since it contributes to improved public understanding of the effects of climate change on forest ecosystems and forest management, particularly the effects of hotter and drier conditions in stressing trees, increasing the frequency of bark beetle outbreaks, and allowing bark beetles to move northward or higher in elevation and into other ranges of their hosts or the ranges of new potential hosts. Climate change research indicates that earth's climate is changing, and that the changes will accelerate, and that human greenhouse gas (GHG) emissions, primarily carbon dioxide emissions (CO₂), are the main source of accelerated climate change (United Nations Intergovernmental Panel on Climate Change (IPCC) , <http://www.ipcc.ch/>). We often encourage inclusion of a specific section in the NEPA document to discuss and present climate change information and effects to further emphasize the importance of this topic to the public.

Forest Service guidance on how to consider climate change in project-level NEPA documents can be found at, http://www.fs.fed.us/emc/nepa/climate_change/includes/cc_nepa_guidance.pdf, and suggests EIS analysis and disclosure of the following:

- **The effect of a proposed project on climate change.** (GHG emissions and carbon cycling). Examples include: short-term GHG emissions and alteration to the carbon cycle caused by hazardous fuels reduction projects, and avoiding large GHG emissions pulses and effects to the carbon cycle by thinning overstocked stands to increase forest resilience and decrease the potential for large scale wildfire.
- **The effect of climate change on a proposed project.** Examples include: effects of expected shifts in rainfall and temperature patterns on the seed stock selection for reforestation after timber harvest and effects of changed stream hydrographs due to earlier snowmelts.

Climate change appears to be a factor influencing some bark beetle outbreaks. Temperature influences everything in a bark beetle's life, from the number of eggs laid by a single female beetle, to the beetles' ability to disperse to new host trees, to individuals' over-winter survival and developmental timing. Elevated temperatures associated with climate change, particularly when there are consecutive warm years, can speed up reproductive cycles and reduce cold-induced mortality. Shifts in precipitation patterns and associated drought can also influence bark beetle outbreak dynamics by weakening trees and making them more susceptible to bark beetle attacks, (<http://www.fs.fed.us/ccrc/topics/bark-beetles.shtml>). Insect attacks are likely to intensify in severity, frequency, and size due to climate change. Climate change may also increase stress to ponderosa pine seedlings, and affect the ability of ponderosa pine and other species to prosper through time, and may have added to stress factors leading or affecting the current bark beetle attacks.

Wildland fire frequency has increased in the west and altered fire regimes over the last twenty years due to climate change. More frequent fires are currently burning for extended periods of time (average of 5 weeks) compared to the infrequent fires lasting less than one week that were common prior to the mid-1980s. Large wildfire activity increased in the 1980s, with higher large fire frequency, longer wildfire durations, and longer wildfire seasons; with the greatest increases occurring in mid-elevation.

EPA Region 8 suggests a general four step approach to address climate change in NEPA documents that appears consistent with the Forest Service guidance.

- Briefly discuss the link between greenhouse gases (GHGs) and climate change, and the potential impacts of climate change, (see <http://www.epa.gov/climatechange/>, <http://www.fs.fed.us/ccrc/>, <http://www.ipcc.ch/>).
- Describe the capacity of the proposed action to adapt to projected climate change effects, including consideration of future needs.
- Characterize, quantify and disclose the expected annual cumulative emissions of GHGs attributable to the project, using annual CO₂-equivalent as a metric for comparing the different types of GHGs emitted. It is suggested that the project's emissions be described in the context of total GHG emissions at regional, national and global scales (over the lifetime of the project).
- Discuss potential means to mitigate project-related emissions as appropriate pursuant to CEQ regulations (40 CFR Sections 1502.14(f), 1502.16(h), 1508.14).

Roadless

Comment U- 26. The DEIS indicates that the Stonewall project area includes portions of two inventoried roadless areas (IRAs), the Bear-Marshall-Scapegoat-Swan IRA (#A1485) and the Lincoln Gulch IRA (#1601). The portion of the BMSS IRA managed by the Lincoln Ranger District of the Helena National Forest is 53,995 acres in size and the project area overlaps with 12,254 acres (page 587). The Lincoln Gulch IRA is 8,246 acres in size and the project area overlaps with 3,193 acres (Table 152 and Figure 86).

Roadless areas often provide population strongholds and key refugia for listed or proposed species and narrow endemic populations due to their more natural undisturbed character. EPA supports protection of the pristine character and integrity of remaining minimally disturbed roadless areas to prevent further fragmentation and degradation of wildlife habitat, and to maintain or restore solitude and primitive recreation characteristics in such areas.

The DEIS indicates that the only actions proposed within the BMSS and Lincoln Gulch IRAs are construction of fire handlines, hand slashing of small diameter trees and prescribed fire (page 596). Commercial harvest and road construction would not occur in the two roadless areas. Alternative 2 includes prescribed fire on 4,182 acres (about 0.5 percent) within the BMSS IRA and on 664 acres (about 3.8 percent) within the Lincoln Gulch IRA. Table 154 (page 597, 598) shows proposed

treatments within IRAs for Alternative 2 (i.e., units 76-77, 79-88).

Alternative 3 includes prescribed fire on 3,565 acres (about 0.4 percent) within the BMSS IRA, and no fire or slashing of trees in the Lincoln Gulch IRA. Burn units 76 and 77 are removed from the Lincoln Gulch IRA and unroaded lands contiguous to the IRA. The mixed severity prescribed fire proposed for unit 80 in Alternative 2 is changed to unit 80a, Jackpot burn in Alternative 3; and units 81 and 86 of mixed severity prescribed fire are removed from the Bear-Marshall-Scapegoat-Swan IRA and unroaded contiguous lands in Alternative 3 (page 599).

We do not object to prescribed burning in roadless areas that would benefit the resiliency and long-term health of vegetative communities and reduce risk of catastrophic wildfire and improve wildlife habitat. We are pleased that the DEIS states that both action alternatives will protect and maintain the natural integrity and characteristics of roadless areas, although it would appear that less impacts to roadless areas may occur with Alternative 3 (pages 599-600).

U.S. Environmental Protection Agency Rating System for Draft Environmental Impact Statements

Definitions and Follow-Up Action*

Environmental Impact of the Action

LO - - Lack of Objections: The Environmental Protection Agency (EPA) review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC - - Environmental Concerns: The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce these impacts.

EO - - Environmental Objections: The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU - - Environmentally Unsatisfactory: The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1 - - Adequate: EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis of data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2 - - Insufficient Information: The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses or discussion should be included in the final EIS.

Category 3 - - Inadequate: EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the National Environmental Policy Act and or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

* From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment. February, 1987.

05/28/2013 EPA, DalSoglio Letter

Comment #	Response	Topic
A	The EIS discloses the proposed actions and effects of the alternatives. Alternative 3 was developed to address issues pertaining to wildlife habitat effects raised during scoping. The adjustments to the proposed action were in response to issues and updated habitat information resulted in relatively small adjustments to the proposed action to better meet or move towards desired conditions identified in the Forest Plan. The record of decision will include discussions of the rationale for alternative selection.	NEPA
B	See response to comment A regarding rationale for the selected alternative.	NEPA
C	The requirements of the Blackfoot River Headwaters Sediment TMDL were considered and will be complied with for this analysis. Information from the MDEQ's pamphlet, "Understanding the Montana TMDL Process," was considered during this analysis. Project design features for watershed protection are incorporated in the action alternatives.	Hydrology/Fisheries
D	The Stonewall Vegetation Project does not include changes to the permanent road system, such as obliteration of existing roads. The Blackfoot Travel Management Plan analysis evaluated the transportation system on the Lincoln Ranger District, including the area covered with the Stonewall project, and recommended changes to the road system. The Blackfoot Travel Management Plan was considered in cumulative effects for this analysis. Costs of road work related to the proposed actions were considered in the site specific incremental economic analysis completed for the Stonewall Vegetation Project. Road maintenance funding to address backlog road maintenance needs on National Forests is beyond the scope of this project analysis.	Transportation
E	The Stonewall analysis considered the cumulative effects of other projects, including the Blackfoot Travel Management Plan. See response to comment D pertaining to changes to the permanent road system, such as obliteration of existing roads.	Hydrology/Fisheries
F	Support for decommissioning of roads, and the associated resource impacts noted. See also response to comment D regarding travel management.	Transportation/NEPA
G	The cause of the FAR results are predominantly cattle grazing. Continued grazing in riparian areas and cattle trailing along streams within grazing allotments will likely continue to contribute elevated sediment levels to streams in the watershed; although, adaptive management provisions in	Hydrology/Fisheries

Comment #	Response	Topic
	allotment management plans should be implemented where necessary to reduce livestock impacts. Cattle grazing and allotment management is not the focus of this project. Areas rated FAR will be addressed in the implementation and administration of allotment management plans. The project includes road maintenance and the implementation of BMP measures that would improve surface drainage and reduce sediment routing to streams reducing effects of the road system on streams.	
H	Pages 518-524 of the DEIS as well as Table 129 contain a discussion of restoration treatments in units with high current detrimental soil disturbance (DSD). The restoration treatments described will leave the units with high DSD in better conditions than they are currently. The soils analysis has been updated in chapter 3 of the FEIS.	Soils
I	A map showing suggested waterbodies related to the proposed action will be provided in the FEIS.	Hydrology
J	See response to comment D regarding road decommissioning and funding, see response to comment G regarding functioning-at-risk streams, and see response to comment L7 regarding effects from new road construction.	Fisheries
K1	Appreciation of DEIS narrative, tables, maps and appendices noted.	NEPA
K2	See response to comment I. Improved map added to FEIS.	Hydrology
L3	Appreciation of disclosure of water quality concerns and effects related to roads noted.	NEPA
L4	The Stonewall Vegetation Project does not include overall travel management. See response to comment D.	NEPA
L5	See response to comment D regarding funding for road management.	NEPA
L6	See response to comment G regarding functioning-at-risk stream reaches. Road related sediment inputs to streams would be reduced with project road maintenance and the implementation of BMPs.	Hydrology/Fisheries
L7	Clarification has been added to the FEIS to note road 1 and 5 segments are <i>predominantly</i> located in upland areas, or areas with poorly defined drainages. The proposed new road segment number 5, accessing units 10 and 11, crosses a small drainage of a headwater tributary basin to Lincoln Creek. This apparent crossing was reviewed in the field—there is an old abandoned irrigation ditch at this site, but no stream channel or evidence of overland flow. Flow may occur in the ditch during snowmelt. The proposed new road number 1 crosses the drainage of a headwater tributary basin to Lincoln Creek. This apparent	Hydrology/Fisheries

Comment #	Response	Topic
	<p>crossing was reviewed in the field—there is a vegetated old roadbed at this site, but no stream channel or evidence of overland flow. Channel features were observed roughly 60 feet below the roadbed. Sediment that appeared to be from the old roadbed was observed in this channel, indicating that in the past, this road probably contributed sediment to the uppermost reach of this intermittent stream.</p> <p>Both of these new road segments would be constructed with BMPs such as adequate culverts, proper road drainage, sediment fencing (if appropriate) and it is recommend the segment be obliterated soon after the project ends, in order to minimize sediment impacts.</p> <p>An updated map will be included in the FEIS showing waterbodies in relation to proposed roads and treatment units</p>	
L8	<p>For both action alternatives, riparian areas would have at least a 50-foot no-ignition buffer around ephemeral, intermittent, and perennial channels for slopes less than 35 percent, and a 100-foot buffer for slopes more than 35 percent. Additionally, the standard SMZ-law protection prohibits the operation of ground-disturbing equipment within riparian areas. Therefore, activities proposed under these alternatives would not adversely affect riparian areas.</p> <p>No wetlands have been identified within the project area boundaries. If wetlands are identified during unit marking, they would be avoided by heavy equipment unless during winter conditions. Wetlands over one acre connected to stream channels would be protected by a no-harvest SMZ buffer. The general recommendations for roads listed in your letter were included in the project design. Required BMP implementation includes criteria for snowplowing, blading, wet conditions and monitoring.</p> <p>The soils analysis has been updated in chapter 3 of the FEIS. See also response to L7.</p>	Hydrology/Fisheries/Soils
L9	Agreement with analysis of water yield noted.	Hydrology
L10	Appreciation of listing project design features noted. See also response to comment L8.	Hydrology/Fisheries
M11	See response to comment L8.	Hydrology/Fisheries
N12	<p>There are no units (tractor or otherwise) in soils with high erosion potential. Table 124 of the DEIS contained soil limitations for treatment units. This table would list any high erosion potential soils under the column “limitations”. The limitations listed (wet soils and ashcap soils) have potential negative effects mitigated by treating during the dry periods of the year. In regards to roads, all roads that would be built and then obliterated immediately following timber removal are not</p>	Soils

Comment #	Response	Topic
	located on highly erosive soils. As with the treatment units above, other soil limitations will be mitigated to decrease negative effects. The soils analysis has been updated in chapter 3 of the FEIS.	
N13	Pages 518-524 of the DEIS as well as Table 129 contain a discussion of restoration treatments in units with high current detrimental soil disturbance (DSD). The restoration treatments described will leave the units with high DSD in better conditions than they are currently. The soils analysis has been updated in chapter 3 of the FEIS.	Soils
N14	Thank you for your comment.	Soils
N15	Monitoring of the Stonewall project area will comply with the direction in the Helena National Forest Management Plan. The Helena National Forest Management Plan requires monitoring for Soil Productivity on projects in management areas T-1, T-2, T-3, T-4, T-5, and H-2 (Table III-3 of the forest plan). The Stonewall project area contains T-1, T-2, T-3, and T-4 management areas. In an attempt to provide a more comprehensive result, this monitoring is further stratified by activity type (such as cable vs. ground-based logging and winter vs. summer logging). The number of annual monitoring sites will be dependent upon the level of implementation done on an annual basis. The soils analysis has been updated in chapter 3 of the FEIS.	Soils
O16	No post project hydrologic monitoring is being considered at this time. During the project, BMPs including design features will be monitored by the timber sale administrator. On-going monitoring of fisheries habitats includes core samples to track fines at depth trends.	Hydrology/Fisheries
P17	Acre information was reviewed and acres verified for more accurate display in the FEIS. Estimated impacts to air quality are disclosed in the FEIS with applicable references cited. Comment letters received on the DEIS will be included, in full, in an appendix to the FEIS. Providing site specific burn plans for the various alternatives is outside the scope of this analysis, however, a site specific burn plan will be prepared after a decision for this project is made, which will include specific measures to ensure compliance with the MDEQ air program and in coordination with the Montana/Idaho Airshed Group and reported to the Airshed Coordinator on a daily basis, with burning dependent upon site conditions and weather conditions. Harvest areas are generally available for fuelwood gathering after operations are completed to avoid conflicts with operator equipment. Development of saleable market opportunities for	Air quality

Comment #	Response	Topic
	post-harvest biomass products may be considered as proposals are presented, and beyond the scope of the Stonewall Vegetation Project analysis. Available economic information was considered during the analysis of the Stonewall .Vegetation project.	
Q18	<p>Comment generally supports the analysis of proposed treatments, while exploring the proposed amount and need for regeneration harvest, as opposed to possible thinning or improvement cutting to culture desirable large trees.</p> <p>The proposed action alternatives apply regeneration harvest cutting only to stands in which the stocking of desirable live trees is insufficient to continue the rotation. Where this is the case, the lack of large mature trees is usually caused by current mortality from bark-beetle attack or related disturbance vectors. Lack of large mature trees may also be due to past and current stand density, making the present trees unable to respond to cultural improvement treatments. The proposed regeneration harvest would retain, as available, desirable live individual or groups of mature trees for seed or shelter, to help establish a new age-class. The continued presence of these mature trees may create future options for dual- or multi-age class management within a given stand.</p> <p>Fuel treatments would follow harvest treatments to address existing and activity related fuels. Fire risk is analyzed and disclosed in chapter 3.</p>	Silviculture
Q19	Comments regarding support of old growth management and no objections to proposed treatments. Noted.	NEPA
R20	Noxious weed treatment will continue to occur in accordance with the requirements specified in the Final Environmental Impact Statement: Helena National Forest Noxious Weed Treatment Project and accompanying Record of Decision (USDA Forest Service 2006c,d) (DEIS pages 481, 495). The effects of herbicides on water quality, fisheries and threatened and endangered species was analyzed in that document and all noxious weed treatment on the Helena National Forest occurs under the guidance of that document to assure all resources are protected.	Noxious weeds
R21	The Stonewall Vegetation Project is not a travel planning project and does not propose to change the permanent road system in the project area. Travel management of existing routes is addressed in the “Blackfoot-North Divide Winter Travel Plan” and the “Blackfoot Travel Plan (Non-Winter)” analyses (DEIS page ii).	Noxious weeds
S22	Consultation with the USFWS is ongoing and would be completed prior to issuing a decision on this project.	Wildlife

Comment #	Response	Topic
S23	Comments regarding the presence of snag analysis discussions noted.	Snags
S24	<p>Biological diversity is a term that covers the variety of life and its processes (CEQ 1993). The Stonewall Vegetation Project proposes actions to promote native species, protects habitat for threatened and sensitive species, proposes burning to mimic natural processes and includes project design features to avoid introduction of non-native species, Potential impacts to plants and wildlife habitat, along with other resources, and discloses the anticipated effects in chapter 3. Information from the <i>Incorporating Biodiversity Considerations Into Environmental Impact Analysis Under the National Environmental Policy Act</i> pamphlet (CEQ 1993) was considered.</p> <p>Stand structures and species composition are discussed in the in the vegetation and botany sections as well as in wildlife habitat discussions.</p> <p>Wildlife diversity was addressed throughout the document by looking at species most at risk or with potential viability concerns (threatened, endangered and sensitive species), as well as management indicator species, or species that are representative of Forest habitats, changes in historical habitat conditions that affect wildlife distribution and at high interest species such as big game. So while there was not a separate heading for biodiversity, the diversity of native wildlife and their habitat were fully evaluated in the DEIS.</p>	Wildlife/Silviculture
T25	<p>Comments in support of discussions in the DEIS about possible effects of ongoing climate change to current and future forest resource conditions. The Forest Service has used these and other ecological considerations to help design the project. Concerning possible effects of the project to climate, the DEIS section “Carbon Storage” and its underlying technical report Atmospheric Carbon Report (Amell and Klug 2013) address carbon exchange—consistent with current USFS Northern Region practice and based upon the Council on Environmental Quality (CEQ) issuance “Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions” (Sutley 2010), in which CEQ explains that questions about whether or how to analyze effects to climate resulting from federal land and resource management are still under consideration. To date the CEQ has not issued further guidance to land and resource management agencies on these questions. Agencies are cautioned to “recognize the scientific limits of their ability to accurately predict climate change effects ... and not devote effort to analyzing wholly speculative effects.” Therefore this subject in the DEIS and its underlying analysis is limited to carbon storage or release that may be caused by the</p>	Silviculture

Comment #	Response	Topic
	<p>project, as opposed to predicting climate change effects. The Forest Service believes that changes to on-site carbon storage resulting from proposed activities can be qualitatively discussed to help inform decisions about projects affecting this component of the human environment. This has been done in the DEIS and its underlying analysis.</p> <p>Amell, Larry. 2012a. Stonewall Vegetation Project Silviculture Report. U.S. Department of Agriculture, Forest Service, Helena National Forest. Project file.</p> <p>Amell, L. and Klug, P. 2013. Stonewall Vegetation Project Atmospheric Carbon Report. U. S. Department of Agriculture, Forest Service, Helena National Forest. Helena, MT.</p>	
U26	Support for protection of roadless areas and no objection to prescribed burning in roadless areas noted.	Inventoried Roadless Areas