

# Lower Nowater Allotment Brome Treatment

*Location:* Washakie County, Wyoming; Lower Nowater Allotment # 00015; Townships 44 N, Range 92W Sections 26, 27, 34 & 35 and Township 45N, Range 92W Sections 1-3, 10-12, 14 and 15.



Worland Field Office, Wind River/Bighorn Basin District, Wyoming

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**BLM/WY/PL-11/010+1020**

**DOI-BLM-R010-2011-0022-EA (NON Epl)**

**Lower Nowater Allotment Brome Treatment**  
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**CHAPTER 1**

**INTRODUCTION AND NEED FOR THE PROPOSED ACTION**

**INTRODUCTION**

The Worland, Wyoming Bureau of Land Management proposes to treat approximately 1600 acres of the Lower Nowater allotment with an aerial application of the pre-emergent herbicide Plateau® (imazapic) to decrease the seed germination and plant establishment of cheatgrass (*Bromus tectorum* L.) and field brome (*Bromus arvensis* L.). If the project is approved, Plateau® would be applied at a rate of four ounces per acre in ten gallons of water per acre in the late summer or early autumn of 2011.

**PURPOSE AND NEED FOR THE PROPOSED ACTION**

The purpose of the treatment is to inhibit cheatgrass and common brome seed germination. These bromes are erect winter and/or spring annual grasses that are highly competitive with native perennial vegetation and have the ability to form a mono-culture. Little resource value is derived from these annual plant populations as they have a minimal root system that provides diminutive soil protection, provide little to no foraging value to livestock and/or wildlife once they produce seeds with protruding awns early in the spring, and are highly flammable once cured. A decrease in brome seed germination and plant establishment should correlate to reduced wildfire flammability and spread, decreased competition among brome plants and native perennial grasses and forbs for space, light, water, and soil nutrients, and decreased soil erosion potential.

The need for treatment is based upon a combination of wildlife, livestock grazing, native plant, and wildfire spread reduction requirements. The Lower Nowater allotment has been subjected to wildfires within the past two decades. Eighty six percent (4243 acres) of the allotment burned in the East Black Mountain wildfire in 1996. Of these acres, another two percent (90 acres) reburned in the Pinky wildfire of 2004. Bromes thrive following wildfire and their density within the burned areas is greater than that found in the unburned areas: Within the southern portion of the allotment, approximately 13 percent (570 acres) is brome monoculture. Three hundred seventy two acres of the southern portion of the allotment were aerially treated with Round Up® (glyphosate) at a rate of 16 ounces per acre in three gallons per acre of water on May 6, 2000. This treatment was short lived because Round Up® only kills growing bromes and does not have pre-emergent properties that inhibit seed germination. Two hundred thirty three acres of the allotment were drill seeded in 1997 with perennial grass and Wyoming big sagebrush (*Artemisia tridentata* Nutt. ssp. *wyomingensis* Beetle & Young) seed. Approximately 50 acres of that seeded in the northern portion of the allotment had a good establishment of native vegetation, but compounding the brome density in the area, grasshopper outbreaks have reduced the growth, reproduction, and composition of the native perennial grasses and shrubs. Most recently, a grasshopper outbreak was treated in June 2010, but outbreaks in future years will have negative effects on native grasses and forbs that are already stressed from competition with bromes. By reducing brome seed germination, its density and distribution would be reduced over one to four years and a correlative decrease in wildfire spread and increase of wildlife and livestock grazing opportunities should be seen.

Fire Regime Condition Class (FRCC) is a tool that categorizes a landscape's potential degree of departure from its reference condition. It is a measure of ecological departure to describe resource conditions. While the concept is most widely used in the fire, fuels, and forestry programs, it is also consistent with the concepts of land health. The FRCC system uses two sets of descriptors that, when combined, can be used

to diagnose the fire regime condition class. The first set of factors measures vegetation composition and structure changes. The second set measures possible changes in fire frequency and severity. FRCC classes are broken down into three categories: 1, 2, and 3. Landscapes determined to fall within the category of FRCC 1 contain vegetation, fuels, and disturbances characteristic of the natural regime; FRCC 2 landscapes are those that are moderately departed from the natural regime; and FRCC 3 landscapes reflect vegetation, fuels, and disturbances that are uncharacteristic of the natural regime. The entire landscape of allotment #00015 has an FRCC of 3, and the portion of the allotment chosen to be treated by the BLM in 2011 has an FRCC of 2, indicating it has less altered vegetation and fire regime from that of the historical. Treating the portion of the allotment that has a lower FRCC is wise because it would assist in maintaining or improving the better condition of that portion. If wildfire was to start on the treated portion, or move to the treated portion from another area, loss of perennial vegetation would be less and fire would not carry as rapidly because there would be more bare ground between perennial plants from less brome canopy. Over one to four years perennial grasses would establish, decreasing the bare ground with native vegetation that has greater survivorship following wildfire.

Objectives of the project would be:

To reduce brome density and distribution by 75 percent within the treated area one year post treatment

Increase the density, frequency, and seed set of native perennial grasses and forbs by 50 percent three years post treatment

Decrease the FRCC of the entire allotment from 3 to 2 within five years.

### **CONFORMANCE WITH BLM LAND USE PLAN(S)**

The proposed action conforms to the Record of Decision and Approved Resource Management Plan for the Washakie Resource Area dated 1988, which is under revision and consolidation into the Bighorn Basin Resource Management Plan (expected completion in 2012.) The decisions in the Washakie Resource Management Plan provide general management direction and allocation of uses and resources on the public lands in the area. The proposed action falls within alternatives analyzed in the Draft Bighorn Basin RMP revision.

### **RELATIONSHIPS TO STATUTES, REGULATIONS AND OTHER PLANS**

*The National Environmental Policy Act, 1969.* This act requires the preparation of Environmental Impact Statements (EIS) for federal projects that may have a significant effect on the environment and systematic, interdisciplinary planning to ensure the integrated use of natural and social sciences and environmental design arts in making decisions about major federal actions that may have a significant effect on the environment.

*Federal Land Policy and Management Act, 1976.* Directs the BLM to “take any action necessary to prevent unnecessary and undue degradation of public land”.

*Public Rangelands Improvement Act, 1978.* Requires the BLM to manage, maintain, and improve the condition of the public rangelands so that they become as productive as feasible.

*Federal Noxious Weed Act of 1974, as amended by Sec. 15, Management of Undesirable Plants on Federal Lands, 1990.* This Act requires that each Federal Agency designate a lead office and person trained in the management of undesirable plants; establish and fund an undesirable plant management program; complete and implement cooperative agreements with State Agencies; and establish integrated management systems to control undesirable plant species.

*Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for the Public Lands Administered by the Bureau of Land Management in the State of Wyoming*, 1997. The objectives of the rangeland health regulations are to promote healthy sustainable rangeland ecosystems; accelerate restoration and improvement of public rangelands to properly functioning conditions; and provide for the sustainability of the western livestock industry and communities that are dependent upon productive, healthy public rangelands.

*Executive Order 13112, Invasive Species*, 1999. This order directs federal agencies to prevent the introduction of invasive species and provide for their control, and to minimize the economic, ecological, and human health impacts that invasive species cause.

*H. R. 1904- The Healthy Forest Restoration Act, 2003*. An act to conduct hazardous fuels reduction projects on National Forest System lands and Bureau of Land Management lands aimed at protecting communities, watersheds, and certain other at-risk lands from catastrophic wildfire, to enhance efforts to protect watersheds and address threats to forest and rangeland health, including catastrophic wildfire, across the landscape, and for other purposes.

*WY010-EA04-34, 2004*. Worland and Cody Field Office BLM-Management Plan for Invasive Weeds in the Bighorn Basin of Wyoming FONSI.

*Vegetation Treatments in 17 Western States, Programmatic Report, BLM, 2007*. This document addresses the general effects on the environment of using non-herbicide treatment methods, including mechanical, manual, and biological control methods.

*Vegetation Treatments Using Herbicides in 17 Western States, Programmatic Environmental Impact Statement, Record of Decision, BLM, 2007*. The Record of Decision approved the use of 18 herbicide active ingredients and a scientific protocol to guide the analytical methodology for consideration of the use or non-use of herbicides by the BLM.

## **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.

Prescribed fire treatment in spring or early winter was considered, but eliminated from detailed analysis because prescribed fire would eliminate only the current year's standing crop and could promote the germination and establishment of brome seed found in the seed bank.

Mechanical seeding treatment to the brome infested areas was also briefly considered, but seeding would not eliminate the bromes or reduce their seed set. Seed drilling with soil disturbance could increase brome seed germination from the seed bank that is present in infested areas.

### **PROPOSED ACTION**

The proposed treatment area is found within the Worland Field Office Bureau of Land Management allotment #00015, named the Lower Nowater allotment, in Township 44 N, Range 92W, Sections 26, 27, 34 and 35 and Township 45N, Range 92W, Sections 1-3, 10-12, 14, and 15. (See Appendix 2, Map 1)

The proposed treatment is aerial Plateau® pre-emergent herbicide application, by a contractor using helicopter bucket, of four ounces per acre mixed in up to ten gallons of water per acre onto approximately 1600 acres of the allotment.

Imazapic kills plants by inhibiting the activity of the enzyme acetohydroxy acid synthase (ALS). ALS catalyzes the production of three branched-chain aliphatic amino acids, valine, leucine, and isoleucine, required for protein synthesis and cell growth. Only plants have ALS and produce these three amino acids, therefore Plateau® is of low toxicity to insects and vertebrate animals. As a pre-emergent herbicide, seeds susceptible to the herbicide fail to germinate and/or seedlings fail to establish. Many native grasses are tolerant to Plateau® (see Appendix 3) and previous applications of the herbicide by the BLM in the Worland Field Office were highly successful in decreasing brome establishment resulting in benefit to native perennial vegetation. The chemical properties of Plateau® are listed below in Table 1.

**Table 1. Properties of Plateau® (The Nature Conservancy, 2005)**

<b>Herbicide</b>	<b>Water Solubility mg/L</b>	<b>Average Half-Life in water days</b>	<b>Average Half-Life in soil days</b>	<b>Potential for Surface Runoff</b>	<b>Potential for Leaching</b>	<b>Oral LD50 Mammals Rat model mg/kg</b>	<b>LD50 Birds Bobwhite quail model mg/kg</b>	<b>LC50 Fish Bluegill sunfish model mg/l</b>	<b>Dermal LD50 Mammals Rabbit model mg/kg</b>
Plateau®	2,200	2	120	Low	Low	>5,000	>5,000	>100	>5,000

Plateau® would be applied using the following best management practices and mitigation:

1. The applicator(s) would be State certified/licensed.
2. The applicator(s) would be required to read and understand the label and Material Data Safety Sheet for Plateau®.
3. Plateau® application would be in accordance to label requirements.
4. Applicator(s) would be required to wear personal protective equipment (PPE) as required on the Plateau® label.
5. Plateau® would be secured (under lock and key) at all times and transported according to safety requirements.
6. Plateau® would not be applied to water: a 200 foot buffer would be in place between water and application areas.
7. Plateau® would not be applied if local wind speed is > six mph and/or when there is a threat of rain or snow.
8. Daily pesticide application records (PAR) would be kept, the PAR would be maintained in the project file, and a comprehensive project file would be maintained.
9. Treatment areas would be posted with information signs to inform the public that Plateau® application is occurring.
10. The permittee would be notified of the date of application.

The permittee would have livestock graze the area in June, July, and/or August prior to treatment to reduce the amount of standing biomass and trampled brome litter, which would increase soil penetration of the pre-emergent herbicide and water mix. The proposed treatment area would be rested from early season grazing for two years following treatment. Three monitoring transects would be installed prior to treatment within the proposed treatment area and three monitoring transects placed in areas of similar soil type, precipitation, and livestock grazing that will not receive treatment. Line point intercept data of all

the monitoring transects would be collected in the late spring of the treatment year then again one and three years following treatment. FRCC of the treated area would be recalculated in August one, two, and three years following treatment.

## **NO ACTION**

The No Action Alternative would be no pre-emergent herbicide application. No livestock grazing changes would be made by the permittee. No monitoring transects would be installed.

## **CHAPTER 3 AFFECTED ENVIRONMENT**

### **INTRODUCTION AND GENERAL SETTING**

The affected environment was considered and analyzed by an interdisciplinary team. Appendix 1 indicates which resources of concern are either not present in the project area or would not be impacted to a degree that requires detailed analysis. Resources which could be impacted to a level requiring further analysis are described in this chapter. Impacts on the identified resources are analyzed in Chapter 4.

The proposed treatment area is located in Lower Nowater allotment, #00015, within Washakie County, Wyoming. The treatment area has sandy to sandy-loam soils, receives five to nine inches of precipitation annually, and elevation ranges from 4350 to 4600 feet. Approximately five miles of Nowater Creek flows from the northwest to the southeast of the allotment. Pinky, Pixley, and Seaman Hill reservoirs are located within the allotment boundary. One permanently abandoned oil well, that was plugged and marked with a surface marker in 1931, is found within the allotment. There are no water wells on the allotment.

#### **Resource A: Fish and Wildlife Excluding USFW Designated Species**

The proposed treatment area provides habitat for numerous wildlife species on both a seasonal and yearlong basis, including numerous passerines, small mammals and predators, pronghorn antelope, mule deer, chukar and gray partridge, sage grouse, and raptors. These species use the sage brush grassland area for foraging, breeding, nesting, and brood-rearing activities. The proposed project area is designated as crucial winter range and yearlong habitat for both pronghorn antelope and mule deer, and is entirely within a sage grouse core breeding and nesting area. The proposed treatment area also lies within the two-mile buffer zone of two active sage grouse leks. A red-tailed hawk nest site is located approximately 900 feet south of the proposed treatment area boundary. The extreme northern tip of the proposed treatment area contains habitat that has been designated as suitable for mountain plover by the Wyoming Department of Game & Fish, although no mountain plovers have been observed there. No threatened or endangered wildlife species have been observed or recorded using the habitat within the proposed treatment area, with the exception of the greater sage grouse, a BLM designated sensitive species which has recently been designated as a warranted but precluded species by the U.S. Fish & Wildlife Service.

#### **Resource B: Fuels/Fire Management**

At present, 570 acres in the southern portion of the allotment are vegetated as brome monoculture. The northern portion of the allotment, that had a minimal number of acres burned in the 1996 East Black Mountain wildfire, has less brome cover and a greater amount of native perennial vegetation. The landscape Fire Regime Condition Class (FRCC) of the allotment, an indicator of its vegetation and fire history, is 3, but the proposed treatment area has a FRCC of 2. Located within the proposed treatment

area are 188 acres of land that are designated as habitat in which to prioritize fire suppression activities for the benefit of sage grouse (See Appendix 4, Map 2).

**Resource C:** Hydrologic Conditions/ Water Resources/Quality (drinking/surface/ground)/  
Wetlands/Riparian Zones /Floodplains Zones /Floodplains

Surface Water

The proposed project is located in the Nowater Creek Zimmerman Draw watershed identified by the US Geologic Survey (USGS) as a Level #6 Hydrologic Unit (HUC), HUC# 100800070804, as listed below in Table 2.

**Table 2**

<b>Watershed (HUC) Level #6</b>	<b>Acres (mi<sup>2</sup>)</b>	<b>Acres (mi<sup>2</sup>) (Project Area)</b>	<b>% of Acres of Watershed in the Project Area</b>
Nowater Creek-Zimmerman Draw #100800070804	49,448 (77.3)	1,569 (2.45)	3.2

The Nowater Creek watershed is located in the upper Bighorn level #5 watershed and, when flowing, confluence with the Bighorn River 12 miles to the northwest. The proposed project is located in a highly erosive area with high amounts of runoff and very low permeability due to very fine grained geologic outcrops of primarily Tertiary aged- outcrops of the Willwood and Fort Union Formations. The overall slopes are gentle, less than five percent, with some slopes at the watershed divide around 10 percent, and some areas with steeper slopes occurring with badland- type topography. This watershed has a high drainage density that is indicative in low precipitation areas that are common throughout the Bighorn Basin. This watershed transmits very large amounts of sediment and has very turbid water during some times of the year.

The larger desert type drainages in the allotment have ephemeral or intermittent flow in the channel ten to 80 percent of the year, depending on climatic precipitation received. Many of the smaller drainages are considered ephemeral, with flow in the channel less than ten percent of the year, as determined by Hedman,1982 from a thirty year average.

Groundwater

The proposed project area is located in the lower Tertiary Fort Union and Willwood Aquifer. These are wide-spread and primarily are composed of sandstone beds inter-bedded with fine grained rocks such as shale, claystone, mudstone, or siltstone. The transmissivity of the aquifer is generally low with fair to poor water quality that is produced under unconfined conditions. There are no water wells within a one mile buffer of the project area.

Water Quality

The nearest available water quality data that is representative of the project area is USGS station 06267400 located at the mouth of the East Fork of Nowater Creek in T 46N R 92W Sec 31. This station has an historic record of 45 different samples taken between 1977 and 1981. These samples were taken during the months of March through July and were analyzed for conductance, turbidity, a full suite of metals, and hardness. A full detailed table can be seen at <http://waterdata.usgs.gov/06267400> (USGS, 2009. National Water Information Web Interface).The data indicate very large amounts of sediment are naturally transported through the watershed, especially following large flow rainstorm events. The amount of suspended sediment ranged from 18 tons per day in July, 1981 to 509,000 tons per day following a high flow event in April, 1978. The drainage is considered by the Wyoming Department of

Environmental Quality as a type 3B stream that supports aquatic insect life during portions of the year but does not support fisheries.

The USGS also conducted a region wide national water quality assessment program in 2001 to provide water quality information about the impacts of insecticides and herbicides in the Bighorn Basin (USGS,2004. Water Quality in the Yellowstone River Basin, Wyoming Montana, and North Dakota 199-2001. Circular 1234 U.S Department of Interior Available at <http://pubs.usgs.gov/circ/2004/1234/#pdf>). Several compounds were tested at various locations throughout the basin. There were no herbicides found in the lower Tertiary aquifers near the project area. Nowater Creek is listed as impaired for fecal Coliform throughout the segment.

#### Riparian/Wetlands/Floodplains/Floodplain Zones

There is a desert type riparian community along the floodplain of the Nowater Creek. This generally consists of varying species of Cottonwood (*Populus deltoides* Bartr. ex Marsh. ssp. *monilifera* (Ait.) Eckenwalder) trees with little to no herbaceous riparian vegetation in or around the channel. Lack of herbaceous riparian vegetation is due to the large sediment load transmitted by the stream and lack of sufficient soil water available throughout the year.

#### **Resource D:** Rangeland Health Standards

The Lower Nowater allotment, #00015, was reviewed for Conformance in 2000 with the Wyoming Standards for Healthy Rangelands. The allotment was determined to be in conformance with the Standards, with stable soils and vegetation largely appropriate for the ecological sites present, particularly in the unburned areas. However, it was noted in the evaluation that the areas of the allotment that had burned were heavily invaded by cheatgrass, and that future cheatgrass treatment should be undertaken to improve resource conditions and fully achieve Conformance with the Wyoming Standards for Healthy Rangelands.

In addition to a ubiquitous brome cover, native plant taxa found on the allotment include: bluebunch wheat grass (*Pseudoroegneria spicata* (Pursh) A. Löve ssp. *spicata*), needle and thread grass (*Hesperostipa comata* (Trin. & Rupr.) Barkworth ssp. *comata*), Sandberg bluegrass (*Poa secunda* (L.) Pres), western wheatgrass (*Pascopyrum smithii* (Rydb.) A. Löve), blue grama (*Bouteloua gracilis* (Willd. ex Kunth) Lag. ex Griffiths), common yarrow (*Achillea millefolium* L.), common sunflower (*Helianthus annuus* L.), northwestern Indian paintbrush (*Castilleja angustifolia* (Nutt.) G. Don), woody aster (*Xylorhiza glabriuscula* Nutt.), spiny phlox (*Phlox hoodii* Richards.), broom snakeweed (*Gutierrezia sarothrae* (Pursh) Britton & Rusby), Oregon milkvetch (*Astragalus oregonus* Nutt.), Gardner saltbush (*Atriplex gardneri* (Moq.) D. Dietr.), and desert madwort (*Alyssum alyssoides* (L.) L.).

There are also notes of Wyoming big sagebrush and yellow rabbitbrush (*Chrysothamnus viscidiflorus* (Hook.) Nutt.) dispersed throughout the allotment but with the greatest density in the northern portion that is the proposed treatment area. When assessed in June 2010, seed production was average for the taxa and seedlings of Oregon milkvetch, broom snakeweed, and western wheatgrass were abundant.

Designated noxious weeds have been treated within the allotment, in the immediate vicinity of the three reservoirs and Nowater Creek. These weeds are Canada thistle (*Cirsium vulgare* (Savi) Ten.), Russian

knapweed (*Acroptilon repens* (L.) DC.), Russian olive (*Elaeagnus angustifolia* L.), and saltcedar (*Tamarix* sp.).

No threatened, endangered, or candidate plant species are found within the proposed project area.

#### **Resource E: Recreation and Visual Resource Management (VRM)**

The proposed project area is within BLM-administered public lands managed as an extensive recreation management area (ERMA), where recreation management addresses public health and safety, use and user conflicts, and resource protection. The natural recreational resources contained within the project area offer dry upland and dispersed recreational opportunities such as hunting, hiking, driving for pleasure, sightseeing, wildlife viewing, and group / social gatherings such as picnicking and other miscellaneous leisure activities. This area offers a middle country recreation setting character condition, with minimal administrative controls present on the ground. The Nowater OHV Trail System is located within proximity north of the proposed project area. The trail system was planned and developed cooperatively between the Worland/Tensleep Chamber of Commerce and the BLM to provide for additional motorized touring opportunities for Washakie County. The project was funded by the Wyoming State Trails Program. Locals and visitors from outside of the Worland Field Office enjoy the trail system, as well as other recreationists, primarily hunters. Travel and transportation management limits motorized use to existing roads and trails.

As mandated by FLPMA, Section 202, the BLM has been maintaining wilderness characteristics inventory on all BLM-administered public lands, and found that the project area contains no wilderness characteristics.

The area is managed as a Visual Resource Management (VRM) Class IV. The objective of this class is to provide for management activities which require major modifications of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements of form, line, color, and texture.

#### **Resource F: Soil**

Allotment #00015 has a variety of soils that formed either from alluvium or shale. The alluvium formed series of Forkwood and Fruita are deep and well drained with slopes less than 10 percent. These series are found on fans and in valleys of the allotment. There is moderate soil erosion potential for these soils and medium runoff following precipitation events and with spring snow melts. Surface textures of these series are fine sandy loams with native vegetation communities of bunchgrasses, rhizomatous wheatgrasses, and big sagebrushes. The shale formed series include Muff-Neiber fine sandy loams and rock outcrop associations. The rock outcrop association is exposures of shale and sandstone. Runoff on these soil types is rapid and the hazard of water erosion is moderate. The ecological site descriptions for these soil types are 032XY122WY-Loamy (Ly) 5-9" Big Horn Basin Precipitation Zone and 032XY144WY-Saline Upland (SU) 5-9" Big Horn Basin Precipitation Zone.

## **CHAPTER 4 ENVIRONMENTAL IMPACTS**

### **DIRECT AND INDIRECT IMPACTS**

#### **PROPOSED ACTION**

This section analyzes the impacts of the proposed action to those potentially impacting resources described in the affected environment Chapter 3, above.

#### **Resource A: Fish and Wildlife Excluding USFW Designated Species**

Some wildlife, particularly pronghorn antelope and mule deer, will likely be displaced from the proposed treatment area for a short time during project implementation and then return once human project activity is completed. Most young of the year passerines will be fledged prior to the time of the proposed treatment, and because of the treatment timing and short duration, any potential disturbance to nesting passerines and/or raptors is not expected to negatively impact foraging or nesting activity. Because the proposed action calls for decreasing brome seedling establishment, the treatment is predicted to result in a grass-forb vegetative community that will provide greater nesting cover and foraging opportunity for passerines and greater sage grouse.

For long-term impacts, most wildlife species inhabiting the proposed treatment area are expected to benefit from a reduction in brome. Brome generally has limited forage value, competes with native perennial grasses that provide taller and more robust cover for nesting sites, and poses a continued threat of wildfire spread.

The direct, indirect, and cumulative impacts to animals, including insects, from Plateau® application is expected to be negligible. Since Plateau® does not bioaccumulate and degrades through microbe metabolism in soil and photodegradation in water, the cumulative effects of the proposed use of herbicides would be insignificant. In addition, Plateau® kills plants by a mode of action that is unique to plants, and the toxic effects to animals, especially for dilute solutions, is relatively low or negligible.

#### **Resource B: Fuels/Fire Management**

The dominance of non-native annual bromes creates a situation of increased fire hazard by providing a flashy fuel source that can alter the fire frequency within the landscape. As evidenced from the recent fire history of allotment #00015, potential for loss of more Wyoming big sagebrush and native vegetation is great if more wildfires start on or move into it. Once a rangeland is dominated by bromes and the remaining native vegetation (i.e., Wyoming big sagebrush) burns, bromes have the opportunity to form a monoculture that readily burns in a shortened time interval. To date, 570 acres of the southern portion of allotment #00015 are brome monoculture. Plateau® pre-emergent herbicide has proved to be successful in reducing brome seedling emergence and would decrease the flammability and fire spread of the treated acres for one to four years.

#### **Resource C: Hydrologic Conditions/ Water Resources/Quality (drinking/surface/ground)/ Wetlands/Riparian Zones /Floodplains Zones**

##### **Surface Water**

The treatment would be applied as outlined above in chapter 2. The 200 foot buffer between Nowater Creek and the other reservoirs and the treated area would mitigate any effects of Plateau® in the surface water, though negative impacts are unlikely. The treatment would occur in the summer or early fall when

there is little or no flow in Nowater Creek. There would be a slight increase in surface runoff in the upland areas where vegetation is reduced until proper perennial vegetation reestablishes. The bromes are shallow rooted plants that provide some protection from erosion, but they do not provide for adequate infiltration to reduce surface runoff. As the invading brome species risk is reduced the overall native plant community, in relation to surface water runoff, would be enhanced.

#### Ground Water

There would be no significant impacts to ground water resources. There are no water wells in the treatment area or within a one mile buffer.

#### Riparian/Floodplains/Floodplains Zones

With a 200 foot buffer between treatment area and surface waters, there will be no significant impacts to the riparian community. The chemical will be applied using best management practices, according to the label, and has been approved by the BLM for use.

#### **Resource D:** Rangeland Health Standards

Reducing cheatgrass seed germination and plant establishment should result in decreased competition between cheatgrass and native perennial grasses and forbs for space, light, water, and soil nutrients. This would result in an increase in the density, frequency, and seed set of native perennial grasses and forbs, particularly in the burned areas. Forage availability for livestock and wildlife would improve. The allotment would continue to be in Conformance with the Wyoming Standards for Healthy Rangelands.

#### **Resource E:** Recreation and VRM

Prescribed weed treatment actions will normally cause short term impacts such as visitor displacement due to the management activities. The desired window for treatment activities will be during the latter antelope archery season (antelope hunt area 114), and opening deer archery season (deer hunt area 164). The treatment activities will temporarily disrupt hunting activities within the immediate treatment areas, and will last approximately 2 days. Immediately after the application, the chemicals may be temporarily observed by hunters stalking big game through the treated areas. Because of the relatively small size of the treatment area as compared to the antelope and deer hunt areas, the proposed action cause minimal short term impacts to recreation. Long term impacts from the proposed action will indirectly benefit recreational opportunities by enhancing the settings and supplement recreational values by enhancing the vegetative stands and wildlife habitat.

Treatment activities may temporarily interfere with archery hunting activities. Schedule treatment activities during non-peak hunting times, such as during the work week when there will be fewer hunters present in the area.

The proposed action is within Class IV objectives and will not impact VRM. Aerial application will not introduce any contrasting elements of form, line, color, or texture against the surrounding natural elements.

#### **Resource F:** Soil

The vegetation community of allotment #00015 has an intact, deep rooted perennial vegetation component that provides adequate cover to mitigate the erosion potential for the soil types present. However, the increase in shallow rooted annual bromes, and the potential for wildfire because of their presence, reduces the erosion potential mitigating effect. A reduction in bromes, with a consequent increase in native perennial vegetation, would benefit the soil resource of the proposed project area.

## **NO ACTION**

### **Resource A: Fish and Wildlife Excluding USFW Designated Species**

No action would not meet the need for proposed action. There would be no environmental impacts from the proposed action because it would be denied.

Habitat quality would be reduced for all animal species that use the proposed project.

### **Resource B: Fuels/Fire Management**

No action would not meet the need for proposed action. There would be no environmental impacts from the proposed action because it would be denied.

If no treatment is applied, brome persistence and density would increase, creating a further loss of native vegetation, increasing areas of brome monoculture, and maintaining the flammability and fire spread that is present. FRCC of the proposed treatment area would eventually decrease to 3.

### **Resource C: Hydrologic Conditions/ Water Resources/Quality (drinking/surface/ground)/ Wetlands/Riparian Zones /Floodplains Zones**

#### Surface Water

No action would not meet the need for proposed action. There would be no environmental impacts from the proposed action because it would be denied. If no treatment is applied, the continued expansion of brome into the uplands will decrease the overall infiltration rates of the area and produce high amounts of surface erosion along drainages and within the channels. This will lead to higher sediment loads and increased turbidity beyond natural conditions in surface waters downstream of the allotment.

#### Ground Water

No action would not meet the need for proposed action. There would be no environmental impacts from the proposed action because it would be denied and there would be no significant change in the ground water resources as a result of no action.

#### Riparian/Floodplains/Floodplains Zones

There would be no significant change beyond current conditions to riparian resources as a result of no action.

### **Resource D: Rangeland Health Standards**

No action would not meet the need for proposed action. There would be no environmental impacts from the proposed action because it would be denied. Under this alternative, competition between cheatgrass and native perennial grasses and forbs for space, light, water, and soil nutrients would continue to increase. The density, frequency, and seed set of native perennial grasses and forbs would likely decline as cheatgrass density increased. Increased amounts of cheatgrass, along with the increased likelihood of another large wildfire, could result in the complete loss of the remaining native perennial vegetation in favor of a cheatgrass monoculture. Under this scenario, the Lower Nowater Allotment would no longer be in Conformance with the Wyoming Standards for Healthy Rangelands.

### **Resource E: Recreation and VRM**

No action would not meet the need for proposed action. There would be no environmental impacts from the proposed action because it would be denied. In the short term, the no action alternative will not

impact recreation. However, long term impacts from the no action alternative will indirectly impact recreation. Neglecting to appropriately manage the weeds will impact negatively recreational settings and supplemental values, most notably wildlife, which will interfere with desired activities, opportunities, experiences, and beneficial outcomes.

The no action alternative will not impact the VRM objectives specified in a Class IV, nor will the no action impact the scenic qualities in the area. The natural elements to the casual observer, whether they are comprised of an undesired vegetative component, will remain to be natural and consist of the same elements as that of a desired vegetative community.

#### **Resource F: Soil**

No action would not meet the need for proposed action. There would be no environmental impacts from the proposed action because it would be denied. Without the use of herbicides, though, it is likely that brome plants would continue to spread rapidly, resulting in dramatic and potentially irreversible effects on soil quality through changes in organic matter content, diversity and abundance of soil organisms, and nutrient and water availability. Brome can outcompete native vegetation and lead to widespread incidence of fire and other conditions that can result in increased rates of soil erosion and loss of soil productivity.

### **CUMULATIVE IMPACTS**

Cumulative impacts are those impacts on the environment that result from the incremental impact of the action when added to other past, present, and reasonable foreseeable future actions regardless of the agency or person that performs such actions.

A combination of actions effect the proposed project area ecosystem. Destruction of natural ecosystems has been evident in recreational activities such as off-road vehicle use, hunting, camping, oil, gas, and mineral exploration, livestock grazing, fire, drought, predation, disease, and competition from the introduced bromes, saltcedar, Canada thistle, Russian olive, and Russian knapweed.

The USDA works closely with other federal and state agencies and private landowners to control extremely large grasshopper populations on public and private lands. Grasshopper control within the proposed project area was done most recently in 2010 and will probably be done again in future years.

Herbicides are used to control noxious weeds within the proposed project area. Saltcedar, Canada thistle, Russian olive, and Russian knapweed are routinely treated in the vicinity of the area. Federal, state, and county agencies may be involved in the survey and eradication of noxious weeds.

Oil and gas exploration and production has profoundly modified, over a limited area, the habitat of native plants and animals. There is one permanently abandoned oil well on the Lower Nowater allotment that was plugged in 1931. Within a five mile radius of this abandoned oil well there are 69 others. Fifteen remain productive, and the remainder were permanently abandoned between 1931 and 2008. Many were plugged with no mitigation or revegetation efforts.

Off-road vehicle use has posed a threat to some plant species. Although many factors are contributing to the degradation of natural habitat in the Bighorn Basin, efforts are being made to reverse trends of habitat disruption and the decline of species. Protection for sensitive, threatened, or endangered species is provided by federal and state legislation. Habitat identified to be crucial to the survival of sensitive species may be recommended by federal, state, or local agencies. The Governor's Wildlife Trust fund and the local Sage grouse Working Group offers funding on a competitive basis to perform vegetation and ecosystem treatment to enhance wildlife habitat. The Wyoming Game and Fish Department has applied

to the Governor’s Wildlife Trust fund for money to do an aerial Plateau® treatment of the southern portion of the Lower Nowater allotment.

Management plans provide guidance for the management of a sufficient portion of habitat to maintain viable populations of species in decline.

The direct and indirect effects of the “Proposed Action” are minor and should not significantly add to or increase cumulative impacts. Imazapic is not volatile, and binds weakly to moderately with most soil types. Imazapic is degraded primarily by soil microbial metabolism. The extent to which imazapic is degraded by sunlight is believed to be minimal when applied to terrestrial plants or soil, but it is rapidly degraded by sunlight in aqueous solutions. Imazapic is not degraded by other uncatalyzed chemical reactions in the environment. It is moderately persistent in soils, and has not been found to move laterally with surface water. Residue build up is not anticipated from one to three single treatments. Therefore, the “Proposed Action” will not substantially add to the effects of past, present, and reasonably foreseeable future actions described in the preceding discussion of this EA.

## **CHAPTER 5 PERSONS, GROUPS, AND AGENCIES CONSULTED**

The public will be notified of the proposed action by posting on the Wyoming Internet Homepage. The process used to involve the public will include a public announcement in newspapers in the Bighorn Basin and south central Montana.

### **List of Preparers**

BLM staff specialists who determined the affected resources for this document are listed in Appendix A. Those who contributed further analysis in the body of this EA are listed below.

**Table 5.1. List of Preparers**

#### **BLM Preparers**

<b>Name</b>	<b>Title</b>	<b>Responsible for the Following Section(s) of this Document</b>
Yvonne Warren	Natural Resource Specialist, Fuels and Fire Ecology	Chapters 1,2; Chapter 3, Introduction and General Setting, Resource B: Fuels and Fire Management; Chapter 4, Resource B: Fuels and Fire Management, Cumulative Impacts
Ted Igleheart	Wildlife Biologist	Chapters 3,4, Resource A: Fish and Wildlife Excluding USFW Designated Species
Jared Dalebout	Hydrologist	Chapters 3,4, Resource B: Hydrologic Conditions/ Water Resources/Quality (drinking/surface/ground)/ Wetlands/Riparian Zones /Floodplains Zones
Cam Henrichsen	Rangeland Management Specialist	Chapters 3,4, Resource D: Rangeland Health Standards
Paul Rau	Recreation Specialist	Chapters 3,4, Resource E: Recreation and Visual Resource Management
Steve Kiracofe	Soil Scientist	Chapters 3,4, Resource F:Soils

# APPENDICES

## APPENDIX 1

### INTERDISCIPLINARY TEAM CHECKLIST

**Project Title:** Lower Nowater Allotment Cheatgrass Treatment

**NEPA Log Number:** DOI-BLM-R010-2011-0022-EA (NON Epl)

**RIP System Number:** 012625

**Project Leader:** Yvonne Warren

**DETERMINATION OF STAFF:** *(Choose one of the following abbreviated options for the left column)*

NP = not present in the area impacted by the proposed or alternative actions

NI = present, but not affected to a degree that detailed analysis is required

PI = present with potential for relevant impact that need to be analyzed in detail in the EA

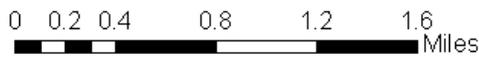
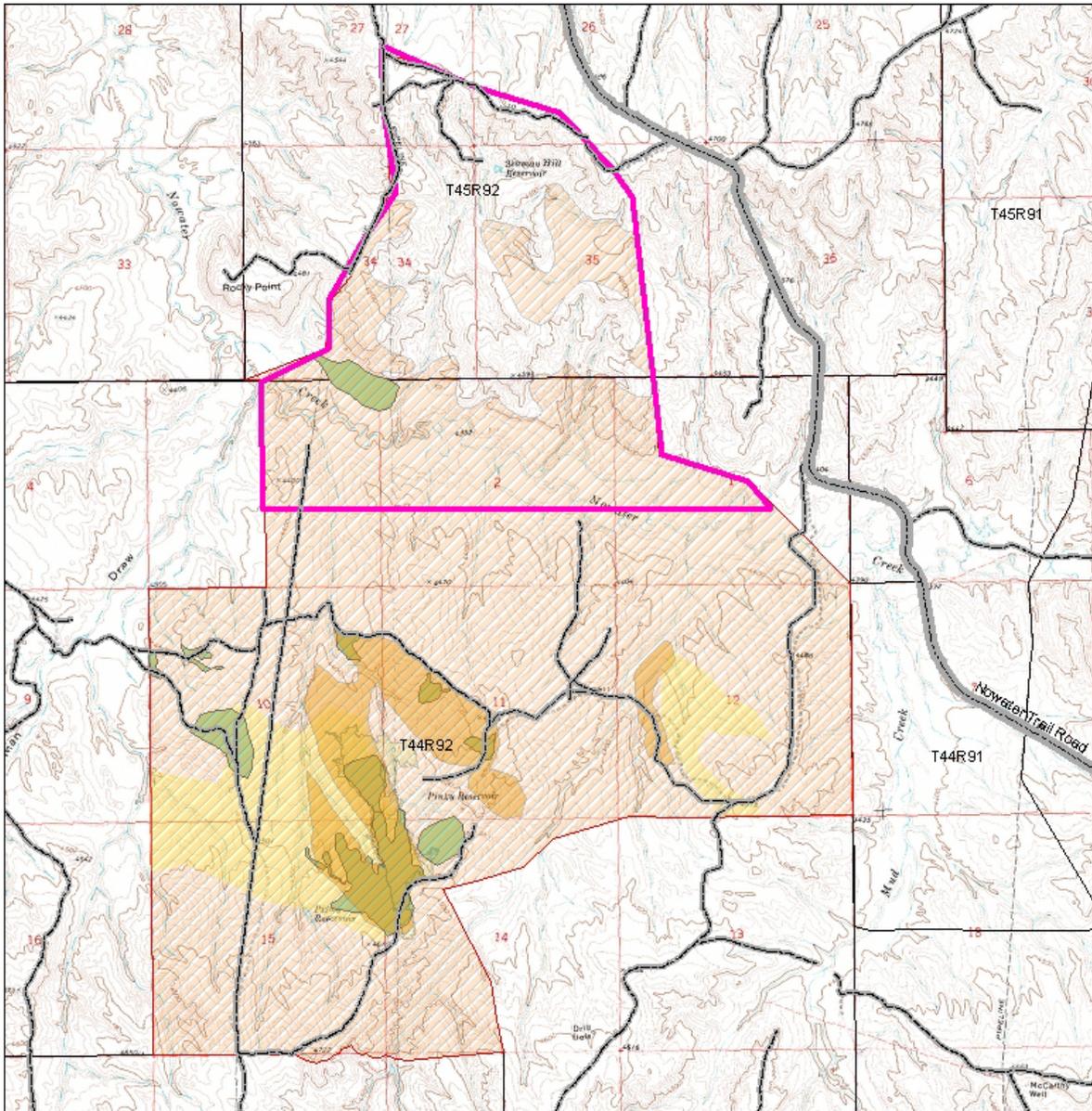
NC = (DNAs only) actions and impacts not changed from those disclosed in the existing NEPA documents cited in Section D of the DNA form. The Rationale column may include NI and NP discussions.

Determination	Resource	Rationale for Determination
NI	Air Quality	Plateau ® pre-emergent herbicide does not volatilize and would not affect air quality within minutes after application
NP	Areas of Critical Environmental Concern	The proposed project area is not designated as an Area of Critical Environmental Concern
NI	Cultural Resources	Project will not affect any known historic properties: Exemption under State Protocol Appendix B.24. Standard cultural stipulations apply
NP	Environmental Justice	There are no environmental justice concerns for the proposed project
NP	Farmlands (Prime or Unique)	There is no prime or unique farmland within the proposed project area
PI	Fish and Wildlife Excluding USFW Designated Species	Analyzed as <b>Resource A:</b> Fish and Wildlife Excluding USFW Designated Species
PI	Floodplains	Analyzed as <b>Resource C:</b> Hydrologic Conditions/ Water Resources/Quality (drinking/surface/ground)/ Wetlands/Riparian Zones /Floodplains Zones
PI	Fuels/Fire Management	Analyzed as <b>Resource B:</b> Fuels/Fire Management
NI	Energy Production	Energy production is discussed in Chapter 3, Affected Environment, Introduction and General Setting and Cumulative Impacts section: Oil wells are plugged and permanently abandoned on the proposed project area
PI	Hydrologic Conditions	Analyzed as <b>Resource C:</b> Hydrologic Conditions/ Water Resources/Quality (drinking/surface/ground)/ Wetlands/Riparian Zones /Floodplains Zones
PI	Invasive Species/ Noxious Weeds	Analyzed as <b>Resource D:</b> Rangeland Health Standards
NP	Lands/Access	No concerns within the proposed project area
PI	Livestock Grazing	Analyzed as <b>Resource D:</b> Rangeland Health Standards
PI	Migratory Birds	Analyzed as <b>Resource A:</b> Fish and Wildlife Excluding USFW Designated Species

Determination	Resource	Rationale for Determination
NP	Native American Religious Concerns	None are known within the project area
NI	Paleontology	Project will not affect any paleontological localities or geological formations with high sensitivity for paleontological resource
PI	Rangeland Health Standards	Analyzed as <b>Resource D:</b> Rangeland Health Standards
PI	Recreation	Analyzed as <b>Resource E:</b> Recreation and Visual Resource Management
NP	Socio-Economics	No concerns for the proposed project.
PI	Soils	Analyzed as <b>Resource F:</b> Soils
NP	Threatened, Endangered or Candidate Plant Species	There are none within the proposed project area
PI	Threatened, Endangered or Candidate Animal Species	Analyzed as <b>Resource A:</b> Fish and Wildlife Excluding USFW Designated Species
NP	Wastes (hazardous or solid)	Not present in proposed project area.
PI	Water Resources/Quality (drinking/surface/ground)	Analyzed as <b>Resource C:</b> Hydrologic Conditions/ Water Resources/Quality (drinking/surface/ground)/ Wetlands/Riparian Zones /Floodplains Zones
PI	Wetlands/Riparian Zones	Analyzed as <b>Resource C:</b> Hydrologic Conditions/ Water Resources/Quality (drinking/surface/ground)/ Wetlands/Riparian Zones /Floodplains Zones
NP	Wild and Scenic Rivers	Not present in proposed project area
NP	Wilderness/WSA	Not present in proposed project area
NP	Woodland / Forestry	Not present in proposed project area
PI	Vegetation Excluding USFW Designated Species	Analyzed as <b>Resource D:</b> Rangeland Health Standards
PI	Visual Resources	Analyzed as <b>Resource E:</b> Recreation and Visual Resource Management
NP	Wild Horses and Burros	Not present in proposed project area
NP	Areas with Wilderness Characteristics	Not present in proposed project area

# APPENDIX 2

## Map 1



**Proposed Lower Nowater Allotment  
Brome Treatment for 2011  
T44N R92W Sec 26,27,34,35  
T45N R92W Sec 1-3,10-12,14,15  
01/03/2011  
E. Warren  
Map 1**

-  Lower Nowater Allotment Boundary
-  2011 Proposed Brome treatment (1569 acres)
-  1996 East Black Mountain Wildfire
-  2004 Pinky Wildfire
-  2000 Aerial Round Up Treatment
-  1997 Drill Seeding
-  Brome Monoculture

**APPENDIX 3**  
**NATIVE GRASS TOLERANCE TO PLATEAU®**



**Tolerance of established grass to Plateau® herbicide, 8 to 12 oz/acre, fall applied.<sup>a</sup>**

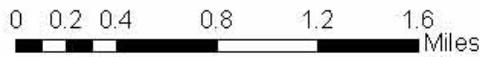
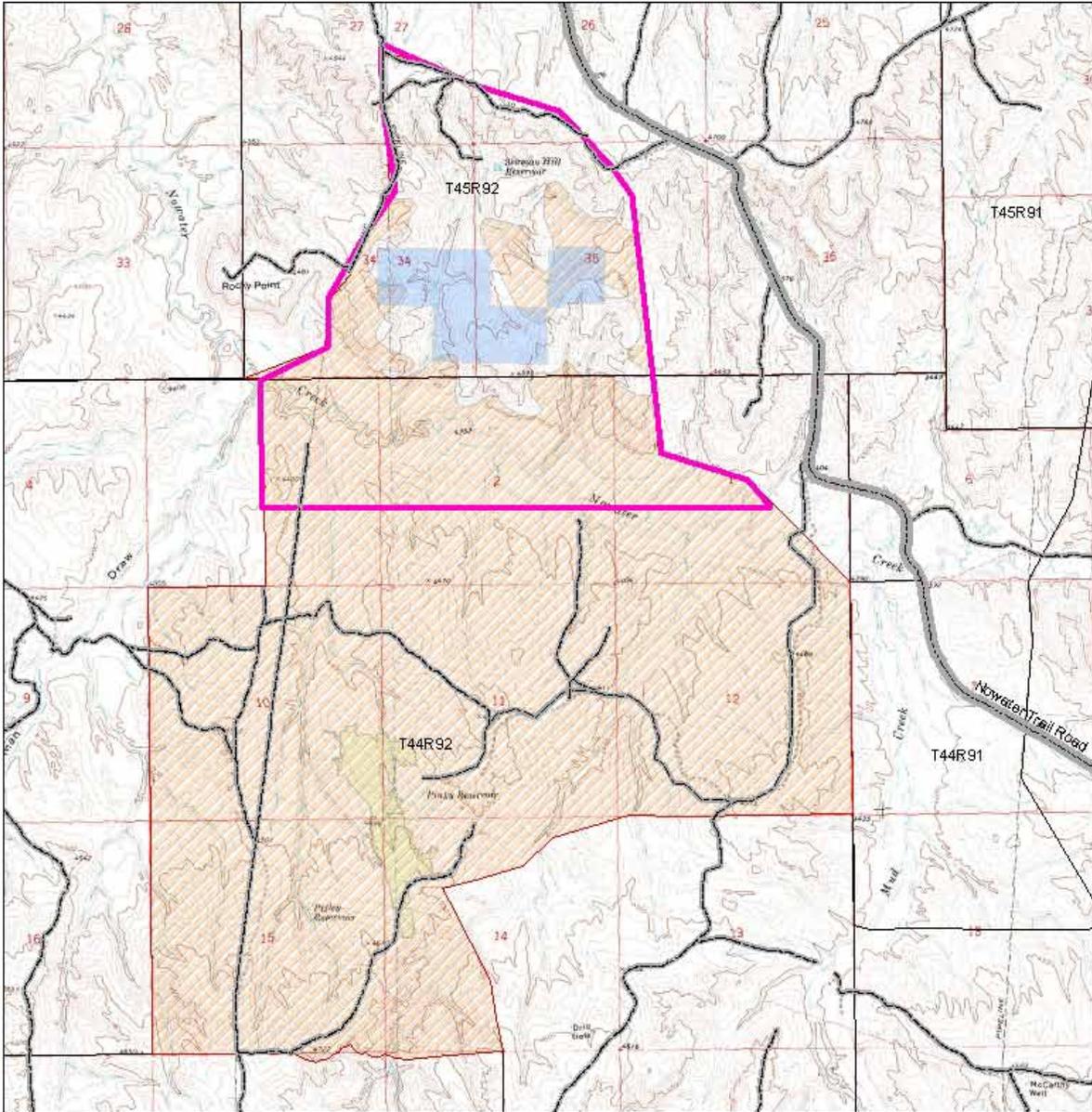
Grass Species	Tolerant	Suppressed <sup>b</sup>	Not Tolerant	Unknown
Bermudagrass	X			
Bluegrass, Kentucky		X		
Bluestem, big	X			
Bluestem, bushy	X			
Bluestem, King Ranch	X			
Bluestem, little	X			
Bluestem, silver beard	X			
Bromegrass, smooth		X		
Broomsedge	X			
Buffalograss	X	X		
Cheatgrass			X	
Creeping foxtail, Garrison				X
Downey brome			X	
Fescue, Idaho	X			
Fescue, tall			X	
Gamagrass, eastern		X		
Grama, blue	X	X		
Grama, sideoats	X	X		
Indiangrass	X			
Medusahead			X	
Needleandthread	X			
Needlegrass, green	X			
Orchardgrass		X		
Prairie cordgrass		X		
Prairie dropseed				X
Prairie sandreed	X			
Prairie threeawn	X			
Quackgrass		X		
Redtop		X	X	
Reed canary grass		X	X	
Rhodes grass/Fingergrass	X			
Rye, annual or Italian			X	
Rye, perennial		X	X	
Switchgrass		X	X	
Timothy			X	
Wheatgrass, bluebunch	X	X		
Wheatgrass, crested	X	X		
Wheatgrass, intermediate	X	X		
Wheatgrass, pubescent	X	X		
Wheatgrass, slender	X	X		
Wheatgrass, stream bank	X	X		
Wheatgrass, western	X	X		
Wild ryegrass, Canada		X		
Wild ryegrass, Virginia		X		

- a. Species with more than one X mean tolerance will vary depending on variety, use rate and environmental conditions.  
b. Suppression may be expressed as reduction in number of seedheads, seedhead height suppression or foliage height reduction; however, results have shown an increase in forage quality and full recovery of the pasture grass.

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APN #03-15-126-0092

**APPENDIX 4**

**Map 2**



**Proposed Lower Nowater Allotment**  
**Brome Treatment for 2011**  
**T44N R92W Sec 26,27,34,35**  
**T45N R92W Sec 1-3,10-12,14,15**  
**01/03/2011**  
**E. Warren**  
**Map 2**

- Lower Nowater Allotment Boundary
- 2011 Proposed Brome treatment (1569 acres)
- 1996 East Black Mountain Wildfire
- 2004 Pinky Wildfire
- Wildfire Protection for Sage grouse