U.S. Department of the Interior
Bureau of Land Management

Environmental Assessment - (*DOI-BLM-MT-B010-2012-0012-EA)*
June 7, 2012

Smart Creek East Vegetation Management Project

Location: **BLM, Western Montana District, Missoula Field Office**
Applicant/Address*:* **3255 Ft. Missoula Rd**
Missoula, MT 59904
(406) 329-3914

U.S. Department of the Interior
Bureau of Land Management
Missoula Field Office
3255 Ft. Missoula Rd.
Missoula, MT 59804
Phone: 406-329-3914
Fax: 406-329-3721

CHAPTER 1
INTRODUCTION AND NEED FOR THE PROPOSED ACTION

INTRODUCTION

The Bureau of Land Management (BLM) proposes to restore the historic vegetative composition of the project area by conducting a conifer slashing and prescribed fire treatment in the Smart Creek East area near Maxville in Granite County, MT. The project location is at T9N, R13W, section 32, SE ¼. If approved, prescribed fire operations are expected to take place between May of 2012 and October of 2017. See attached location map (Figure 1).

PURPOSE AND NEED FOR THE PROPOSED ACTION

An interdisciplinary team (ID Team) of resource specialists has evaluated the past and present resource conditions, identified resource trends, and developed a recommendation to move towards a desired future condition for the project site. The management recommendation brought forward through this assessment process provides the basis for the Proposed Action evaluated in this Environmental Assessment (EA).

Resource assessments of this area have indicated that the historic vegetation composition has been altered over time. The project area was once a mid-elevation Douglas-fir savanna, characterized by widely spaced larger size Douglas fir overstory, with a grass understory and intermittent openings. Currently, the area is characterized by smaller size class Douglas-fir which have encroached into natural openings and are currently growing in areas where they historically did not exist. The BLM needs to take action at this time to restore vegetation communities back to their historic condition.

Decision to be Made

The BLM will decide whether to implement the Smart Creek East prescribed burn project. If the decision is made to implement the project, the BLM will also decide what project design features to include.

CONFORMANCE WITH BLM LAND USE PLAN(S)

The Alternatives in this EA are in conformance with the *BLM Garnet Resource Management Plan (RMP) and Record of Decision (1986), as amended* (USDI-BLM 1986). The RMP established Management Areas with specific management goals and guidelines. The Proposed Action complies with these goals and guidelines. The actions proposed follow management direction, goals, and guidelines found in the 1986 Record of Decision issued for the Garnet Resource Management Plan and Final Environmental Impact Statement, as amended.

The projects that would be implemented would be consistent with and supported by the following management actions in the Garnet Resource Area RMP:

Section: Chapter 2, Land Use Decisions and Program Guidance

Wildlife and Fisheries Program Guidance, pg 34, sec A-3

A. Resource Condition and Use Objectives
   3. Stabilize or improve habitat conditions in other key areas.
      a. winter range (MA 16)

Fire and Pesticide Use Program Guidance, pg 39, sec A

A. Resource Condition and Use Objectives
   1. In conformance with other resource uses, maintain the use of fire as a tool for consideration in vegetative and fuels management.

RELATIONSHIPS TO STATUTES, REGULATIONS AND OTHER PLANS

This document has been prepared by the BLM to comply with NEPA. The primary authority for BLM's proposed actions is found in the Federal Land Policy and Management Act (1976). The Proposed Action is consistent with federal and state legislation pertaining to land management, water and air quality, threatened and endangered species, antiquities protection, etc.

The proposed action is consistent with the previously approved Flint Creek Watershead Assessment and the Flint Creek Environmental Assessment of September 2004 (USDI-BLM 2004). That EA identified the need for wildlife winter range habitat to be improved through restoration of grassland and open Douglas-fir and ponderosa pine communities which were historically maintained by low to moderate intensity wildfires (USDI-BLM 2004). Prescribed fire treatments on BLM lands in the lower Smart Creek and Henderson Gulch areas were deferred in the 2004 Flint Creek EA based on treating higher priority areas from a watershed and wildlife perspective (USDI-BLM 2004).

ISSUES

An issue is a point of disagreement, debate, or dispute with a proposed action based on some anticipated environmental effect.

An issue:
1. has a cause and effect relationship with the proposed action or alternatives
2. is within the scope of the analysis
3. has not been decided by law, regulation, or previous decisions
4. is amenable to scientific analysis rather than conjecture.

Issues may lead to the identification of design features that are incorporated into the proposed action. Key issues point to environmental effects that can help shape the proposal and development of alternatives. Non-key issues are those that could be addressed by project design features and do not require development of other action alternatives to address them. For this project, no key issues were identified. Several non-key issues have been identified and have been addressed with project design features as part of the Proposed Action described in the next chapter. These non-key issues include:

- Potential adverse effects to people living near the project area due to reduced air quality associated with smoke emissions from prescribed burning;
- Potential expansion of noxious weed populations, or promotion of new weed infestations due to elimination of native vegetation during prescribed burning;
- Potential loss of cultural resources due to ignition and consumption of cultural features during prescribed burning;
- Potential soil loss from erosion due to loss of ground cover associated with prescribed burning;
- Potential impacts to water quality due to sedimentation if erosion occurs in the aftermath of prescribed burning;
- Potential short-term displacement of wildlife from the project area during and/or after project implementation;
- Potential adverse impacts or benefits to wildlife species associated with long-term changes to habitat and forage in response to implementation of the project;
- Potential effects (either adverse or beneficial) to rangeland vegetation species composition and abundance.

CHAPTER 2
DESCRIPTION OF ALTERNATIVES

INTRODUCTION

This EA focuses on the Proposed and No Action alternatives. The No Action alternative is considered and analyzed to provide a baseline for comparison of the impacts of the proposed action.

NO ACTION

The No Action alternative would simply entail not implementing the project. No active management of vegetation communities at the project site would occur under this alternative.

PROPOSED ACTION

The Bureau of Land Management (BLM) proposes to restore the historic vegetative composition of the landscape by conducting a prescribed fire treatment in one treatment unit on up to 60 acres of BLM lands near Maxville, MT, at T 9, N R 13 W, section 32, SE ¼. If approved, prescribed fire operations are anticipated to take place between March of 2012 and October of 2017. See attached location map (Figure 1).

The proposed treatment would reduce competition of woody vegetation with native grasses by cutting and/or burning overstory Douglas-fir seedlings and sapling encroachment. Seedling and sapling-sized Douglas-fir trees may be felled with chainsaws to create a slash fuel bed. This "slashing" of portions of the overstory may be necessary to create the appropriate arrangement of fuels so as to meet project objectives upon prescribed burning. If done, slashing could occur in the late summer or fall. The unit could then be burned the following spring or fall. A low to moderate intensity fire would be introduced into the project area in order to create low to moderate severity in the bunchgrasses that are currently on site and to kill a large percentage of the conifer encroachment. This treatment would be designed to rearrange the structural and species composition of the site to more closely resemble historic conditions.

Prescribed burning could occur in either spring (approximately March 1-June1) or fall (approximately September 1-January 1). If burning were to occur in spring, the following design features would be implemented: Fire control lines would be established by using one or more fire engines to wet down the vegetation where the control line would be desired. The adjacent vegetation would then be lit on fire and be allowed to carry through the unit. This is known as "black lining" or wet lining". There would be minimal need for any additional holding actions. If burning were to occur in fall, the following design features would be implemented: Fire control lines would be established by using one or more fine engines to wet down the vegetation where the control line would be desired. The adjacent vegetation would then be lit on fire and be allowed to carry through the unit. Additionaly, there may be a water tank set up near the top of the unit, set up with a pump and a series of water hoses and nozzles deployed along the southern boundary of the project area.

PROJECT DESIGN FEATURES FOR BOTH SPRING AND FALL BURNING

Wildlife Resources

1. Prescribed fire and mechanical treatments would not occur from June 1 to July 15 to mitigate potential adverse effects during big game parturition (calving and fawning) and migratory bird nesting season.

2. Mechanical treatment of saplings and larger conifer trees would be lopped, scattered, and dispersed to prevent creating a seed bed/micro-site for noxious weeds.

3. If constructed, fire-lines would be rehabilitated, following the prescribed burn, to discourage livestock from converting fire-lines to cattle-trails.

Cultural Resources

1. Class III cultural resource inventory would be conducted prior to project implementation. If cultural resources are discovered, mitigation would be applied. In addition, all identified heritage properties would be flagged by a BLM archeologist to create a buffer area surrounding the site to protect them from project impacts. No management action within these buffers would take place unless an archeologist is on site.

2. If cultural resource sites are discovered during the project activities, or if known sites are damaged during operations, all work would stop in the immediate vicinity of the site and not begin again until authorized by a BLM archeologist.

Noxious Weeds

1. Monitoring, prevention, and control of noxious weeds would be implemented through an integrated, cooperative strategy as directed by the BLM Missoula Field Office's Integrated Weed Management Plan (USDI-BLM 2003).

2. Monitoring of the entire project area would be done post-treatment. Any new weed infestations would be treated following the BLM Missoula Field Office's Integrated Weed Management Plan (USDI-BLM 2003).

3. The area would be surveyed before treatment, current weed infestations would be treated before and after mechanical treatment and before and after prescribed burning.

Fisheries Resources

There are no aquatic habitats, including fish bearing streams, within or proximal to the proposed action. There is no hydrologic connection between the project area and any fish bearing stream channel.

Prescribed fire may require drafting of water from fish bearing streams outside the central project area (e.g., Flint or Boulder Creeks). If so, the intake hose would be fitted with a screen mesh equal to or smaller than 3/32 inch (~0.1").

Soils and Water Resources

1. The proposed action would conform to applicable "Best Management Practices for Forestry in Montana" (as amended).

2. To maintain long-term soil productivity, burning would be conducted with adequate soil moisture present to avoid excessive soil heating. Vehicle traffic would be restricted to existing roads, two-track routes, or soils not subject to compaction or rutting. .

3. Any handlines would have waterbars installed to avoid/minimize erosion.

Rangeland Resources

The proposed treatment area would be deferred from domestic livestock grazing at least through the end of the second growing season or longer depending on precipitation and vegetative response. The deferment of livestock grazing would allow range vegetation to complete two growing cycles to ensure plant health and vigor. No long term or temporary fencing would be needed provided the treatment area is completely fenced on all sides.

CHAPTER 3
AFFECTED ENVIRONMENT/ENVIRONMENTAL IMPACTS

Air Quality

Affected Environment

The project area maintains good air quality during the majority of the year. Valley inversions are common in the fall and winter and air quality may be reduced during this period. Spring and fall atmospheric conditions usually favor smoke dispersal, which minimizes the adverse effects of open burning. The burning proposed for this project would be in the spring or fall, depending on environmental conditions. Historically, wood smoke from slash burning and wildfires is the most common reason for reduced air quality in the vicinity of the project, although windstorms can also carry dust from fields and roads into populated areas. While smoke can temporarily adversely affect air quality, it is usually dispersed in less than 48 hours by unstable air and winds.

All open burning in Montana is regulated by the Montana Department of Environmental Quality (MDEQ). Major prescribed burners, which include the Bureau of Land Management, have formed the Montana/Idaho Airshed Group. This group has established an air quality Monitoring Unit that provides daily air quality predictions and restrictions to its members from March 1 to November 30. The Bureau of Land Management and the Forest Service are permitted to burn based on compliance with burning restrictions set by the Airshed Group.

Environmental Effects of the Proposed Action

Direct/Indirect Effects: Slash burning has the greatest potential to adversely affect air quality if not properly timed. The BLM is a member of the Montana State Airshed Group and all prescribed burning is approved through the Airshed Coordinator to protect

air quality. Implementing the Proposed Action in accordance with airshed protection procedures would likely result in no violations of air quality standards. However, short term impacts of smoke may result in areas in the immediate vicinity of the project area. Short term impacts would be expected to last for 12 hours or less. If the project was implemented in the spring, the possibility of smoke impacting residents in the immediate vicinity of the project would be greater than if the project.was implemented in the fall. Machinery operations would result in a minor, short-term increase of exhaust and dust in the air.

Cumulative Effects: There are no anticipated cumulative effects to air quality as a result of other actions combining with the proposed action.

Environmental Effects of No Action

Direct and Indirect Effects: There would be no quantifiable direct effects to air quality from the No Action alternative, since no prescribed burning would occur. If a wildfire should burn the site in the future, air quality impacts from smoke could affect the area for several days or more, depending on the size and intensity of the fire. Wildfire would most likely occur during the summer months when visitor and recreation use in the area is the highest.

Cumulative Effects: There are no anticipated cumulative effects to air quality as a result of other actions combining with the proposed action.

Noxious Weeds

Affected Environment

Spotted knapweed (*Centaurea maculosa*) was first inventoried in the project area in 2002 by BLM personnel, with trace to moderate densities found based on ocular measurements. Chemical treatments were done in 2002, 2006 and 2009 to reduce spotted knapweed density. Present levels are trace to low (<1% to 10% canopy cover). Downey brome also known as cheatgrass (*Bromus tectorum),* is also present in the project area but is at low densities. Cheatgrass is a strong competitor in the post-fire environment, where it takes advantage of increased resource availability and produces an abundant seed crop (Billings, 1994).

Environmental Effects of the Proposed Action

Direct/Indirect Effects: The proposed action could increase the proliferation or spread of noxious weeds. Reduction of forest canopy could increase proliferation of spotted knapweed as well as other noxious weeds such as cheatgrass (*Abella. MacDonald. 2000*) that may spread into burned areas either from existing infestations or through re-introductions by wildlife, livestock or human vectors.

Moderate-intensity prescribed fire would decrease litter depth and stimulate native understory vegetation (grasses/forbs). Fuel augmentation would open the forest canopy and stimulate understory vegetation. Stimulation of these native species should help combat weed infestation in the long-term (>5 years).

The BLM issued a Decision Record under a previous Environmental Assessment (MT-100-2003-0007) to implement weed management actions on these lands. Integrated weed management efforts to control and prevent the spread of invasive weed species would continue. Weed management actions would be taken before and after implementation of the Proposed Action based on site-specific conditions and need. Weed establishment and proliferation would be closely monitored and infestations controlled using integrated weed management strategies. With pre-treatment inventory and treatment consisting of herbicide pre-and post-fire, noxious weed populations are expected to decrease in the short term with possible long term decrease in overall noxious weed populations. *Cumulative Effects:*

Environmental Effects of No Action

Direct/Indirect Effects: The No Action alternative would result in current conditions continuing in the short-term (<3 years). Weed control activities (mechanical, biological, and chemical) on public lands would continue as outlined in the BLM Missoula Field Office's Integrated Weed Management Plan (2003). Weed populations would be expected to remain static or decline depending on the effectiveness of weed control activities. In the long term, the chances of a high severity, occurrence would increase. High severity wildfire on the project area would be expected to create favorable conditions for weed propagation. Some of the sparse herbaceous understory plants present on the site would probably be damaged by a high-severity fire. The resultant bare ground would be susceptible to weed establishment. Post-wildfire site re-vegetation and weed control measures would be implemented to reduce the spread of weeds.

Cumulative Effects: As a result of proposed action, none are expected.

<u>Cultural Resources</u>

Affected Environment

Existing records on file with the BLM, Missoula Field Office and the Montana State Historic Preservation Office provide information on the number of known cultural resource properties; as well as, the amount and level of previous cultural resource inventories that have been conducted. Based on those records, prior to consideration of this project no Class III cultural resource inventories had been conducted within the Smart Creek area and no cultural resources have been recorded there.

Environmental Effects of the Proposed Action

Direct Effects: A Class III cultural resource inventory has been conducted in the proposed project area (BLM Report #11-MT-100-13). Cultural resources were recorded and mapped. Any potential adverse effects would be mitigated by avoidance measures.

Indirect Effects: None are foreseen.

Cumulative Effects: None are foreseen.

Environmental Effects of No Action

Direct Effects: If the No Action alternative is selected, there would be no direct effect on cultural resources.

Indirect Effects: None are foreseen.

Cumulative Effects: None are foreseen.

<u>Soils and Water Resources</u>

Affected Environment

The proposed treatment area does not shed into any fish bearing or otherwise perennial streams, ponds, lakes, reservoirs, or wetlands. Smart Creek is outside the proposed burn area to the west. The eastern burn boundary is within 150 to 1000 feet of a small intermittent drainage with a wide buffer of rangeland vegetation and gentle slopes. Soils on the site are mostly Braziel-Tolbert stony loam, with a lesser amount of Danvers-Roy calcareous clay-loam, and a small inclusion of Bignell-Yreka gravelly-loam. The Granite County Soil Survey rate these soils as having a low to moderate potential for damage by fire. These soils have moderate surface erosion potential.

Environmental Effects of the Proposed Action

Direct/Indirect Effects: Hydrologic or water quality impacts to the small drainage to the east of the proposed burn are unlikely. The burn would be low-intensity and short-duration in light fuels and would not likely create extensive bare soils, or hydrophobic soil conditions. There is also a 150 to 1000 foot wide buffer between the burn and the small dranage. A springtime burn would most likely be followed by rapid vegetation regrowth with warming soil temperatures and a nutrient input from the recent burn. Sufficient vegetative ground cover to prevent erosion would likely be present by the time the area experiences summer thunderstorms. Spring and fall burning have similar effects if the grasses are dormant. Any plants in the early growing stage are most subject to damage. A spring burn conducted on a rough fescue-needlegrass site during active growth resulted in a cover reduction in fescue for 2 to 3 years. Production did not change if burned when the grasses were dormant. (Bailey and Anderson, 1978). Antos and

others (1983) found cover and production recovery within 3 years after a hot-season burn on a fescue/bluebunch wheatgrass site.

Immediate effects would occur as a result of the release of chemicals in the ash created by combustion of biomass. The long-term fire effects on soils and water are usually subtle, especially when fire severity is low to moderate (Neary et al. 2005), as would be anticipated under the Proposed Action .

Cumulative Effects: Livestock grazing is the only known past or recent-present action on the site. Older actions have included some prospecting, mining traffic, tramway construction and operation, powerline construction, and fire exclusion. The combined effects of these past actions have resulted in noxious weed infestation, Douglas-fir succession into the grassland ecotone, and some soil loss/thinning along the upper slope. The proposed action includes weed treatment, Douglas-fir reduction, and design criteria to avoid soil loss or erosion. Ongoing future activities might include livestock grazing and periodic weed treatment. None of these cumulative actions preclude the area from maintaining good soil productivity, normal hydrologic properties, and avoiding offsite effects to water quality, soils, or riparian areas.

Environmental Effects of No Action

Direct/Indirect Effects: With a long term increase in the chance of high-intensity, high mortality fire and resulting increased risk of weeds and bare soil, long term soil productivity may possibly decline. If a severe wildfire event were to occur on site and produce hydrologic conditions that are poor (<10% of ground surface covered with plants and plant litter), surface runoff could increase more than 70% and erosion could increase by three orders of magnitude (DeBano et al. 1998).

Wildfires generally produce more sediment than prescribed burning. The large inputs of sediment into a stream following a wildfire can tax the transport capacity of a stream and lead to channel deposition (aggradation). However, prescribed burns, by their design, do not normally consume extensive layers of litter or accumulations of other organic materials. Hence, sedimentation is generally less than that resulting from a wildfire (Neary et al. 2005).

Cumulative Effects: None are foreseen.

Wildlife

Affected Environment

Management of forested wildlife habitat, and rangelands, involves maintaining desirable successional stages of vegetation. An appropriate mix of vegetation stages is necessary for producing a diversity of wildlife species and for maintaining high carrying capacities over long periods. Evidence of vegetation trend in Montana suggests that optimum

habitat conditions for many wildlife species, including mule deer (*Odocoileus hemionus*, occur during earlier successional stages when there was a good balance between forage and cover. As succession advances in the absence of fire, forest openings areconverted into tree cover, forest thickened, shrubs deteriorated, and bunchgrasses were reduced or eliminated. This transformation may resultI n competition between wildlife and livestock for a diminishing supply of forage (Gruell and others, 1986).

Smart Creek East is winter range for deer and elk and provides summer habitat for migratory birds. The proposed burn area consists of shrub/grassland habitat that is currently encroached with coniferous trees. Encroachment of conifers has resulted in reduced bunchgrass forage production for deer and elk during winter and reduced nest habitat for grassland/shrubland migratory birds during summer.

Special Status Species, such as the grizzly bear, Canada lynx, and most BLM sensitive species do not inhabit Smart Creek East. The northern goshawk and great gray owl may forage in the proposed burn area. Deer, elk, black bears, mountain lions, and moose may inhabit Smart Creek East, at various times of year, as part of their home ranges. The area is part of winter range for deer, elk, moose, and lions. Migratory birds, such as the vesper sparrow and western meadowlark may be present.

Environmental Effects of the Proposed Action

Direct Effects: Temporary displacement of big game may occur during preparatory work, such as mechanical treatment, and during the prescribed burn. No effect would occur to big game populations. Most migratory birds are not present prior to June or later than September, therefore, direct effects would not occur or would have minimal impacts.

Indirect Effects: Short-term vegetation impacts would occur, but recovery is anticipated within 1-2 growing seasons. The burn area would provide enhanced foraging conditions for big game, as the area recovers and vegetation regrowth is stimulated. Long-term effects of prescribed burn treatment would be positive for big game. The area would provide excellent forage conditions for 3-5 years post burn. Migratory bird habitat would be enhanced for nesting and foraging activities. Mechanical treatment removal of saplings may reduce nesting opportunities for some migratory birds. However, this type of habitat is abundant in the area.

Cumulative Effects: Livestock grazing and vegetation succession have had the greatest cumulative effects. Current livestock grazing has been none to light. Domestic sheep may have historically been present. Lack of wildfire has allowed conifers to encroach, which has advanced vegetation succession. Plant species in these vegetation communities may have shifted representation due to the cumulative effects of livestock grazing and fire suppression.

Environmental Effects of No Action

Direct Effects: Direct effects would occur. Deterioration of grassland/shrubland habitat is expected due to conifer encroachment and plant succession. Grassland/shrubland is expected to diminish due to encroachment and succession. Less forage would be available for big game during winter. Big game, both young and old, may have a difficult time acquiring forage during winter. Nesting habitat for ground and shrub nesting birds would continue to decline.

Indirect Effects: Indirect effects would occur. The no action alternative would allow the area to continue filling in with conifers. From year to year as conifers age and continue to spread, less and less grassland/shrubland habitat would be available for big game and migratory birds.

Cumulative Effects: Cumulative effects would occur. Direct and indirect effects would occur. Livestock grazing, timber harvest, and road building are common past, present, and future activities occurring in the area. The no action alternative, when considered with the above activities, would contribute additive adverse effects due to the loss of grassland/shrubland habitat to conifer encroachment. Contributions to cumulative effects to wildlife of the No Action Alternative would not likely affect species at the population level.

Forest Vegetation and Fuels

Affected Environment

Interpretations of fire history and long-term succession by Arno and Gruell (1983), Gruell (1983) and Arno and Gruel (1986) demonstrate that pre-settlement wildfires restricted the growth of woody plants and promoted growth of bunchgrasses. Changes in environmental influences following settlement resulted in a shift to dominance of woody plants. These trees became established because fire had been removed as an effective agent (Sindelar 1971). Consumption of fine fuels by livestock, elimination of Indian fires, and fire suppression apparently acted interdependently to bring this about. Adjacent forested sites show marked increases in tree cover because of the absence of fire (Gruell and Others 1986).

The cause/effect relationship in the historical dry forest landscapes of the Inland west brought upon by settlement and management influences, particularly absence of wildfire, can be observed in the Smart Creek area and in the forest and grasslands of the Flint Creek Valley. Reduction in grassland and shrubland areas in forest potential settings and expanded woodland and forest areas has increased homogeneity of the landscape vegetation and fuels mosaic (Hessburg et al, 2005). The increase of tree canopy cover and canopy layers has increased fuel ladders, potential flame lengths, fireline intensities, rates of spread, and the likelihood of crown fires. Increased young multi-story forest areas have increased landscape homogeneity, reduced fire tolerance, increased fuel ladders, potential flame lengths, fireline intensities, rates of spread, and the likelihood of crown fires (Hessburgh 2005).

Environmental Effects of the Proposed Action

Burning of pole and sapling size Douglas-fir trees would lead to mortality within a large percentage of woody vegetation within the project area. Competition between woody vegetation and bunchgrasses would be reduced. Vegetation communities would shift back toward historic conditions of a Douglas-fir savanna with a bunchgrass-dominated understory, rather than the tendency toward forest dominance currently taking place.

Environmental Effects of No Action

Under this alternative, the project site would continue to shift from a grassland to a conifer forest, thus increasing homogeneity of the landscape vegetation and fuels mosaic. The increase in canopy cover and canopy layers would increase fuel ladders, potential flame lengths, fireline intensities, and the likelihood of crown fires. This could be detrimental to the ecosystem and increase the probability of severe wildfire. Additionally, an increased threat to the loss of life and property would be imposed, given the project site location in relation to private lands and structures.

Rangeland Vegetation

Affected Environment

The area within the proposed action consists of two soil types as listed on the NRCS web site http://websoilsurvey.nrcs.usda.gov/app/. The Braziel-Tobert and the Danvers-Roy complex are commonly found on 15-35% slopes. The Braziel-Tolbert complex (442E) is the more predominant soil type mainly supporting upland vegetation such as: rough fescue, Idaho fescue, bluebunch wheatgrass, prairie junegrass, Columbia needlegrass, Sandberg's bluegrass, lupine, and fringed sagewort. The Danvers-Roy complex (446E) supports the following upland vegetation: rough fescue, Idaho fescue, bluebunch wheatgrass, green needlegrass, western wheatgrass, Richardson's needlegrass, prairie junegrass, and lupine.

The historic grassland within the project area is experiencing Doug-fir encroachment and excessive litter build up. This area is part of a grazing allotment. However livestock grazing has not occurred in several years probably due to lack of access to water resources and the presence of fencing barriers. Lower portions of the slope are mainly dominated by rough fescue and upper portions of the slope are dominated by bluebunch wheatgrass.

Several million acres of seral grasslands in Montana have been invaded by Douglas-fir or other conifers. Before settlement, fire maintained these grasslands by impeding the invasion of conifers. The absence of fire has resulted in a marked reduction in the availability and palatability of forage, thus reducing the capability of these lands to support big game and livestock (Gruell 1983). In these situations, competition for forage between big game and livestock often becomes a substantial management problem (Greull and others, 1986).

Environmental Effects of the Proposed Action

Direct/Indirect Effects: Initiating a prescribed burn in the spring or fall season may remove the majority of aboveground biomass and Douglas-fir conifer encroachment. Fire intensity during spring or fall burning would be less than natural fire intensity that would be expected during hot, dry summer months. It is expected that portions of dormant standing plant material and soil surface plant litter may not be consumed by the prescribed fire due to higher moisture conditions during selected season of treatment. Percent bare ground would obviously increase however, remnants of litter and root crowns would provide adequate soil surface protection from spring snow melt and surface water run-off from rain shower events.

Burning during the spring or fall when plants are dormant would reduce the chance of graminoid mortality and remove excess litter that is currently reducing plant photosynthesis and growth. Plant fire responses will vary with native grass species. Most plants survive fires that occur during dormancy or under the high moisture conditions often associated with spring and fall burning (Tirmenstein, 2000). Rough fescue is unharmed by burning if the plant is dormant (Tirmenstein, 2000). Burning bluebunch wheatgrass may remove most of the aboveground biomass but does not usually result in plant mortality (Zlatnik, 1999). Bluebunch wheatgrass is generally favored by burning (Zlatnik, 1999).

In short term, species composition of the site may change slightly and vegetative responses may vary depending on post fire precipitation events. First year vegetation regrowth may result in limited percent cover and increase the following year. Bluebunch wheatgrass recovers quickly from fire, while rough fescue generally responds favorably to fire even after initial reduction in basal area. Pre-burn coverages can be attained in 2 to 3 years (Brown and Smith 2000).

Application of prescribed fire in seral grasslands invaded by Douglas-fir may entail acceptance of short-term reductions in perennial grasses in order to achieve long-term gains. Most grasses show a twofold or more increase in production by the third year after treatment with prescribed fire. Initial reductions in fescues are usually compensated by the rapid response of other grasses (Gruell and others 1986).

Cumulative Effects: Nutritional value and vigor for native graminoids is expected to improve forage resources for big game and other wildlife. During the spring, big game foraging activity in this area may increase for several years due to improved habitat conditions.

Environmental Effects of the No Action

Direct/Indirect Effects: Under the No Action alternative, there would be no burn treatment for this area and Douglas-fir conifer encroachment would continue to invade the natural grassland. Excess litter from grasses and forbs would continue to build up

over time restricting plant photosynthesis. Plant vigor is expected to slowly decline overtime.

Cumulative Effects: In long-term the Douglas-fir conifer encroachment would eventually dominate as the over story canopy thus resulting in a change in understory supporting shade tolerant forbs and graminoids. Forage production for big game and other wildlife dependent on grasslands would greatly be reduced due to the change of understory species. The transition from a conifer over-story to natural grassland due to a natural wildfire event would most likely result in higher mortality rate for herbaceous species than that of a spring or fall prescribed fire. Recovery for herbaceous species would take longer under a natural wildfire event.

CHAPTER 4
PERSONS, GROUPS, AND AGENCIES CONSULTED

This Environmental Assessment was sent to the residents whom live or own property within the general vicinity of the project for public comment. It was also sent to the Beaverhead-Deerlodge National Forest, Pintler Ranger District. This Environmental Assessment is posted on the BLM Missoula Field Office web site. A press release was sent to news organizations within the local area of the project and posted on the BLM Missoula Field Office web site and BLM Montana/Dakotas Facebook page.

List of Preparers

The following personnel participated in the interdisciplinary team process and/or contributed to the preparation of the EA.

Steve Hancock- Fire Management Specialist, IDT Lead
Jo Christensen- Fisheries Biologist
Ken Cook- Range Technician (Weed Management)
Steve Bell- Rangeland Management Specialist
Steve Flood- Hydrologist (water, riparian, soils)
John Hill- Natural Resource Specialist
Shelagh Fox- Supervisory Forester
Michael Albritton- Fire Management Specialist
Jody Miller- Archeologist
Jim Sparks- Wildlife Biologist
Tim LaMarr- Assistant Field Manager, Renewable Resources

References

Abella, Scott R.; MacDonald, Neil W. 2000. Intense burns may reduce spotted knapweed germination. Ecological Restoration. 18(2): 203-204. [38262]

Antos, J.A., B. McCune, and C. Bara. 1983. The Effect of Fire on an Ungrazed Western Montana Grassland. The American Midland Naturalist, p. 354-364. University of Notre Dame Press.

Arno, S.F.; Gruell. G.E. 1983. Fire History at the Forest Grassland Ecotones in Southwestern Montana. Journal of Range Management 36(3): 332-336

Arno, S.F.; Gruell, G.E.; 1986. Douglas fir Encroachment into Mountain Grasslands in Southwestern Montana. Journal of Range Management. 39(3): 272-276

Bailey, A.W. and M.L. Anderson. 1978. Prescribed Burning of a Festuca-Stipa Grassland. Journal of Range Management 31(6), Nov. 1978. P.446-449.

Brown, J.K.; Smith, J.K.; 2000. Wildland Fire in Ecosystems; Effects if Fire on Flora. General Technical Report. RMRS-GTR-42-vol 2. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 257p.

Debano L.F.; Neary D; Ffolliot P. 1998. Fire's effects on ecosystems. John Wiley & Sons: New York.

Granite County. 2003. Soil Survey of Granite County Area, Montana. USDA Natural Resources Conservation Service in Cooperation with Montana Agricultural Experiment Station.

Gruell, G.E. 1983. Fire and Vegetative Trends in the Northern Rockies: Interpretations from 1871-1982 Photographs. General Technical Report INT-158. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station. 117p.

Gruell, G.E; Brown, J.K.; and Bushey, C.L.; 1986. Prescribed Fire Opportunities in Grasslands Invaded by Douglas fir: State-of-the-art Guidelines. General Technical Report INT-198. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station. 19p.

Neary, D.G; Ryan, K.C.; DeBano, L.F.; Landsberg, J.D. Brown, J.K.; 2005. Wildland Fire in Ecosystems. General Technical Report RMRS-GTR-42-vol. 4. Ogden, UT: U.S Department of Agriculture, Forest Service, Rocky Mountain Research Station. 250 p.

Tirmenstein, D. 2000. Festuca altaica, F. campestris, F. hallii. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain

Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis [2012, January 9].

U.S.D.I Bureau of Land Management. 1986. Garnet Resource Area Resource Management Plan. Butte District, MT.

U.S.D.I Bureau of Land Management. 2003. Missoula Field Office Integrated Weed Management Plan. Missoula Field Office, Missoula, MT

U.S.D.I Bureau of Land Management. 2005. Flint Creek Environmental Assessment. Missoula Field Office. Missoula, MT

Zlatnik, Elena. 1999. Pseudoroegneria spicata. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http//www.fs.fed.us/database/feis/ [2012, January 9].

List of Appendicies

Appendix 1: Smart Creek East Vegetation Management Project Vicinity Map
Appendix 2: Smart Creek East Vegetation Management Project Map