U.S. Department of the Interior
Bureau of Land Management
Little Snake Field Office
455 Emerson Street
Craig, CO 81625-1129

ENVIRONMENTAL ASSESSMENT

EA NUMBER: CO-100-2007- 044EA

CASEFILE/ALLOTMENT NUMBER: Allotment # 04325

PROJECT NAME: Cold Springs Sagebrush Treatment

LEGAL DESCRIPTION: Portions of:

T10N R101W
Sec 5-8
T10N R102W
Sec 1-4
T11N R101W
Sec 19, 29-32
T11N R102W
Sec 14-16, 21-28, 33-36

See **Attachment 1** for map of project area

APPLICANT: Bureau of Land Management

PLAN CONFORMANCE REVIEW: The Proposed Action and Alternatives are subject to the following plan:

Name of Plan: Little Snake Resource Management Plan and Record of Decision

Date Approved: April 26, 1989

Results: pg 38, 42-43. The proposed project is within Management Units 2 and 9. Management Objectives for Unit 2 are to provide for the development of the oil and gas resources. Wildlife habitat projects are allowed provided they are compatible with oil and gas development. Management Objectives for Unit 9 are to maintain and improve the quality of 1) habitat for elk, mule deer and bighorn sheep, 2) the fisheries in Beaver Creek, and 3) the recreational opportunities. Wildlife habitat improvement project will be developed and

implemented to achieve the management objectives for this unit. Other resource uses/values are allowed within this unit consistent with the management objectives.

Other Documents:

Final Environmental Impact Statement (FEIS) Vegetation Treatment on BLM Lands in Thirteen Western States, June 5, 1991, and the Colorado Record of Decision (ROD, July 1991.

Environmental Assessment #CO-016-94-056 considered the options of Integrated Pest Management as outlined in the FEIS and adopted the standard operation procedures for vegetation treatment program implementation. This EA was signed March 30, 1994, which resulted in a finding of No Significant Impact.

Noxious Weed Treatment in the Little Snake Resource Area, EA #CO-016-94-056, as amended, May 4, 1994, expanded the use of herbicide application methods to include broadcast and aerial applications.

NEED FOR PROPOSED ACTION: Sagebrush canopy cover in many areas on Cold Spring Mountain substantially exceeds national guidelines for optimal sage-grouse nesting habitat, exceeding 40% in many areas on the mountain. While most of these high-canopy areas maintain a substantial understory, the addition of small openings in the sagebrush canopy should provide substantial enhancements to sage-grouse habitat quality in the area. Sage-grouse use of the area has declined from historic levels, and sage-grouse activity centers have moved westward into areas that were treated in the 70's. The BLM, in cooperation with Natural Resource Conservation Service (NRCS), Colorado State Land Board, Colorado Division of Wildlife (CDOW) and Vermillion Ranch, would like to implement a vegetation treatment project to restore health to sagebrush habitat on Cold Springs Mountain.

PUBLIC SCOPING PROCESS: The National Environmental Policy Act (NEPA) log is posted on the Little Snake Field Office web site.

BACKGROUND: The project will occur on Vermillion Ranch deeded lands, adjacent tracts of Colorado State Land Board land, and surrounding BLM lands east of Goodman Gulch and west of Limestone Ridge, particularly the sagebrush communities south and west of the aspen line on the top of Cold Spring Mountain. Lands in this area were treated historically, but have not been treated recently. Sage-grouse use of the area has declined from historic levels and sage-grouse activity centers have moved westward into areas that were treated in the early 1980s.

DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES:

Proposed Action

The Proposed Action is to treat approximately 20 percent of the Cold Springs Mountain Project

Area with the herbicide 2, 4-D in order to restore nesting and brood rearing habitat for greater sage-grouse.

The project will occur on Vermillion Ranch deeded lands, adjacent tracts of Colorado State Land Board land, and surrounding BLM lands east of Goodman Gulch and west of Limestone Ridge, particularly the sagebrush communities south and west of the aspen line on the top of Cold Spring Mountain. Lands in this area were treated historically, but have not been treated recently.

The project will be completed over several years to allow interim evaluation and to spread the treatment impacts over time. Land ownership on Cold Spring Mountain is a mix of private, state, and BLM lands. Much of the nesting habitat on Cold Spring Mountain is on BLM lands. Many of the leks and brood habitat are located on state or private lands.

The intent of this project is to introduce a large number of small, distributed openings in the canopy through control of big sagebrush across a large landscape while avoiding detrimental impacts of treatments to sage-grouse. Because individual treatments are small and widely distributed, the treatment is planned over a large landscape; approximately 11,600 acres of land are located within the project area. Of this, 6140 are managed by the BLM, 1500 acres are private and 3960 are managed by the Colorado State Land Board. Treatments will be conducted by aerial application of herbicide (2,4-D). Treatments will be distributed by flying single, non-overlapping passes with the aircraft and toggling the chemical delivery switch randomly along the course of each transect. Flight transects will be between 90 and 120 feet apart to help ensure that overlapping of treatments does not occur. Chemical is expected to be applied at altitudes of less than 20 feet to minimize drift. Treatment patches will vary randomly in size from the smallest (shortest) possible application of chemical through the spray apparatus (50 to 100 feet long) through patches approximately 300 feet in length. The resulting patches of treated vegetation would be approximately 0.138 ac at the smallest (100 ft) to 0.413 ac at the larger end (300 ft) of an acre. Adjacent untreated areas will be approximately twice as long as the treated patch (i.e. a two second treated patch will be followed by at least a four second untreated patch). While some connection of patches between transects will occur as the patches are randomly placed on the landscape, the intent is to have most of the patches be one spray width wide (60 feet). Patches will be distributed such that no more than 20% of any tract of land will actually receive chemical. An example of how treatment might look is illustrated in **Attachment 2**. Up to 3000 acres per year would be treated if budget allows, spreading the effect of the treatment over several years. Aerial application of herbicide allows the maximum distribution and randomness of patches and also allows the creation of small patches which are completely surrounded by intact sagebrush without road clearings to each treatment patch, which would minimize benefits of the openings to sage-grouse predators.

Treatments will occur during the month of June in order to achieve desired kill rates of sagebrush. Treatments within the project area will likely occur over a period of three to five years. Approximately one-third of the project area is planned to be treated during the first year. It is possible that up to one-half of the project area might be treated during the first year (approximately 20% of treated area would receive herbicide). Remaining treatments will be

based on funding and results from monitoring of the first year's treatments.

Sagebrush habitats are the targeted areas for treatments. Other habitat types occur within the boundaries of the project area. Aspen stands and wet meadows/riparian areas would be avoided to reduce potential to impact non target habitats.

Prior to treatment, BLM will flag the area surrounding the original occurrence of narrow-leaf evening primrose mapped in 1981 as a spray avoidance area. Spray avoidance areas will be flagged on the ground and mapped. The pilot will also be provided a paper map of the location of this old occurrence during the preflight briefing.

Buffer Strips, where no spraying is allowed, shall be maintained adjacent to dwellings, domestic water sources, agricultural land, streams, lakes, ponds, wetlands, and riparian areas. A minimum buffer strip 100 feet wide will be maintained for aerial application.

A Pesticide Use Proposal (PUP No. 07-CO-100-01) will be completed for application on BLM lands, which will cover applications for three years. If the project continues beyond three years, a new PUP will be completed.

No 2, 4-D will be stored within the project area or loaded onto the aircraft within the project area. Herbicide storage and loading areas will occur at the airport in Craig, Colorado, or on a gravel road near Sugarloaf Butte in T 11N R101W.

Other treatment types such as prescribed burning and mechanical treatments are not feasible within the project area. Prescribed burns would be too difficult to control to small patch size. Mechanical treatments are not feasible because of the rocky nature of the project area.

MONITORING

To ensure that project goals are met, a vegetation monitoring program would be implemented concurrently with and after completion of the treatments. Monitoring would be performed cooperatively by CDOW, NRCS and the BLM. Permanent line transects would be established within a sample of treated areas and in adjacent untreated areas. Transects would be established and read during the first growing season after treatment. Daubenmire transects would be used to measure canopy cover, by species, along each transect. A six-cover-class Daubenmire quadrat would be placed along 50 sample points along each 100 meter line transect. Canopy cover, by species, would be visually estimated by percent cover-class within the quadrat. This method would not only measure changes in plant cover, but also gather information on species abundance and plant composition data. This method would detect changes in both cover and species composition and help determine the efficacy of chemical treatments in increasing grass and forb species by reducing sagebrush dominance. Plots established in adjacent untreated areas would be used to establish pre-treatment conditions against which the effects of the treatments would be measured. After initial establishment and data collection, repeat readings would be taken annually for five years after treatment.

Treatment area objectives: Native forb production will not be reduced by more than fifty percent of the untreated areas on similar range sites within the project area during the year following treatment. The native forb production and diversity in treated areas will meet or exceed that of the untreated areas on similar range sites within three years of treating. Greater sage-grouse use of the project area will remain the same or increase.

Further monitoring protocols are being developed amongst the projects partners and will be integrated into this approach. If it is determined through monitoring that the desired objectives are not being achieved, the project might be modified or abandoned prior to completing future treatments.

No Action Alternative
The No Action Alternative would be to not treat sagebrush habitats within the project area.

AFFECTED ENVIRONMENT/ENVIRONMENTAL CONSEQUENCES/MITIGATION MEASURES

CRITICAL RESOURCES

AIR QUALITY

Affected Environment: There are no special designation air sheds or non-attainment areas nearby that would be affected by the proposed action.

Environmental Consequences: Air quality in the treatment area and the adjacent area will be affected in the short term from spray drift and volatilized chemicals. The 2, 4-D herbicide is prone to volatilization in the short term (48 hours) and the smell of the chemical can persist for a few days. Spray drift during application would be reduced by aerial applications very near the ground level and with large droplet size. Volatilization would be reduced by using a low volatile formulated product.

Mitigative Measures: None

Name of specialist and date: Ole Olsen 2/26/07

AREA OF CRITICAL ENVIRONMENTAL CONCERN

Affected Environment: Not present

Environmental Consequences: Not applicable

Mitigative Measures: Not applicable

Name of specialist and date: Jim McBrayer 6/6/07

CULTURAL RESOURCES

Affected Environment: Cultural resources, in this region of Colorado, range from late Paleo-Indian to Historic. For a general understanding of the cultural resources in this area of Colorado, see ***An Overview of Prehistoric Cultural Resources, Little Snake Resource Area, Northwestern Colorado***, Bureau of Land Management Colorado, Cultural Resources Series, Number 20, ***An Isolated Empire, A History of Northwestern Colorado***, Bureau of Land Management Colorado, Cultural Resource Series, Number 2 and ***Colorado Prehistory: A Context for the Northern Colorado River Basin,*** Colorado Council of Professional Archaeologists.

Environmental Consequences: The proposed project, Cold Springs Vegetative Treatment has not undergone a Class III cultural resource survey prior to implementation. Aerial spraying of sagebrush should not affect cultural resources. However, as the sagebrush dies off cultural resources would be exposed and vulnerable to the large amounts of recreationists, particularly hunters that frequent Cold Springs Mountain.

The proposed project may proceed as described in this EA with the following mitigative measures in place.

Mitigative Measures: Areas around springs and waterways should be sample surveyed to provide baseline data on the cultural resources in the area. This data can be used in the future to determine if such actions as vegetation treatments have an adverse effect to cultural resources.

The following standard stipulations apply for this project:

1. The operator is responsible for informing all persons who are associated with the operations that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. If historic or archaeological materials are encountered or uncovered during any project activities, the operator is to immediately stop activities in the immediate vicinity of the find and immediately contact the authorized officer (AO) at (970) 826-5000. Within five working days, the AO will inform the operator as to:

- Whether the materials appear eligible for the National Register of Historic Places;
- The mitigation measures the operator will likely have to undertake before the identified area can be used for project activities again; and
- Pursuant to 43 CFR 10.4(g) (Federal Register Notice, Monday, December 4, 1995, Vol. 60, No. 232) the holder of this authorization must notify the AO, by telephone at (970) 826-5000, and with written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, pursuant to 43 CFR 10.4(c) and (d), you must stop activities in the vicinity of the discovery and protect it for 30 days or until notified to proceed by the authorized officer.

2. If the operator wishes, at any time, to relocate activities to avoid the expense of mitigation and/or the delays associated with this process, the AO will assume responsibility for whatever recordation and stabilization of the exposed materials may be required. Otherwise, the operator will be responsible for mitigation costs. The AO will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the operator will then be allowed to resume construction.

Name of specialist and date: Robyn Watkins Morris 2/ 27/07

ENVIRONMENTAL JUSTICE

Affected Environment: The proposed action would not directly affect the social, cultural or economic well-being and health of Native American, minority or low-income populations. The project area is remote and relatively isolated from population centers, so no populations would be affected by physical or socioeconomic impacts of the proposed action.

Environmental Consequences: None

Mitigative Measures: None

Name of specialist and date: Mike Andrews 03/01/07

FLOOD PLAINS

Affected Environment: No large floodplain areas would be affected by the proposed project as the project would be conducted in stream headwater areas. Small swale areas, which carry surface runoff or drainage from wetland systems, are more characteristic of the surface drainages within the treatment area.

Environmental Consequences: None

Mitigative Measures: None

Name of specialist and date: Ole Olsen 2/23/07

INVASIVE, NONNATIVE SPECIES

Affected Environment: Roads on the public lands are used for dispersed recreation activities in the late spring through fall, and vehicular travel can provide a vector for noxious and invasive weeds. Wildlife and cattle grazing and trailing through weed infestations can also

provide a vector for introducing weed species to a new area. Cheatgrass is commonly found along roads and on areas were all vegetation has been removed by disturbance. Hoary cress, tall whitetop, black henbane, Russian knapweed, spotted knapweed, Canada thistle and other biennial thistles are found in the vicinity of the treatment area and could presently be established and not detected. These noxious or invasive weeds could be introduced and/or remain undetected within the project area.

Environmental Consequences: Aerial applications of herbicide would have little or no affect on the introduction of invasive or noxious weed species to the area. The elevation of the project site and typical precipitation the project area receives would make it difficult for cheatgrass to move into areas treated with 2,4-D. Of the known invasive or noxious weeds in the area, only the biennial thistles in the treatment area could be killed or adversely affected by the 2,4-D application. The other noxious weeds in the area are not controlled with 2,4-D but they are less frequently established on the uplands. Some potential exists for these species to increase if they are present where the competition from sagebrush and the affected broadleaf plants is reduced.

Mitigative Measures: None

Name of specialist and date: Ole Olsen 2/26/07

MIGRATORY BIRDS

Affected Environment: Sage sparrow and Brewers sparrow are the only species listed on the USFWS 2002 Birds of Conservation Concern List that are likely to use the sagebrush habitats within the project area.

Environmental Consequences: Treating sagebrush is thought to have a negative impact on Brewers sparrow and sage sparrow, because both species use the sagebrush canopy for nesting activities. Treating 20% of the sagebrush within the project area could have a slight negative impact on both species. In order to have the desired kill effect on sagebrush, treatments on Cold Springs Mountain need to be conducted during the month of June. Both species could have active nests during the month of June. It is likely that there would be some nests within the 20% that is treated. It is likely that this would result in nest destruction or abandonment once the sagebrush dies and leaves drop off the plant. There is a moderate chance of take to occur as a result of this project.

There would be no chance of take to occur with the No Action Alternative.

Mitigative Measures: None

Name of specialist and date: Timothy Novotny 2/22/07

NATIVE AMERICAN RELIGIOUS CONCERNS

A letter was sent to the Uinta and Ouray Tribal Council, Southern Ute Tribal Council, Ute Mountain Ute Tribal Council, and the Colorado Commission of Indian Affairs on January 21, 1999. The letter listed the projects that the BLM would notify them on and projects that would not require notification. No comments were received (Letter on file at the Little Snake Field Office). This project requires no additional notification.

Name of specialist and date: Robyn Watkins Morris February 27, 2007

PRIME & UNIQUE FARMLANDS

Affected Environment: Not present

Environmental Consequences: None

Mitigative Measures: None

Name of specialist and date: Ole Olsen 2/23/07

T&E SPECIES - SENSITIVE PLANTS

Affected Environment: In 1981, an occurrence of the BLM sensitive species narrow-leaf evening primrose (*Oenothera acutissima*) was present within the proposed project area. A survey was attempted in June of 2006 to relocate this population. Although the habitat for this species (sandy, gravelly, or rocky seasonally wet meadows or depressions) continues to be present, the previously recorded population was no longer present. No other BLM sensitive plant species are present within the project area.

Environmental Consequences: Being a dicot, narrow-leaf evening primrose would be killed by the 2, 4-D application that is proposed. Based on the 2006 survey, it is unlikely that any individuals of this species remain that could be harmed by the Proposed Action, however the continued presence of appropriate habitat should encourage caution. The seasonally wet, meadow type of habitat that this species favors is not a target plant community of the proposed treatments and every effort should be made to avoid 2, 4-D applications on these types of communities, particularly in the vicinity of the previously recorded occurrence of this plant.

Mitigative Measures: None

Name of specialist and date: Hunter Seim 2/21/07

T&E SPECIES – ANIMALS

Affected Environment: There are no threatened or endangered species or habitat for such species present within the project area. The project area does provide breeding, nesting and

brood rearing habitat for greater sage-grouse, a BLM special status species. The project area contains four lek sites. Only two of these lek sites, the Cold Springs lek and the Coyote Springs lek, have had activity within the last several years. All of the sagebrush habitats within the project area provide potential nesting habitat for greater sage-grouse. Radio telemetry studies conducted during 2005 and 2006 show greater sage-grouse use much of the project area throughout the spring, summer and fall. The southeast portion of the project area does not appear to be used much by greater sage-grouse. Extensive stands of sagebrush occur throughout the project area. These stands are overly dense and, in many cases, show signs of decadence.

Environmental Consequences: There will be no impacts to threatened or endangered species.

2, 4-D ranges from practically non-toxic to moderately toxic in birds. The herbicide 2, 4-D is slightly toxic to wildfowl (mallards, pheasants, quail, and pigeons) with an LD50 of 272 mg/kg in pheasants to 1,000 mg/kg in mallards (WSDOT 2006)

Greater sage-grouse would be impacted as a result of this vegetation treatment. Treating dense sagebrush stands with 2, 4-D would result in many small openings. These small openings are intended to improve sage-grouse habitat by increasing abundance of forbs and herbaceous cover and will create more diverse age classes of sagebrush throughout the project area. Forbs are important for grouse during early brood rearing periods. Treating sagebrush should increase forbs within the treated areas. This would likely benefit sage-grouse chicks. The treatment would likely result in a short term loss of forbs during the treatment year. Forbs will be able to recolonized the sprayed sites from natural seed banks and surrounding undisturbed forbs. Forb abundance will increase in future years resulting in a net benefit to sage-grouse. Connelly makes the following management suggestions for restoring sagebrush habitats. 1) Monitor habitat conditions and propose treatments only if warranted by range condition (i.e., the area no longer supports habitat conditions suitable for sage-grouse. 2) Use vegetation control techniques that are least disruptive to the stand of sagebrush. 3) Do not treat >20% of the breeding habitat (including areas burned by wildfire) within a 30-year period. 4) If 2, 4-D or similar herbicides are used, they should be applied in strips such that their effect on forbs is minimized (Connelly et al. 2000). This vegetation treatment has been designed with these management practices in mind. Aerial application of 2, 4-D will allow us to control the size of individual patches of treated sagebrush. Patches that are treated will likely be between 1/10 of an acre and 4/10 of an acre (.138 and .413 ac respectively). Aerial application will result in the least amount of disturbance to the remaining sagebrush stands and will not result in new roads or trails leading into the treated areas. It also allows us to limit treated areas to small patches that minimize negative impacts to forbs (spatial and temporal). Overall acreage that receives herbicide will be around the 20% suggested by Connelly. Dahlgren et al. found that Greater sage-grouse brood use was higher in areas treated with tebuthiuron than control plots. It is believed this was because increased herbaceous cover, particularly forb cover. Dahlgren believed this was because treatment with tebuthiuron left sagebrush skeletons which provide some cover and intercept more moisture creating microclimates favorable to forbs. He also found that in all plots, sage-grouse use was greatest within 10 m of the edge of the treatments where adjacent sagebrush

cover was still available (Dahlgren 2006). The proposed project would create open patches that are approximately 60 feet wide (18 meters). Drift of herbicide during application could extend the width of these patches slightly. The center of treated patches would be approximately 9-10 meters from live sagebrush.

Historical sagebrush treatments have occurred within the project area (Attachment 4). The majority of the treatments occurred during the early 1970's. An aerial patch treatment was conducted in part of the treatment area and areas further west in 1999. All of these treatments are at least thirty years old and have recovered to mature sagebrush stands.

Treatments with 2, 4-D could have an impact on the four lek sites known to occur within the project area. In the case of the two lek sites that have not been active within five years, the treatments may improve lek habitat and become more attractive to sage-grouse. The Coyote Springs Lek is located on the dike of a livestock reservoir and in the meadow areas around the reservoir. This lek site would not likely be negatively impacted by a treatment. It is possible that treatment of sagebrush surrounding the dike could improve this lek site. The Cold Springs Lek has been active with a five year average of 32 males attending the lek site. The recorded activity level of this lek site suggests this site is attractive to sage-grouse in its current condition. The integrity of existing habitat at this lek site should be maintained. The Cold Springs Lek will be flagged and the pilot will be briefed of its location prior to treatment so that this site can be avoided during herbicide application.

The No Action Alternative would retain the existing late-seral, even-aged, and closing canopy sagebrush dominated communities. This alternative does not provide for habitat enhancements that would benefit greater sage-grouse.

Connelly, J. W., M. A. Schroeder, A. R. Sands, and C. E. Braun. 2000. Guidelines to manage sage grouse populations and their habitats. Wildlife Society Bulletin 28:967–985.

WSDOT, 2006. *WSDOT Roadside Vegetation Management Herbicide Fact Sheet*

Dahlgren David K., R. Chi, T. A. Messmer. 2006. *Greater Sage-Grouse Response to Sagebrush Management in Utah.* Wildlife Society Bulletin 34(4) pg. 981-982

Mitigative Measures: Protect a .6 mile area surrounding the Cold Springs Lek site by flagging and pilot briefing prior to treatment. This area shall not receive herbicide application. Treatment of this area within .6 miles of the lek site could occur in later years with approval by Colorado Division of Wildlife.

Name of specialist and date: Timothy Novotny 2/27/07

T&E SPECIES – PLANTS

Affected Environment: There are no federally listed threatened or endangered plant species within the proposed project area.

Environmental Consequences: None

Mitigative Measures: None

Name of specialist and date: Hunter Seim 2/21/07

WASTES, HAZARDOUS OR SOLID

Affected Environment: There are no known hazardous materials within the project area. The proposed project will use the herbicide 2, 4-D to treat sagebrush habitats. 2, 4-D is a hazardous material. No 2, 4-D will be stored within the project area or loaded onto the aircraft within the project area. Herbicide storage and loading areas will occur at the airport in Craig, Colorado, or on a gravel road near Sugarloaf Butte in T 11N R101W.

Environmental Consequences: The herbicide 2, 4-D can be harmful to humans who are exposed. Known effects of exposure to 2, 4-D includes the following: skin, eye and gastro-intestinal tract irritation; vomiting, chest pain and diarrhea. For more information see Attachment 3 for the product label.

Mitigative Measures: None

Name of specialist and date: Timothy Novotny 2/28/07

WATER QUALITY - GROUND

Affected Environment: The Browns Park Formation and the Wasatch Formation are both present in this area; they are local aquifers that may recharge in this area.

Environmental Consequences: The pattern of spraying will minimize the chemical concentration at the aquifer recharge areas.

Mitigative Measures: None

Name of specialist and date: Jennifer Maiolo 2/23/07

WATER QUALITY - SURFACE

Affected Environment: The treatment area on the broad ridge top of eastern Cold Springs Mountain will include the headwater areas of several ephemeral draws and wetland systems that drain into the draws. The ephemeral and intermittent draws on eastern Cold Springs Mountain

that drain the uplands within the project area are directly tributary to Talamantes Creek, Vermillion Creek and the Green River. Talamantes Creek is an intermittent tributary to Vermillion Creek which is an intermittent tributary to the Green River. Water quality of the Green River needs to support Aquatic Life Cold 1, Recreation 1a, Water Supply and Agriculture. Streams that are a direct tributary to this segment of the Green River, except for Vermillion Creek, need to support Aquatic Life Warm 2, Recreation 1a and Agriculture. These tributaries are designated as Use Protected. Water quality of Vermillion Creek and its tributaries need to support Aquatic Life Warm 2, Recreation 2 and Agriculture. The Green River was last assessed Feb. 22, 2002, and it was determined that the water quality of the river fully supported all designated uses. Vermillion Creek which was assessed in October 2001 and February 2002 was fully supporting Aquatic Life Warm 2 and Agriculture. It was not assessed for Recreation 2. The other tributaries to the Green River have not recently been assessed for supporting their designated uses, but they have never been listed or suspected of having impaired water quality.

Environmental Consequences: The adverse impacts to surface water and surface water quality are discussed in the *Final Environmental Impact Statement (FEIS) Vegetation Treatment on BLM Lands in Thirteen Western States.* Some potential exists to contaminate surface waters with herbicides, and for that reason restrictive buffer zones are established depending on the application method. The following stipulation should be attached to the approved Pesticide Use Proposal completed for this project: Buffer Strips, where no spraying is allowed, shall be maintained adjacent to dwellings, domestic water sources, agricultural land, streams, lakes, ponds, wetlands, and riparian areas. A minimum buffer strip 100 feet wide will be maintained for aerial application.

The benefits to the native plant community and upland soil health that would result from the proposed action would also provide beneficial impacts to the water quality of surface runoff in the long term. Reduced runoff and less sediment carried in runoff water would be expected.

Selection of the No Action Alternative would not provide the positive impacts of providing a vegetative mosaic in the native plant community, and under current conditions no improvement to water quality could be anticipated.

Mitigative Measures:

Name of specialist and date: Ole Olsen 2/26/07

WETLANDS/RIPARIAN ZONES

Affected Environment: Wetlands and riparian zones within the project area are limited to springs and seeps. There are eight known springs and seeps on BLM lands within the project area. Numerous other springs and seeps occur within the project area on state and private lands.

Environmental Consequences: This project will not target wetland areas for treatment with 2,4-D and should not receive any of the chemical. Vegetation associated with these

wetlands will stand out from sagebrush habitats and should be easily avoided by the pilot. It is possible that chemical drift during application could reach wetlands and have an impact on riparian vegetation. If a wetland were to accidentally receive chemical, the plants would likely die. Any vegetation killed would recover quickly.

The No Action Alternative would not impact wetlands or riparian zones.

Mitigative Measures: None

Mitigative Measures: Timothy Novotny 2/23/07

WILD & SCENIC RIVERS

Affected Environment: Not present

Environmental Consequences: None

Mitigative Measures: None

Name of specialist and date: Jim McBrayer – 6/6/07

WILDERNESS, WSAs

Affected Environment: There are no Wilderness Areas or Wild and Scenic Rivers within the Little Snake Field Office area.

Wild an Scenic River Eligible Segments: Not present

Wilderness Study Areas: Not present

Externally Proposed Wilderness Study Areas: Portions of the proposed action are within the Cold Spring Conservationists' Wilderness Proposal Area. (CWP). Colorado Instruction Memorandum (IM) No. 2004-12 rescinded all of Colorado Bureau of Land Management (BLM) IMs regarding the CWP. This included Colorado BLM review and notification policy regarding proposed actions within CWP areas. These areas are to be managed according the current Resource Management Plan and policies.

Notification Policy: Colorado Information Bulletin (IB) No. CO-2004-013 provides information on the notification process for CWP areas. Field Offices (FOs) will notify those interested parties who have requested notice for proposed actions within CWP areas by referring them to the Colorado BLM Internet National Environmental Policy Act Register at http://www.co.blm.gov/nepa/nepahome.htm.

Environmental Consequences: Not Applicable

Mitigative Measures: None

Name of specialist and date: Jim McBrayer – 6/6/07

NON-CRITICAL ELEMENTS

SOILS

Affected Environment: The primary soils that are mapped on the BLM lands within the treatment area are: Carbol-Miracle complex, 3 to 12 percent slopes; Carbol-Irigul-Rock outcrop complex, 3 to 25 percent slopes, very stony; Miracle-Coldspring complex, 3 to 12 percent slopes; Forsey-Libeg complex, 3 to 25 percent slopes, very stony; and Coldspring loam, Moist, 1 to 12 percent slopes.

These soils have developed primarily from residuum derived from sandstone and quartzite, as well as from relict fluvial deposits derived from sandstone and quartzite. Soil textures are primarily sandy loams and loams and water holding capacity is very low to low for most of the soils in the project area because of shallow to moderate soil depth. Soils derived from fluvial deposits contain cobbles in the soil profile which also limit the water holding capacity. Because of the soil depth and water holding capacity, some of the area on the BLM lands within the treatment area does not support big sagebrush and will not be targeted directly for the 2,4-D treatment. The Miracle, Coldspring and Libeg soils have sufficient water holding capacity and soil depth to support big sagebrush communities, and these soils would be the areas that are actually treated with 2,4-D herbicide. These soils also have an organic matter content of 2 to 4 percent which would support microbial populations for decomposition and herbicide degradation.

Environmental Consequences: Most of the herbicide applied will be intercepted by the dense sagebrush canopy, although some drip and residue carried by subsequent rain will reach the soil surface. The soils that support big sagebrush communities have sufficient soil depth, soil textures and organic matter content for the safe application of 2,4-D herbicide and the capability to contain the herbicide in the soil profile. The 2,4-D Ester herbicide has a relatively low leaching index, which will reduce the potential for leaching through the soil profile and migrating into ground water and surface water. Also the half-life of 2,4-D in soils is 10 days, and microbial decomposition of the chemical is the primary way it is degraded in the environment.

Modification of the plant community and opening the closed stands of big sagebrush will have a positive effect on the soil resource. Additional plant diversity especially in the herbaceous component will provide more roots in the upper soil horizons for holding soil in place and adding soil biomass for decomposition and nutrient cycling. These improvements to the plant community covering and supported by the soil resource will have positive effects on infiltration and would reduce runoff in the areas directly treated.

Selection of the No Action Alternative would not provide the positive impacts of providing a vegetative mosaic in the native plant community, and no benefits to the soil resource would be anticipated.

Mitigative Measures: None

Name of specialist and date: Ole Olsen 2/27/07

VEGETATION

Affected Environment: Although there are several different plant communities within the proposed treatment area, the target plant community is the sagebrush-grass community associated with the Mountain Loam and Dry Mountain Loam Ecological Sites. Plant species typical of this community are mountain big sagebrush (*Artemisia tridentata pauciflora*), mountain snowberry (*Symphoricarpos oreophilus*), buckwheat (*Eriogonum* spp.), Hood's phlox (*Phlox hoodii*), lupine (*Lupinus* spp.), slender wheatgrass (*Agropyron trachycaulum*), needle-and-thread (*Stipa comata*), elk sedge (*Carex geyeri*), and prairie junegrass (*Koeleria pyramidata*). This plant community covers approximately 8,000 acres, or 69%, of the project area. The majority of this community is late-seral with increasing shrub canopies and decreasing understories of grasses and forbs. Remaining communities are primarily composed of dry exposure (low, sparse shrub), juniper woodland, aspen woodland, and meadow plant communities.

Environmental Consequences: The Proposed Action would kill dicots (shrubs and forbs, but not grasses or sedges) in small, scattered patches throughout the targeted sagebrush-grass plant community. The June application would result in near total mortality of affected species by August. Essentially, the project would be introducing an artificial disturbance into the plant community spatially designed to mimic natural disturbance such as what would be provided by lightning-caused fire. At each treated site, the impact of the action of the 2,4-D on shrub species would be to cause each site to revert to an earlier seral state, which, in these communities, would be a more grass dominated site.

Herbicidal treatment of sagebrush would also result in the sagebrush "skeletons" remaining after mortality. This would have the effect of trapping snow and increasing available moisture within the treated areas than would occur with brush beating or burning. This would ensure that grass abundance would begin increasing relatively quickly and forb re-establishment would occur within a few years. This has been observed on other 2,4-D treatments at lower elevations in Moffat County, but monitoring will be needed to determine how quickly this occurs within the specific project area.

The Proposed Action would result in positive impacts to the overall plant community within the project area. Within the sagebrush dominated communities, the project would result in increased species diversity and abundance of the herbaceous component of the community and improve

age-class diversity of the shrub component.

The No Action Alternative would retain the existing late-seral, even-aged, and closing canopy sagebrush dominated communities. Understory species diversity and abundance would continue to decline and the target communities would be increasingly vulnerable to large-scale changes due to fire and/or disease.

Mitigative Measures: None

Name of specialist and date: Hunter Seim 2/26/07

WILDLIFE, AQUATIC

Affected Environment: Aquatic wildlife habitat is limited to wetland areas associated with natural springs. Aquatic invertebrates and northern leopard frogs are the species most likely to be present in these areas. There are no known fish species present within the project area.

Environmental Consequences: The herbicide 2,4-D is toxic to aquatic invertebrate species and slightly toxic to amphibians such as the northern leopard frog. This project will not target wetland areas for treatment with 2,4-D and should not receive any of the chemical. It is possible that chemical drift during application could reach wetlands and have an impact on aquatic species.

The No Action Alternative would not affect aquatic wildlife or their habitat.

Mitigative Measures: Wetlands should be flagged prior to application to reduce potential for accidental application to occur. Large wetlands would not likely need to be flagged in order to be avoided.

Name of specialist and date: Timothy Novotny 2/23/07

WILDLIFE, TERRESTRIAL

Affected Environment: The proposed project area provides habitat for pronghorn antelope, mule deer, elk and moose. The project area provides severe winter range for elk and moose. Elk use the project area for calving during the spring as well.

A variety of small mammals, songbirds and reptiles can be found within the project area as well.

Environmental Consequences: 2, 4-D has a low toxicity to birds and mammals. Treatment with 2, 4-D would not likely impact terrestrial wildlife directly. Effects to birds and mammals should be limited to changes in habitat.

Treatment of sagebrush habitats with 2, 4-D will result many small openings within dense stands of sagebrush. Small opening within these dense stands should produce more grasses and forbs which can be valuable for big game during the spring and summer. The loss of sagebrush in these areas should not have a negative impact on wintering big game because only 20 % of the sagebrush would be treated. This should leave sufficient sagebrush to meet the needs of wintering big game animals. Sagebrush also provides valuable cover for wildlife species. Many wildlife species rely on sagebrush hiding and thermal cover. Sufficient sagebrush will remain to provide cover to the areas wildlife that there should not be a negative impact.

The No Action Alternative would retain the existing late-seral, even-aged, and closing canopy sagebrush dominated communities. This alternative does not enhance wildlife habitats. Understory species diversity and abundance would continue to decline and the target communities would be increasingly vulnerable to large-scale changes due to fire and/or disease.

Mitigative Measures: None

Name of specialist and date: Timothy Novotny 2/23/07

OTHER NON-CRITICAL ELEMENTS: For the following elements, those brought forward for analysis will be formatted as shown above.

Non-Critical Element	NA or Not Present	Applicable or Present, No Impact	Applicable & Present & Brought Forward for Analysis
Fluid Minerals	JAM 2/23/07		
Forest Management			TMN 2/26//07
Hydrology/Ground		JAM 2/23/07	
Hydrology/Surface		OO 2/27/07 (Related analysis in Water Quality and Soils)	
Paleontology		JAM 2/23/07	
Range Management			HS 2/26/07
Realty Authorizations	MAA 03/01/07		
Recreation/Travel Mgmt		RS 2/23/07	
Socio-Economics		MAA 03/01/07	
Solid Minerals	JAM 2/23/07		
Visual Resources		JM 02/21/07	
Wild Horse & Burro Mgmt	TMN 2/26/07		

FOREST MANAGEMENT

Affected Environment: The project area contains several areas of aspens and junipers.

Environmental Consequences: Areas with aspens would not be targeted for treatment. There should be no impact on aspens as a result of this project. Areas with dense juniper would not be treated with this project. Areas that have encroaching juniper into sagebrush habitats could receive treatment. This would likely result in death of individual encroaching trees.

Mitigative Measures: None

Name of specialist and date: Timothy Novotny 2/26/07

RANGE MANAGEMENT

Affected Environment: The proposed project area is within the Limestone/Swede Pasture of the Cold Springs Allotment #04325. The Cold Springs Allotment is a "summer" use allotment, with livestock grazing occurring primarily between June and October. The Limestone/Swede Pasture lies at the eastern end of this allotment and serves as a transitional pasture between "winter" use on the Dry Creek Allotment to the east and the "summer" pastures to the west. Cattle are typically present on this pasture from early June through mid July and again during October. At present, there is a proposal being analyzed in EA CO-100-2006-055 to split this pasture into two through the construction of an easterly-westerly running fence. Once implemented, this fence would allow periodic rest for each half of the pasture.

Environmental Consequences: The Little Snake RMP requires that vegetation treatments be completely rested from livestock grazing for a minimum of two growing seasons following treatment. This is to ensure that treatment goals, which are usually to increase palatable forage species, are met. Because of the geography of the grazing system and the location of "summer" and "winter" use pastures relative to each other, there would be no realistic way for cattle to completely avoid being present in treated areas, but on-the-ground livestock management would ensure that livestock presence on treated areas is minimized.

The first year's treatment is proposed for the southern one-third of the project area. This area is remote from nearly all livestock water sources and stands the greatest chance of using active herding practices to keep livestock out of treated areas. If the proposed fence that would divide the Limestone/Swede Pasture can be constructed prior to the second year of treatment, greater control over livestock movement within the project area would be afforded. Nevertheless, the extent of the treatments and their scattered nature preclude any guarantee that livestock would not be present on treated sites. As long as livestock use of treated areas can be minimized, the more mesic nature of this higher elevation area, as well as the ability of sagebrush skeletons to trap additional moisture, should continue to favor strong re-establishment and spread of desirable grasses and forbs even with some livestock use.

Mitigative Measures: None

Name of specialist and date: Hunter Seim 2/26/07

CUMULATIVE IMPACTS SUMMARY:

The proposed project is located on top of Cold Springs Mountain. Cold Springs Mountain is located in a remote part of Moffat County, Colorado. Surface ownership of the project area is a mixture of private, Colorado State Land Board and the Bureau of Land Management lands. Few improved and unimproved roads cross through the project area. BLM roads 2004 and 2007 provide public motorized access to portions of the project area. Primary activities occurring in the project area include livestock grazing, big game hunting and antler gathering. An ongoing greater sage-grouse research project is being conducted within the project area. This area is primarily impacted by human activities during the fall hunting season when camping and vehicle traffic from hunters increase.

Historical sagebrush treatments have occurred within the project area (Attachment 4). The majority of the treatments occurred during the early 1970's. The most recent treatment within the project area occurred during 1973.

STANDARDS

PLANT AND ANIMAL COMMUNITY (animal) STANDARD:

The project area is currently capable of supporting healthy, diverse populations of wildlife. The proposed treatment should benefit a number of wildlife species by increasing habitat diversity within the project area. Some species may be negatively impacted by a reduction in habitat. Short term negative impacts could result during the year of treatment. These would be short term impacts that would be offset by longer periods of more productive habitat in the future. This standard is currently being met and will continue to be met in the future.

The No Action Alternative would avoid temporary negative impacts resulting from a loss of forbs killed by the herbicide. This alternative does not provide for long term habitat benefits to multiple wildlife species. Unless natural disturbances such as fire occur within the project area, this standard will not be met in the future.

Name of specialist and date: Timothy Novotny 2/23/07

SPECIAL STATUS, THREATENED AND ENDANGERED SPECIES (animal) STANDARD:

There are no threatened or endangered species or habitat for such species within the project area. The project area does contain breeding, nesting and brood rearing habitat for greater sage-grouse, a BLM special status species. The proposed treatment of sage-brush habitats will impact

greater sage-grouse within the project area. 2, 4-D will result in killing patches of sagebrush. This would benefit sage-grouse breeding habitat by creating areas more attractive for strutting sage-grouse. The Cold Springs Lek site will be avoided to prevent damaging the lek habitat. Three other lek sites may get treated with 2, 4-D because the removal of some sage-brush at these sites is not likely to degrade strutting habitat but may improve the habitat. Some nesting habitat will be lost due to this treatment. This would be a short term negative impact to sage-grouse. Some active nests may be affected during the year of the treatment. Brood rearing habitat will be improved throughout the project area as a result of this treatment. This will result in a benefit to greater sage-grouse. This standard is currently being met and will continue to be met in the future.

The No Action Alternative would avoid temporary negative impacts resulting from a loss of forbs killed by the herbicide. This alternative does not provide for long term habitat needs of greater sage-grouse. Unless natural disturbances such as fire occur within the project area, this standard will not be met in the future.

Name of specialist and date: Timothy Novotny 2/26/07

PLANT AND ANIMAL COMMUNITY (plant) STANDARD:

The Proposed Action would kill older, closing-canopy sagebrush in small patches throughout the project area. This would have the effect of increasing understory grass species in the first few years following treatment. Forbs would take longer to recover, but the reduction in sagebrush cover and abundance would result in a more diverse and abundant forb component once they do re-establish. Overall the Proposed Action would result in greater diversity, in both species and age-class, throughout the project area and, thus, meet this standard.

The No Action Alternative would result in the sagebrush dominated communities continuing towards old, even aged communities with decreasing understory species. Unless natural disturbances such as fire occur in this area over the next few years, this alternative would not meet this standard.

Name of specialist and date: Hunter Seim 2/26/07

SPECIAL STATUS, THREATENED AND ENDANGERED SPECIES (plant) STANDARD:

There are no federally listed threatened or endangered plant species within the proposed project area. For these types of plants, this standard does not apply. There was an occurrence on the BLM sensitive species narrow-leaf evening primrose located within the proposed project area in 1981. A survey for this species in June of 2006 did not locate any individuals of this species at the site, although habitat was still present. While, at present, there are no known occurrences of this plant, every effort would be made to ensure that the site of the previously identified

population is avoided and not sprayed. This would ensure that no other plant species within its habitat are harmed and that any individuals that may be present but missed in the 2006 survey are not harmed. As mitigation through avoidance is implemented, the Proposed Action would meet this standard for BLM sensitive plants.

Name of specialist and date: Hunter Seim 2/26/07

RIPARIAN SYSTEMS STANDARD:

Riparian systems within the project area are currently meeting the riparian system standard. These areas will be avoided during treatment but it is possible that herbicide drift could reach vegetation within these systems. This would likely result in mortality of affected plants. It is likely that any riparian vegetation affected by the herbicide would be recolonized quickly. There may be a short term negative impact to small portions of riparian systems. These short term impacts will not prevent this standard from being met in the future.

The No Action Alternative will not impact riparian systems. This standard would continue to be met in the future.

Name of specialist and date: Timothy Novotny 2/23/07

WATER QUALITY STANDARD:

The water quality standard for healthy rangelands will be met with implementation of either the Proposed Action or No Action Alternatives. A 100-foot buffer area to ponds, streams and wetlands will be required for the aerial application of herbicide to reduce the potential of contamination. Runoff from snowmelt and summer storms will drain from the project area on Cold Springs Mountain into ephemeral and intermittent stream segments that are presently supporting designated uses. No stream segments are listed as impaired.

Name of specialist and date: Ole Olsen 2/27/07

UPLAND SOILS STANDARD:

The proposed action will meet the upland health standard for healthy rangelands. The small areas that will be treated with applications of 2, 4-D herbicide will kill the dense sagebrush canopy and promote production of suppressed understory plants and allow colonization of new plants. Deeper snowpack on the ground surface could be expected where the sagebrush canopy is removed, especially earlier in the winter season which may help to reduce the overall frost layer that develops throughout the winter. Increased infiltration of snowpack water could increase water available for plant growth and decomposition. Overall upland soil health will be improved in the project area with the increased diversity of plants and plant structure and this could increase soil moisture and nutrient cycling with benefits to other soil properties.

The upland health standard for healthy rangelands would continue to be met under the No Action Alternative, but the opportunity to improve soil health on 20 percent of the area targeted for treatment would not occur.

Name of specialist and date: Ole Olsen 2/27/07

PERSONS/AGENCIES CONSULTED: Uintah and Ouray Tribal Council, Colorado Native American Commission, Colorado State Historic Preservation Office.

MITIGATION MEASURES:

COMPLIANCE PLAN(S):

ATTACHMENTS:

SIGNATURE OF PREPARER:

DATE SIGNED:

SIGNATURE OF ENVIRONMENTAL REVIEWER:

DATE SIGNED:

Finding of No Significant Impact

The environmental assessment, analyzing the environmental effects of the proposed action, has been reviewed. With the implementation of the attached mitigation measures there is a finding of no significant impact on the human environment. Therefore, an environmental impact statement is not necessary to further analyze the environmental effects of the proposed action.

1. Beneficial, adverse, direct, indirect, and cumulative environmental impacts have been disclosed in the EA. Analysis indicated no significant impacts on society as a whole, the affected region, the affected interests or the locality. The physical and biological effects are limited to the Little Snake Resource Area and adjacent land.

2. Public health and safety would not be adversely impacted. There are no known or anticipated concerns with project waste or hazardous materials.

3. There would be no adverse impacts to regional or local air quality, prime or unique farmlands, known paleontological resources on public land within the area, wetlands, floodplain, areas with unique characteristics, ecologically critical areas or designated Areas of Critical Environmental Concern.

4. There are no highly controversial effects on the environment.

5. There are no effects that are highly uncertain or involve unique or unknown risk. Sufficient information on risk is available based on information in the EA and other past actions of a similar nature.

6. This alternative does not set a precedent for other actions that may be implemented in the future to meet the goals and objectives of adopted Federal, State or local natural resource related plans, policies or programs.

7. No cumulative impacts related to other actions that would have a significant adverse impact were identified or are anticipated.

8. Based on previous and ongoing cultural surveys, and through mitigation by avoidance, no adverse impacts to cultural resources were identified or anticipated. There are no known American Indian religious concerns or persons or groups who might be disproportionately and adversely affected as anticipated by the Environmental Justice Policy.

9. No adverse impacts to any threatened or endangered species or their habitat that was determined to be critical under the Endangered Species Act were identified. If, at a future time, there could be the potential for adverse impacts, treatments would be modified or mitigated not to have an adverse effect or new analysis would be conducted.

10. This alternative is in compliance with relevant Federal, State, and local laws, regulations, and requirements for the protection of the environment.

SIGNATURE OF AUTHORIZED OFFICIAL:

DATE SIGNED: