ENVIRONMENTAL ASSESSMENT FOR 3 BLM ALLOTMENTS LOCATED IN THE UPPER SAN JUAN WATERSHED DOI-BLM-NM-F020-2010-0032-EA

PURPOSE AND NEED

One of the major uses of public lands administered by the Bureau of Land Management (BLM) has traditionally been the grazing of cattle, sheep or horses for the benefit of individuals and communities throughout the western United States. Livestock grazing is a provision of public land legislation, including the Taylor Grazing Act, the Endangered Species Act, the Federal Land Policy and Management Act, and the Public Rangelands Improvement Act. To ensure legislative compliance, the BLM needs to provide for livestock grazing in a manner that promotes healthy, sustainable rangeland ecosystems.

This document provides information necessary to determine whether, and under what conditions, the BLM should renew permits for cattle grazing on three allotments within the Upper San Juan watershed for an additional 10 years. The three allotments are being analyzed in one document in order to consider the cumulative effects of livestock on the BLM parcels within the Upper San Juan watershed and to improve the efficiency of the permit renewal process. The allotments addressed in this Environmental Assessment include: #708 Ewell Canyon Lease, #709 Navajo River Lease and #710 Archuleta Mesa. Individual allotment maps are available at the Taos Field Office or can be obtained by visiting www.geocommunicator.gov.

CONFORMANCE WITH PLANS

The proposed permit renewals within this document are in conformance with the Taos Resource Area Management Plan (1988). Livestock grazing impacts were analyzed on a Resource Area wide basis in the Taos Resource Management Plan. An Allotment Evaluation (AE) document has been prepared for each allotment and is available for review at the Taos Field Office.

SCOPE / IDENTIFICATION OF ISSUES

In January of 2009 a meeting was held with the BLM interdisciplinary team to inform them that these permits needed to be renewed, and this warranted a field visit to determine if standards and guidelines are being met in the subject allotments. Also, a letter was sent to the affected lessees (05/04/09) and all interested publics (03/02/09) to inform them that the subject allotments were being visited to assess standards and guidelines. Field evaluations were conducted on 8/5/2009 and 10/15/2009. After the field evaluations were completed and Allotment Evaluations were prepared, the affected permittees and interested public were given an opportunity to provide comments on evaluations from July 12 through August 11, 2009.

Based on these efforts, the following issues have been determined relevant to the analysis of this action and are addressed in the Affected Environment / Environmental Impacts section:

- **Climate**
- **Water Quality**
- **Standards for Rangeland Health**
- **Cultural Resources**
- **Noxious Weeds**
- **Wildlife**
- **Threatened or Endangered Species**
- **Wetlands / Riparian Areas**
- **Social / Economic Issues**
- **Air Quality**
- **Vegetation**

The following issues were considered but dismissed from analysis:

- **Native American Religious Concerns**: There have been no areas of concern identified within the subject allotments. All tribes within the Field Office boundary have received the opportunity to provide information on any areas of concern in or near the subject allotments.

PROPOSED ACTION AND ALTERNATIVES

Proposed Action (same as No Action Alternative)

Re-issue a 100-year term grazing permit without any changes as outlined in Table 1. For additional information, refer to Allotment Evaluation documents available for each allotment at the Taos BLM Field Office.

Table 1. Outline of allotment guidelines for permit renewal

Allotment Number	Livestock Type	Livestock Number	Season of Use	Total Federal Acres	Pastures	Grazing System	Proposed Improvements
708	Cattle	60 39 75	6/20 - 6/29 6/20 - 11/01 6/30 - 11/01	929	1	Summer / fall use	Possible vegetation manipulation by fire, herbicide, or mechanical means **
709	Cattle	40	6/01 - 10/31	800	1	Summer / fall use	N/A
710	Cattle	100	6/01 - 10/15	1,310	1	Summer / fall use	N/A
Monitoring: BLM would continue the rangeland monitoring study program, continue to consult with the grazing permittee on placement of mineral and supplemental feed and continue monitoring for new populations of noxious weeds.							
** These would be addressed in a subsequent NEPA document if and when funding is available.							

Alternative 1, No Grazing:

Do not issue grazing permits for these allotments, thereby suspending livestock grazing.

Location and Maps

708 - Located approximately 7 miles northeast of Lumberton in Rio Arriba County, New Mexico. Elevation on this allotment is roughly between 7,900 and 8,900 feet. The allotment is located on the USGS Monero 7.5 minute series topographic map. T. 32 N., R. 01 E. Sec 15 and 20-22.

709 - Located approximately 3 miles northwest of Lumberton in Rio Arriba County, New Mexico. Elevation on this allotment is roughly between 6,900 and 9,000 feet. The allotment is located on the USGS Dulce 7.5 minute series topographic map. T. 32 N., R. 01 W. Sec 17, 19 and 20.

710 - Located approximately 4 miles northwest of Lumberton in Rio Arriba County, New Mexico. Elevation on this allotment is roughly between 6,900 and 9,100 feet. The allotment is located on the USGS Dulce 7.5 minute series topographic map. T. 32 N., R. 01 W. Sec 7, 18 and 19.

AFFECTED ENVIRONMENT / ENVIRONMENTAL IMPACTS

Air Quality

The Clean Air Act Amendments in 1990 required that all federal actions conform to State Implementation Plans for air quality. The subject allotments are not located in or near a non-attainment area.

Although the subject allotments are not within a non-attainment area, greenhouse gas emissions from non-renewable sources often occur from ranching operations. Greenhouse gases (GHG), including carbon dioxide (CO_2) and methane (CH_4), and the potential effects of GHG emissions on climate, are not regulated by the EPA under the Clean Air Act. However, greenhouse gas emissions are linked to climate change.

Under the **proposed action**, GHG emissions are expected to be generated primarily from vehicles used to

manage cattle operations and may be estimated to be about 10 tons of relevant emission. The BLM recommends using best management practices to reduce these emissions, such as reducing number of trips, keeping vehicles well maintained and purchasing more fuel efficient vehicles. There would be no effect under the **no grazing alternative**.

Climate

In 2001, the Intergovernmental Panel on Climate Change (IPCC) predicted that by the year 2100, global average surface temperatures would increase 1.4 to 5.8°C (2.5 to 10.4°F) above 1990 levels. The National Academy of Sciences (2006) supports these predictions, but has acknowledged that there are uncertainties regarding how climate change may affect different regions. Computer model predictions indicate that increases in temperature will not be equally distributed, but are likely to be accentuated at higher latitudes. Warming during the winter months is expected to be greater than during the summer, and increases in daily minimum temperatures is more likely than increases in daily maximum temperatures. It is not, however, possible at this time to predict with any certainty the causal connection of site specific emissions from the Proposed Action or other alternatives in this EA to impacts on the global/regional climate.

Mean annual temperatures have risen across New Mexico and the southwestern U.S. since the early 20th century. When compared to baseline information, periods between 1991 and 2005 show temperature increases in over 95% of the geographical area of New Mexico. Warming was greatest in the northwestern, central, and southwestern parts of the state. Recurrent research has indicated that predicting the future effects of climate change and subsequent challenges of managing resources in the Southwest is not feasible at this time (USFS, 2008). However, it has been noted that forests at higher elevations in New Mexico, for example, have been exposed to warmer and drier conditions over a ten year period. Should the trend continue, the habitats and identified drought sensitive species in these forested areas and higher elevations may also be affected by climate change (Enquist and Gori).

Under the **proposed action** and the **no action alternative**, monitoring efforts will indicate vegetation shifts, allowing for site specific management modifications to address global climate change impacts.

Standards for Rangeland Health

Field crews completed the Rangeland Health Evaluation Summary Worksheet for all the subject allotments, with subdivision by parcel or distinct ecological site. Results are summarized in Table 2 by Soil/Site Stability, Hydrologic Function and Biotic Integrity and averages by site. In Table 2 each percent is a percent similar indicator score. The indicator score is created by multiplying an assigned value for departure from site descriptions/reference areas by the number of indicators at the level. Departure scores are categorized as: none to slight = 5, slight to moderate = 4, moderate = 3, moderate to extreme = 2 and extreme = 1, thus giving the most similar sites the highest score. For example, if all indicators under Soil/Site Stability were rated none to slight (5), the equation would be: (score) (nine indicators) / 45*100 = 100% similarity, or what is expected based on an Ecological Site Description.

Table 2. Summary of indicators by allotment.

Allotment Number	Observers	Survey Date	Percent of Soil/Site Stability	Percent of Hydrologic Function	Percent of Biotic Integrity	Average Percentage
708	Harmon, Young	06/12/2009	100%	98%	93%	97%
709	Harmon, Young	06/11/2009	84%	82%	91%	86%
710	Harmon, Young	06/10/2009	96%	96%	95%	96%

The Standards are a tool for assessing range condition and are not analyzed under **any alternative** here. The

Taos Field Office uses this tool to identify rangelands that may need extra management attention to maintain or improve health. If an allotment or pasture falls below 80% in the Soil Site Stability, Hydrologic, or Biotic indicators, monitoring should be established to determine the cause(s) of the low rating. When the casual factor is determined to be livestock, grazing would be manipulated and/or range improvements would be implemented to improve conditions. The BLM in consultation with the lessee and various other agencies, through an interdisciplinary effort would develop goals and objectives for the areas that are falling below 80% to improve the condition. These improvements would take place after further planning and proper NEPA analysis is completed.

Soils

The following soils are identified as occurring on the allotments analyzed in the watershed:

Capillo-Carjo-Vamer complex, 3 to 25 percent slopes. These soils consist of loams, with rooting depths greater than 60 inches. Parent material of alluvium and colluvium derived from sandstone and shale comprises these soils. Average annual precipitation in this complex ranges from 16 to 20 inches. Hazards for erosion are slight to severe. Vegetation is characterized by western wheatgrass, pine dropseed, Arizona fescue, ponderosa pine, sideoats grama, Gambel oak and mountain brome.

Hesperus-Pastorius-Chamita complex, 0 to 5 percent slopes. These soils consist of loams, with rooting depths greater than 60 inches. Parent material of alluvium derived from sedimentary and metamorphic rock comprises these soils. Average annual precipitation in this complex ranges from 18 to 22 inches. Hazards for erosion are slight to moderate. Vegetation is characterized by western wheatgrass, blue grama, mountain muhly, Arizona fescue, Perry oatgrass, tufted hairgrass and shrubby cinquefoil.

Lobat-Abreu gravelly loams, 15 to 60 percent slopes. These soils consist of loams, with rooting depths greater than 60 inches. Parent material of Colluvium derived from metamorphic rock comprises these soils. Average annual precipitation in this complex ranges from 25 to 27 inches. Hazards for erosion are slight to severe. Vegetation is characterized by Douglas fir, white fire, Arizona fescue and mountain brome.

Nabor-Elbuck complex, 5 to 35 percent slopes. These soils consist of loams, with rooting depths greater than 60 inches. Parent material of alluvium and colluviums derived from sandstone and shale comprises these soils. Average annual precipitation in this complex ranges from 24 to 26 inches. Hazards for erosion are slight to severe. Vegetation is characterized by ponderosa pine, Arizona fescue, Gambel oak and muttongrass.

Rock outcrop-Bracos complex, 40 to 80 percent slopes. These soils consist of stony loams, with rooting depths between 20 and 30 inches. Parent material of alluvium and colluvium derived from metamorphic rock comprises these soils. Average annual precipitation in this complex ranges from 28 to 30 inches. Hazards for erosion are slight to severe. Vegetation is characterized by Engelmann spruce, Douglas fir, Arizona fescue, mountain brome, snowberry and violet.

Yata-Eody loams, 50 to 80 percent slopes. These soils consist of loams, with rooting depths greater than 60 inches. Parent material of alluvium and colluvium derived from sedimentary and metamorphic rock comprises these soils. Average annual precipitation in this complex ranges from 25 to 27 inches. Hazards for erosion are slight to severe. Vegetation is characterized by Douglas fir, white fire, Arizona fescue, Gambel oak, fendler meadow rue and wild strawberry.

Under current management, soil indicators for the allotments point to good soil condition (Average = 93%) with the lowest Soil and Site Stability rating being 84%, which was in the steeper areas of the 1996 wildfire. (see the 'Standards for Rangeland Health' portion and Table 2).

Based on current knowledge obtained through the Allotment Evaluation process, all the allotments have

satisfactory soil stability. Under current management practices, the **proposed action** would result in no impact or have a positive impact. The **no grazing alternative** would remove livestock from the area and eliminate both the positive and negative impacts of livestock.

Wetlands/Riparian Areas

In allotment #709 there is approximately .25 acres of riparian vegetation located along the Navajo River at the southern extreme of the allotment. This is a result of approximately 175 meters of river segment. Vegetation consists of willows and other hydrophilic vegetation. Livestock use is limited due to its location from private lands controlled by the permittee. Based on current management practices and knowledge of the riparian area of the Navajo River on BLM administered lands the **proposed action** would have no effect on the riparian areas in these allotments. The **no grazing alternative** would result in the removal of any grazing in the riparian areas.

Water Quality

These allotments are located in Hydrologic Unit Code (HUC) 14080101, or the Upper San Juan Watershed, which comprise 80,967 acres in the TFO. Of the acres within the TFO, 3,933 are managed by the BLM. These Hydrologic Units are further divided into smaller HUCs. The allotments analyzed in this document occur in one of these smaller HUCs (Table 3).

Table 3. Summary of BLM allotments by 10 Digit HUC (subwatershed and NMED evaluation unit).

NMED Assessment Unit	Subwatershed	Allotments	BLM Acreage	Percent of Subwatershed
NM-2407.A_00	Navajo River – San Juan River	708, 709, 710	3,079	78%

The New Mexico Environment Department (NMED) has not surveyed or evaluated the Navajo River between the Colorado state line to the boundary of the Jicarilla Pueblo.

Based on the Rangeland Health Evaluation surveys under current management, hydrologic indicators for the allotments point to good hydrologic condition (Average = 92%) with the lowest Hydrologic Function rating being 82% (see the ‘Standards for Rangeland Health’ portion and Table 2). Therefore, there are not any current or likely to be any increased water quality impairments resulting from the **proposed action**. The **no grazing alternative** may or may not reduce probable sources of impairment by removing livestock due to the low number of livestock and the low percentage of federal land.

Vegetation

Vegetation expected for the soils identified in the allotments include: western wheatgrass, pine dropseed, Arizona fescue, sideoats grama, Gambel oak, mountain brome, snowberry, violet species, fendler meadow rue, wild strawberry, blue grama, mountain muhly, sagebrush, Perry oatgrass, tufted hairgrass, shrubby cinquefoil, Douglas fir, white fire, Engelmann spruce, ponderosa pine and other species in smaller amounts.

Grazing may impact vegetation under adverse climate conditions or under poor grazing management. Other impacts to vegetation have been the lack of natural disturbance. It has been determined that the current grazing systems within the subject allotments are not adversely effecting the vegetation. The lowest biotic integrity rating for the subject allotments was 91% similarity to the Ecological Site Description (See section ‘Standards for Rangeland Health and Table 2). Residual impacts of livestock grazing would not change under the **proposed action** due to the moderate removal of current year’s growth on forage species. Therefore, under the **proposed action**, no additional impacts to vegetation are expected. Under the **no grazing alternative**, there would be no measurable vegetative removal from the allotment.

Noxious Weeds

Any time livestock are grazed in other areas and then returned to the allotment or fed non-certified feed there is a risk of introducing exotic or noxious plant species to the allotment. The **proposed action** would not pose additional risks of introduction or spread of noxious weeds beyond those already occurring. Under both the **proposed action** and **no grazing alternative**, weeds could be introduced by road maintenance equipment or recreational activities.

Under the **proposed action**, weeds could be introduced to the allotment through livestock feces, emergency feed, watering equipment or vehicles associated with the management of livestock. The **no grazing alternative**, would limit the risk of new infestation to those caused by human activities and wildlife.

Cultural Resources

Reconnaissance archaeology inventories were carried out within the area of the subject allotments during the spring of 1999. All subject allotments were visited by interdisciplinary teams in 1999 and in 2009. Three lithic scatters were found in allotment #710 (LA 19970, LA 19971 and LA 19972) which date to the Middle and Late Archaic Periods (3200 BC – 800 BC) and the BMIII Period (AD 800 – AD 700). These materials suggest that people have been frequenting this area for thousands of years for hunting and gathering activities. The general area of the allotments was likely used in prehistoric times for hunting and gathering activities and seasonal camp sites. None of the located sites show any damage from current livestock grazing practices. Through literature review, site and survey review it is determined that cultural resources vulnerable to grazing are not located within the subject allotments.

Under the **proposed action** grazing intensity would remain at current levels. Based upon a literature, site and survey files review and the reconnaissance inventory, no direct impacts have been observed to potential cultural resources from current grazing activities. Natural erosion due to ground disturbance could damage sites; these effects may be slightly less under the **no grazing alternative** than the **proposed action**.

Wildlife

The allotments are located in the Intermountain Basins Big Sagebrush Shrubland and Rocky Mountain Montane Mixed Conifer Forest and Woodland, key wildlife habitat types as identified in the Comprehensive Wildlife Conservation Strategy of the New Mexico Department of Game and Fish (2005). Existing habitat with the allotments include pinyon-juniper woodlands, sagebrush steppe, meadows, mixed conifer forest and rock outcrop canyons. The allotments support seasonal home ranges for elk, mule deer, mountain lion, black bear, bobcat, fox, coyote, rodents, bats, raptors, songbirds, amphibians, and a variety of insects. Territories for nesting raptors occur within the allotments also. The region is designated summer range for big game species of elk and deer, and an important refuge for many species of wildlife.

Judicious grazing practices can have positive effects on wildlife and can be a beneficial management tool, including increases in vegetation composition diversity and improvement of forage availability and quality for early to mid-successional wildlife species; creation of patchy habitat with high structural diversity for feeding, nesting and hiding; opening up areas of dense vegetation to improve foraging areas for a variety of wildlife; removing rank, coarse grass that would encourage regrowth and improve abundance of high quality forage for wild ungulates; stimulating browse production by reducing grass biomass; and improving nutritional quality of browse by stimulating plant regrowth (NMDGF 2005).

Studies in northern New Mexico have indicated that total elimination of grazing did not improve range condition on upland or lowland sites when compared with adjacent moderately grazed areas (Holecheck and Stephenson 1985). Smith et al. (1996) found that lightly grazed climax rangelands and conservatively grazed late seral rangelands had similar songbird and total bird populations. They also concluded that wildlife

diversity was higher on the conservatively grazed late seral than the lightly grazed climax rangeland. Studies in southeastern Arizona by Bock et al. (1984) support the hypothesis that conservatively to moderately grazed areas in mid or late seral condition supported greater diversity of wildlife than ungrazed areas in climax condition. Livestock grazing was also shown to enhance forage for elk and manage their distribution by increasing availability and nutritional value of preferred grasses in early growth stages (Holecheck et al. 2004). Best management practices would ensure that forage production within this area can support fish, wildlife and livestock on a sustained basis. The functionality assessment of habitat components is outlined in Table 4.

Table 4. Functionality assessment for Biotic Fauna.

Allotment	Biotic Fauna Rating	Summary
708	Proper Functioning Condition	N/A
709	Proper Functioning Condition	N/A
710	Proper Functioning Condition	N/A

Based on assessment information current livestock grazing is not having an effect on wildlife, thus the **proposed action** would not have a notable adverse impact on wildlife. The **no grazing alternative** would remove all possible competition between wildlife and livestock.

Threatened or Endangered Species

Federally listed threatened (T) and endangered (E) species in Rio Arriba counties include: black-footed ferret (*Mustela nigripes*) (E); Southwestern willow flycatcher (*Empidonax traillii extimus*) (E); interior least tern (*Sterna antillarum*) (E); Rio Grande silvery minnow (*Hybognathus amarus*) (E); and Mexican spotted owl (*Strix occidentalis lucida*) (T). It is determined that there are no federally listed threatened or endangered species likely to be found in the subject allotments.

In Rio Arriba County, the New Mexico meadow jumping mouse (*Zapus hudsonius luteus*), Gunnison's prairie dog (*Cynomys gunnisoni*) (montane subspecies), yellow-billed cuckoo (*Coccyzus americanus*), and Rio Grande cutthroat trout (*Oncorhynchus clarki virginalis*) are all federal Candidate species and BLM Sensitive species. The mountain plover (Charadrius montanus) is a federal Proposed species. None of these species is expected to be found on the subject allotments.

BLM Sensitive species that could occur in the allotments include several bat species, bald eagle (*Haliaeetus leucocephalus*), American peregrine falcon (*Falco peregrinus anatum*), ferruginous hawk (*Buteo regalis*), Western burrowing owl (*Athene cunicularia hyougaea*), and loggerhead shrike (*Lanius ludovicianus*).

There is no designated critical habitat for any species listed by the U.S. Fish and Wildlife Service (USFWS) within the allotments. It is determined that the **proposed action** and **no grazing alternative** would have no impact on federally listed threatened or endangered species, and no adverse affect on federal proposed, candidate or BLM Sensitive species.

Migratory bird species of conservation concern that have the potential to occur on the allotment include burrowing owl, ferruginous hawk, prairie falcon, golden eagle, mountain plover, loggerhead shrike, mourning dove, pinyon jay, Brewer's sparrow, and sage sparrow. The **proposed action** has the potential to have a negative effect upon individual birds, eggs, young and/or the nesting habitat of ground nesting birds; however, there would be no noticeable impact to the population or to the species as a whole. The **no grazing alternative** could have either a beneficial or detrimental effect on individual migratory bird species of concern, depending on the response of range condition and individual species requirements, but affects at the population or species level would not be adverse.

Social / Economic Issues

BLM permits/leases are transferred to qualified applicants at the request of the current permittee/lessee; the BLM has had no influence on the social characterization of those who currently hold these permits. Therefore, it has been determined that neither the **proposed action** nor the **no grazing alternative** would be likely to result in impacts which would occur disproportionately in low-income groups, minorities or Indian tribes. With regard to economics, the **proposed action** would allow the permittee to continue the lifestyle they have known and earn money from cattle operations on federal lands. Suspension of the grazing permit under the **no grazing alternative** would cause monetary losses to the permittee/lessee, in the form of increased costs to rent additional pasture or in purchasing feed.

Cumulative Impacts

Cumulative Actions

Livestock grazing is only one of several disturbance activities within the area. Other possible cumulative actions in conjunction with livestock grazing on BLM administered lands include: historic grazing (grazing prior to the 1976 Federal Land Policy and Management Act and subsequent grazing policy), off-road vehicles use, other recreational use and road construction and maintenance.

Cumulative Effects

Based on current management all the land health standards are being met. Therefore, there would be no measurable cumulative impacts from the **proposed action** or the **no grazing alternative**. Also, BLM land comprises roughly 5% of the area within the Upper San Juan watershed (percentages are relative to lands within Taos Field Office). The subject allotments cover roughly 77% of the BLM land in the Upper San Juan watershed and 4% of the total land mass of this watershed. Due to the percentages of federal land involved, land health standards being met and no changes being made to livestock management on these allotments, there would be no measurable cumulative impacts from the **proposed action** or the **no grazing alternative**.

Consultation and Coordination

This Environmental Assessment has been provided by mail or on-line to all individuals or organizations who have notified the Taos Field Office of their interest. These individuals or organizations are given 15 days to make comments on the accuracy of this document.

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This document was prepared and reviewed by a team from the Taos Field Office. They include:
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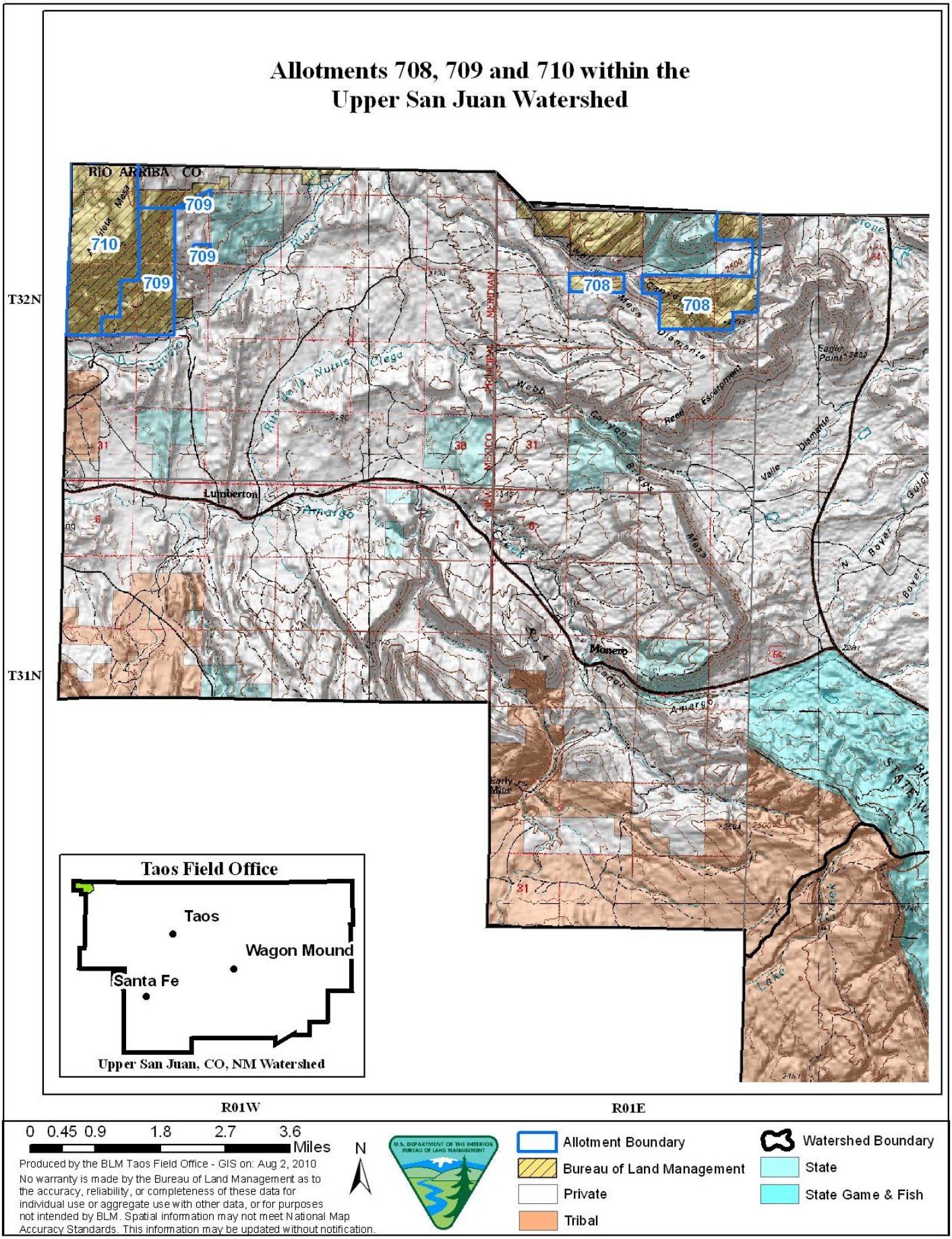

Figure 1. Map of subject allotments.